





Study on Environmental Fiscal Reform Potential in 14 EU Member States: Main Report

N° 07.0201/2014/685390/ENV.D.2 Final Report to DG Environment of the European Commission

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EXECUTIVE SUMMARY

E.1.0 Introduction

The 2015 European Semester round began with the adoption of the Annual Growth Survey (AGS) in November 2014. The AGS contains priorities which should be addressed in the National Reform Programmes (NRPs) which are due by the end of April 2015. Subsequently, the Commission will propose a series of Country Specific Recommendations (CSRs) accompanied by an analysis in the form of Commission Staff Working Documents (SWDs) for each Member State.¹ The CSRs will be discussed and subsequently adopted following endorsement by the European Council in June/July. It is intended that this study may feed into the development of the CSRs for 2015.

The 2015 AGS acknowledges that "employment and growth can be stimulated by shifting the tax burden away from labour towards other types of taxes which are less detrimental to growth, such as recurrent property, environment and consumption taxes" .² The AGS sets out three pillars that will underpin the EU's economic and social policy for 2015:

- > A coordinated response to boosting investment;
- > A renewed commitment to structural reforms; and
- > The pursuance of fiscal responsibility.

Environmental taxes (together with consumption and recurrent property taxes) are considered less detrimental to growth than other taxes such as on labour or corporate income and are increasingly promoted in the context of economic recovery and growth-friendly fiscal consolidation.³ The references to more growth friendly tax systems, and the expressed desire to promote more efficient use of both energy and other resources, point towards the centrality of environmental fiscal reform (EFR) as a means to set the European economy on a trajectory of growth with a strong shade of green.

E.2.0 Aims

This study, undertaken by Eunomia Research & Consulting (Eunomia) in conjunction with Professor Mikael Skou Andersen of Aarhus University and the Institute for European Environmental Policy (IEEP), has, as its central aim, to:

"... provide empirical data or secondary sources on the potential economic and social benefits of environmental fiscal reform, to support the input in the European Semester process on environmental protection and resource efficiency".

³ See for example: DG TAXUD (2013) Tax Reforms in EU Member States 2013 - Tax Policy Challenges for Economic Growth and Fiscal Sustainability, Working Paper No. 38 - 2013



¹ The 'Programme countries' (Cyprus, Greece, Portugal) follow a slightly different procedure.

² European Commission (2014) *Annual Growth Survey 2015*, November 2014, <u>http://ec.europa.eu/europe2020/pdf/2015/ags2015_en.pdf</u>, p. 15

The specification elaborates on this as follows:

"The task includes presenting data on the potential of revenues from environmental taxation and other indirect benefits such as job creation resulting from EFR in 14 selected countries, using the methodology the EEA has developed and which was also applied to the study published on 03.03.14 for 12 Member States".

The following 14 Member States were included in this study:

- > Bulgaria
- Cyprus
- > Denmark
- Finland
- > Germany
- ➢ Greece
- Ireland

- 🕨 Latvia
- > Malta
- Netherlands
- Slovenia
- Spain
- Sweden
- United Kingdom

The approach taken in this study was to highlight the potential for revenue generation from environmental taxes using a methodology that Eunomia and Professor Mikael Skou Andersen developed as part of an earlier study published in March 2014.⁴ This study in turn built on work by the European Environment Agency between 2010 and 2013 on the potential for environmental fiscal reform in four EU Member States affected by the economic crisis.⁵ As with the last study for the European Commission, the intention of this study is to indicate where this potential may lie, and to demonstrate the order of magnitude of the revenues that could be derived from environmental taxes in each Member State if they are applied at rates proposed in this work. It should be mentioned that these rates do not constitute some 'upper bound' for each environmental tax, and that Member States may well seek to implement rates which exceed, or are lower than, those upon which the revenue calculations are based. The proposed timeline for implementation may also differ from that suggested here, which assumes a relatively swift application of the proposed taxes, whereas in practice, the final timeline for introduction of EFR will vary depending on various factors. Finally, whilst it is recognised that not all Member States are likely to be equally interested in all the suggested taxes, no attempt is made to understand which may be of greatest interest to a given Member States. The suggestions for reform set out in this study are meant to provide a stimulus for a general discussion on EFR and identify potential areas for exploration which could be taken forward where relevant.

E.3.0 Approach

As noted above, the approach adopted in this study was in line with that used for the review of 12 Member States undertaken in 2013/14 for the European Commission, the

⁴ Eunomia Research & Consulting, and Aarhus University (2014) Study on Environmental Fiscal Reform Potential in 12 EU Member States, Report for European Commission - DG Environment, February 2014, <u>http://ec.europa.eu/environment/integration/green_semester/pdf/EFR-Final%20Report.pdf</u>

⁵ Reports can be downloaded from: European Environment Agency (undated) Green Fiscal Reform Can Create Jobs and Stimulate Innovation Across the EU, www.eea.europa.eu/highlights/fiscal-reform-cancreate-jobs

only significant difference being that environmentally harmful subsidies were not included as part of this work. The approach that has been taken is shown graphically in Figure E-1-1. From this it can be seen that the study was divided into three core stages:

- Stage 1 this initial stage aimed to gather all the relevant baseline information for the study and included gathering information on existing environmental taxes in each Member State (see Sections 7.0 to 20.0 of the Main Report), reviewing 'good practice' in Europe (Section 5.0), identifying some of the indirect benefits associated with environmental taxes (Section 6.0), and undertaking a literature review of the impacts of EFR on employment (Appendix A.4.0). Section 4.0 of the Main Report provides some commentary on the key issues that were faced in gathering this information.
- Stage 2 in this stage a number of suggested reforms to the tax system were developed for each Member State (Sections 7.0 to 20.0). These were based around rates suggested as a result of the review of good practice. It is worth reiterating that Member States may well choose to implement higher or lower rates, and it is recognised that some Member States will also be more inclined to increase / introduce some taxes than others. The study makes no attempt to make judgements of this nature, but rather, indicates the potential for revenue generation through such taxes;
- Stage 3 as part of this stage a model was developed to determine the baseline situation in each Member State, and to estimate how much additional revenue could be raised for each of the suggested changes outlined in Stage 2 relative to the baseline, as well as for the overall package of suggestions put forward for each Member State (Sections 7.0 to 20.0). The report was then sent to Member State representatives for a final review.
- Stage 4 this final stage involved finalising the report based on the comments of review by Member State representatives.







E.4.0 Key Findings

All figures are given in real (2014) terms. For the group as a whole, additional revenue generated in 2017 from environmental taxes is estimated to be around €38 billion, or 0.48% of the estimated GDP for the 14 countries combined, rising to €111 billion in 2025 (in real 2014 terms), or 1.39% of the combined GDP. Additional analysis, regarding increasing cost recovery in water supply and treatment services and through HGV externality charging, indicates an additional revenue potential of over €23 billion per annum (in real 2014 terms).

Table E-1-1, Table E-1-2 and Table E-1-3 below show the split of revenue generation from different types of environmental taxes suggested for implementation in the 14 Member States. The majority of the overall increase comes from additional taxes on transport

(excl. transport fuels) (0.80% of GDP). Additional revenue generated from increasing energy excise duties amounts to 0.35% of GDP. Finally, an increase of 0.24% of GDP is estimated from increased taxes on pollution and resources.

Table E-1-1: Revenue Generated from Energy Taxes by the 14 Member States in 2025, % GDP and € billion (real 2014 terms)

Energy Tax	% GDP	€, billion
Energy Excise Duties - Transport fuels	0.24%	19.37
Energy Excise Duties - C&I / Heating	0.07%	5.66
Energy Excise Duties - Electricity	0.03%	2.62
Total Energy Taxes	0.35%	28

Table E-1-2: Revenue Generated from Transport (excl. transport fuels) Taxes by the 14 Member States in 2025, % GDP and € billion (real 2014 terms)

Transport Tax	% GDP	€, billion
Vehicle Taxes	0.57%	45.46
Passenger Aviation Tax	0.23%	18.58
Freight Aviation Tax	0.00013%	0.010
Total Transport (excl. transport fuels) Taxes	0.80%	64

Table E-1-3: Revenue Generated from Pollution and Resource Taxes by the 14 Member States in 2025, % GDP and € billion (real 2014 terms)

Pollution/Resource Tax	% GDP	€, billion
Landfill Tax - Non-haz (excl. C&D)	0.01%	0.88
Landfill Tax - Inerts (C&D)	0.0006%	0.04
Incineration / MBT Tax	0.01%	0.92
Air Pollution Tax	0.03%	2.06
Water Abstraction Tax	0.11%	8.81
Waste Water Tax	0.02%	1.34
Pesticides Tax	0.02%	1.58
Aggregates Tax	0.02%	1.53
Packaging Tax	0.02%	1.61



Pollution/Resource Tax	% GDP	€, billion
Single Use Bag Tax	0.01%	0.42
Fertiliser Tax	0.00001%	0.001
Total Pollution and Resource Taxes	0.24%	19

Potential revenue generated in the 14 Member States from increasing environmental taxes is given in Table E-1-4. The size of the economies in the different countries clearly influences the amount of revenue that is estimated to be generated.

Table E-1-4: Revenue Generation by Member State for Selected Years, € million (real 2014 terms)

Member State	2017	2020	2025
Bulgaria	528	921	946
Cyprus	212	379	425
Denmark	851	1,585	1,809
Finland	1,502	2,581	3,110
Germany	14,278	33,821	41,375
Greece	1,239	2,326	2,889
Ireland	701	1,680	2,010
Latvia	250	485	642
Malta	93	212	280
Netherlands	2,815	6,779	9,405
Slovenia	134	228	299
Spain	9,667	23,550	28,390
Sweden	1,967	5,450	6,583
United Kingdom	4,065	10,207	12,743
Total	38,301	90,204	110,908

Expressed as a proportion of GDP, the revenues are shown in Table E-1-5. In the year 2025, the estimated additional revenue generation from the environmental taxes lies between 0.62% of GDP (United Kingdom) and 3.68% GDP (Malta). The estimated increases for the other 12 countries considered all lie within the range 0.69% GDP to 2.7% GDP.

The environmental benefits associated with these changes have been estimated, though this analysis does not capture all the external benefits associated with the changes as this depends on a number of factors including the specificities of design and implementation of the taxes, revenue use, etc.

Table E-1-6 indicates that these benefits lie between 0.02% GDP (UK, NL, DK) and 0.81% GDP (Latvia) in 2025. The patterns of the benefits reflect the sources of the additional tax revenue.

Member State	Total Environmental Taxes in 2012, % GDP	Total Additional from Environmental Taxes in 2025, % GDP
Bulgaria	2.82%	2.19%
Cyprus	2.67%	2.64%
Denmark	3.87%	0.69%
Finland	3.07%	1.52%
Germany	2.18%	1.43%
Greece	2.85%	1.53%
Ireland	2.49%	1.15%
Latvia	2.42%	2.47%
Malta	2.98%	3.68%
Netherlands	3.56%	1.51%
Slovenia	3.82%	0.85%
Spain	1.57%	2.70%
Sweden	2.49%	1.50%
United Kingdom	2.62%	0.62%
EU-average	2.29%	
EU-Maximum	3.87%	

Table E-1-5: Revenues Generated from Environmental Taxes by Member State, % GDP

Table E-1-6: Estimated Indirect Benefits from Reduced Environmental Impacts, 2025, % GDP and € millions (real 2014 terms)

Member State	% GDP	€, million
Bulgaria	0.71%	392
Cyprus	0.31%	59



Member State	% GDP	€, million
Denmark	0.02%	67
Finland	0.06%	164
Germany	0.10%	3,487
Greece	0.45%	891
Ireland	0.05%	96
Latvia	0.81%	268
Malta	0.27%	26
Netherlands	0.02%	189
Slovenia	0.09%	35
Spain	0.14%	1,557
Sweden	0.04%	201
United Kingdom	0.02%	408

Table E-1-7: Revenue Generation by Member State from Cost Recovery in Water Services and HGV Externality Charging, € million (real 2014 terms)

Member State	Water Cost Recovery	HGV Externality Charge	Total
Bulgaria	496	133	629
Cyprus	5	54	59
Germany	0	1,346	1,346
Denmark	0	110	110
Greece	1,420	290	1,710
Spain	7,083	1,927	9,010
Finland	1,171	212	1,383
Ireland	1,368	87	1,455
Latvia	65	70	135
Malta	66	5	71
Netherlands	1,517	306	1,823
Sweden	1,422	137	1,559

Member State	Water Cost Recovery	HGV Externality Charge	Total
Slovenia	55	54	109
United Kingdom	3,205	844	4,049
Total	17,873	5,576	23,449

Table E-1-7 shows the revenue generation by Member State from cost recovery in water services and HGV externality charging. The figures are separated from the main results as the analysis was additional to the work carried out in the first study on 12 Member States. Thereby ensuring the high level figures between the two studies are consistent.

E.5.0 Jobs

In respect of job creation, a detailed analysis of this is beyond the scope of this study, but a review of the potential effect of EFR on employment has been undertaken (and this can be found in Appendix A.4.0). This indicates that on balance, the impacts are likely to be positive where environmental taxes effectively replace taxes such as those on employment. This is an explicit objective in many cases of EFR (where revenue from environmental taxes is matched by reductions in other taxes of the same magnitude), but it may be implicit in some circumstances where there is a need for fiscal consolidation (i.e. where the choice is between raising revenue through environmental taxes, or raising other forms of tax).

E.6.0 Administrative Costs

Some concerns have been raised in the countries covered by this study regarding the administrative costs of some existing environmental taxes. A brief review indicates that many such taxes have relatively low administrative costs (compared with other taxes). This may be related, in part, to the nature of some such taxes (for example, where they are oriented around market transactions, as with taxes on energy carriers). Not all such taxes are of this nature. It is suggested that where possible, Member States should make use of the existing administrative apparatus to collect revenues so as minimise related administrative costs. This might include making use of existing reporting or monitoring obligations. Where such obligations do not exist, the taxes can help drive the provision, and capture of, data which has some value in itself beyond that of the revenue generated by the tax.⁶

⁶ Hogg, D. (1999) *The Effectiveness of the UK Landfill Tax: Early Indications*. In Thomas Sterner (ed.) The Market and the Environment: Environmental Implications of Market-Based Policy Instruments, Cheltenham: Edward Elgar.



ZUSAMMENFASSUNG

E.1.0 Einführung

Das Europäische Semester 2015 begann mit der Annahme des Jahreswachstumsberichts in November 2014. Der Wachstumsbericht enthält Prioritäten, die in den bis Ende April 2015 vorzulegenden nationalen Reformprogrammen Berücksichtigung finden sollen. In einem nächsten Schritt wird die Kommission für jedes Mitgliedsland eine Reihe von landesspezifischen Empfehlungen abgeben.⁷ Begleitet werden diese durch eine Analyse in der Form von Arbeitspapieren der Kommission. Die landesspezifischen Empfehlungen können nach Erörterung und Annahme durch den Europäischen Rat im Juni/Juli 2015 zur Umsetzung kommen. Die vorliegende Studie soll in die Entwicklung der landesspezifischen Empfehlungen im Jahr 2015 einfließen.

Der Jahreswachstumsbericht 2015 stellt fest, dass Beschäftigung und Wachstum durch eine Verschiebung der Steuerlast weg von Arbeit hin zu anderen Steuerarten, die weniger wachstumsschädlich sind, gefördert werden können, wie etwa Immobilien-, Umwelt- und Konsumsteuern.⁸ Der Jahreswachstumsbericht benennt drei Säulen, auf denen die Wirtschafts- und Sozialpolitik der EU für 2015 ruht:

- > Ein koordiniertes Vorgehen, um Investitionen zu fördern,
- ein erneuertes Bekenntnis zu Strukturreformen und
- > die Verfolgung einer verantwortungsbewussten Haushaltspolitik.

Umweltsteuern, gemeinsam mit Steuern auf den Konsum und einer regelmäßigen Besteuerung von Immobilienvermögen, werden als weniger wachstumsschädlich angesehen, als andere Steuern wie auf Arbeit oder die Besteuerung von Unternehmen. Folglich finden Umweltsteuern im Kontext wirtschaftlicher Erholung und einer wachstumsfreundlichen Haushaltskonsolidierung ihren Anklang.⁹ Die Stoßrichtung eines wachstumsfreundlicheren Steuersystems, wie auch der ausdrückliche Wunsch nach einer effizienten Nutzung von Energie und anderen Ressourcen, verdeutlichen die zentrale Bedeutung einer umweltorientierten Fiskalreform als ein Mittel um die europäische Wirtschaft auf einen "grünen" Wachstumspfad zu lenken.

E.2.0 Ziele

Diese Studie, durchgeführt durch Eunomia Research & Consulting (Eunomia), in Zusammenarbeit mit Professor Mikael Skou Andersen (Universität Århus) und dem Institute for European Environmental Policy (IEEP), hat als Hauptziel

"... empirische Daten oder sekundäre Quellen zu den potenziellen ökonomischen und sozialen Nutzen einer umweltorientieren Fiskalreform zusammenzutragen, die

⁷ Die "Programmländer" (Zypern, Griechenland, Portugal) folgen einer leicht veränderten Prozedur.

⁸ European Commission (2014) Annual Growth Survey 2015, November 2014, http://ec.europa.eu/europe2020/pdf/2015/ags2015_en.pdf, p. 15

⁹ Vgl. DG TAXUD (2013) Tax Reforms in EU Member States 2013 - Tax Policy Challenges for Economic Growth and Fiscal Sustainability, Working Paper No. 38 - 2013

zu Fragen des Umweltschutzes und der Ressourceneffizienz im Rahmen des Europäischen Semesters Eingang finden."

Die Aufgabenbeschreibung erläutert dies wie folgt:

"Die Aufgabe umfasst die Ermittlung von Daten zum potenziellen Aufkommen von Umweltsteuern und anderen indirekten Nutzen wie der Schaffung von Arbeitsplätzen durch eine umweltorientierte Fiskalreform in 14 ausgewählten Staaten, unter Nutzung der von der Europäischen Umweltagentur entwickelten Methodologie, welche auch in der am 03.03.2014 veröffentlichten Studie für 12 Mitgliedstaaten angewendet wurde."

Für diese Studie wurden die folgenden 14 Mitgliedstaaten berücksichtigt:

- > Bulgarien
- > Zypern
- > Dänemark
- Finnland
- Deutschland
- Griechenland
- Irland

- Lettland
- Malta
- Niederlande
- > Slowenien
- Spanien
- Schweden
- Vereinigtes Königreich

Diese Studie beleuchtet das Aufkommenspotenzial von Umweltsteuern unter Nutzung einer Methodologie, die durch Eunomia und Professor Mikael Skou Andersen im Rahmen einer früheren Studie entwickelt wurde. Diese wurde im März 2014 veröffentlicht.¹⁰ Sie baute wiederum auf einer Arbeit der Europäischen Umweltagentur zwischen 2010 und 2013 zum Potenzial einer umweltorientierten Fiskalreform in vier EU Mitgliedstaaten auf, die durch die Wirtschaftskrise betroffen waren.¹¹

Wie in der letzten Studie für die Europäische Kommission, soll in dieser Studie aufgezeigt werden, wo diese Potenziale liegen könnten und in welcher Größenordnung sich das Aufkommenspotenzial in jedem Mitgliedstaat bewegen könnte, wenn Umweltsteuern im in dieser Arbeit vorgeschlagenen Steuersätzen erhoben würden. Diese Steuersätze stellen jedoch keinen oberen Wert für die jeweilige Umweltsteuer dar. Vielmehr steht es den Mitgliedstaaten frei, Steuersätze zu erheben, die die Sätze über- oder unterschreiten auf denen die Aufkommensberechnungen basieren. Auch kann der verfolgte Zeitplan für die Umsetzung von dem hier vorgeschlagenen Zeitplan abweichen, welcher eine vergleichsweise zügige Anwendung der vorgeschlagenen Steuern annimmt. In der Praxis wird der Fahrplan einer umweltorientierten Fiskalreform von verschiedenen Faktoren abhängen. Zu beachten ist auch, dass nicht alle Mitgliedstaaten in gleicher Weise an den vorgeschlagenen Steuern Interesse zeigen werden, wobei kein Versuch unternommen wird, herauszuarbeiten, welche Umweltsteuern für den jeweiligen Staat von besonderem Interesse sein könnten. Die in dieser Studie vorgeschlagenen Reformen sollen eine allgemeine Diskussion zu einer umweltorientierten Fiskalreform anregen und Bereiche identifizieren, die weiter erörtert und vertieft werden können.

¹⁰ Eunomia Research & Consulting und Aarhus University (2014) *Study on Environmental Fiscal Reform Potential in 12 EU Member States*, Report for European Commission - DG Environment, February 2014, <u>http://ec.europa.eu/environment/integration/green_semester/pdf/EFR-Final%20Report.pdf</u>

¹¹ Europäische Umweltagentur, http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs

E.3.0 Vorgehen

Wie oben erläutert, folgt diese Studie der Methode, wie sie bereits für die Betrachtung der 12 Mitgliedstaaten im Auftrag der EU Kommission im Jahr 2013 verwendet wurde. Ein Unterschied liegt darin, dass umweltschädliche Subventionen in dieser Arbeit nicht untersucht werden. Die Abbildung E-1-1 verdeutlicht den gewählten Ansatz. Die Studie wurde in vier Schritten durchgeführt:

- Schritt 1 Dieser erste Schritt zielte auf die Sammlung von relevanten Basisdaten für die Studie ab. Er beinhaltete die Zusammenstellung von Informationen zu bestehenden Umweltsteuern in jedem Mitgliedstaat (vgl. Abschnitte 7.0 bis 20.0 des Endberichts), die Bewertung der ,guten Praxis' in Europa (Abschnitt 5.0), die Identifizierung einiger der mit Umweltsteuern verbundenen indirekten Nutzen (Abschnitt 6.0) und die Durchführung einer Literaturauswertung zu den Beschäftigungswirkungen einer umweltorientierten Fiskalreform (Anhang A.4.0). Der Abschnitt 4.0 des Endberichts enthält Anmerkungen zu den wichtigsten Herausforderungen, die bei der Zusammenstellung dieser Informationen auftraten.
- Schritt 2 In diesem Schritt wurde eine Reihe von denkbaren Reformen des Steuersystems für jeden Mitgliedstaat entwickelt (Abschnitte 7.0 bis 20.0). Die vorgeschlagenen Steuersätze wurden in Anlehnung an die ermittelte ,gute Praxis' gewählt. Es sollte nochmals festgestellt werden, dass es jedem Mitgliedstaat frei steht, höhere oder niedrigere Steuersätze einzuführen. Ebenso ist denkbar, dass einige Mitgliedstaaten geneigt sind, bestimmte Steuern gegenüber anderen zu bevorzugen. Die Studie gibt an dieser Stelle keine Bewertung ab. Vielmehr zeigt sie das Aufkommenspotenzial einer solchen Besteuerung auf.
- Schritt 3 Als Teil dieses Schrittes wurde ein Modell entwickelt, um die Ausgangssituation in jedem Mitgliedstaat zu ermitteln und um zu schätzen, welches zusätzliche Aufkommen für die einzelnen Steuern, wie auch für das gesamte Steueraufkommen durch die in Schritt 2 vorgeschlagenen Veränderungen in Vergleich zur Referenzentwicklung erzielt werden könnte (Abschnitte 7.0 bis 20.0). Der Bericht wurde anschließend an die Vertreter der Mitgliedstaaten für eine abschließende Bewertung übermittelt.
- Schritt 4 In diesem Schritt wurde der Abschlussbericht unter Einbeziehung der Kommentare der Vertreter der Mitgliedstaaten erstellt.

Abbildung E-1-1: Untersuchungsansatz und Vorgehen



E.4.0 Wesentliche Ergebnisse

Alle Zahlenangaben beziehen sich auf reale Werte für das Jahr 2014. Für die Gesamtheit der 14 betrachteten Mitgliedstaaten beläuft sich das geschätzte zusätzliche Aufkommen an Umweltsteuern auf rund €38 Mrd. Dies entspricht 0,48% des geschätzten BIP. Dieser Wert steigt auf rund €111 Mrd. Im Jahr 2025 an (in realen Werten für 2014), beziehungsweise auf 1,39% des BIP der betrachteten Länder. Eine weitergehende Analyse, die einen zunehmenden Kostendeckungsgrad in der Wasserversorgung und Abwasserbeseitigung und eine Besteuerung der Externalitäten durch den Schwerlastverkehr zugrunde legt, zeigt ein zusätzliches Aufkommenspotenzial von mehr als €23 Mrd. jährlich auf (in realen Werten für 2014).

Die Tabellen E-1-1, E-1-2 und E-1-3 zeigen die Aufteilung des Einnahmeaufkommens nach verschiedenen Arten von Umweltsteuern, die zur Umsetzung in den 14



Mitgliedstaaten vorgeschlagen werden. Der Hauptteil des zusätzlichen Aufkommens entfällt auf zusätzliche Steuern im Verkehrsbereich (ohne Kraftstoffe) (0,80% des BIP). Das zusätzliche Aufkommen durch höhere Energieverbrauchsteuern beträgt etwa 0,35% des BIP. Weiterhin wird eine Zunahme des BIP um 0,24% durch höhere Steuern auf Umweltverschmutzung und Ressourcenverbrauch erwartet.

Tabelle E-1-8: Aufkommen durch Steuern im Energiesektor in 14 Mitgliedstaaten im Jahr 2025, in Prozent des BIP und in Mrd. (reale Werte für 2014)

Steuern im Energiesektor	% BIP	€, Mrd.
Verbrauchsteuern auf Energie - Kraftstoffe	0,24%	19,37
Verbrauchsteuern auf Energie - Gewerbe & Industrie / Wärme	0,07%	5,66
Verbrauchsteuern auf Energie - Elektrizität	0,03%	2,62
Steuern im Energiesektor gesamt	0,35%	28

Tabelle E-1-9: Aufkommen durch Steuern im Verkehrssektor (ohne Kraftstoffe) in 14 Mitgliedstaaten im Jahr 2025, in Prozent des BIP und in Mrd. (reale Werte für 2014)

Steuern im Verkehrssektor	% BIP	€, Mrd.
Kraftfahrzeugsteuer	0,57%	45,46
Luftverkehrsteuer (Passagiere)	0,23%	18,58
Luftverkehrsteuer (Fracht)	0,00013%	0,010
Steuern im Verkehrssektor gesamt (ohne Kraftstoffe)	0,80%	64

Tabelle E-1-10: Aufkommen durch Steuern auf Umweltverschmutzung und Ressourcenverbrauch in 14 Mitgliedstaaten im Jahr 2025, in Prozent des BIP und in Mrd. (reale Werte für 2014)

Umwelt-/Ressourcensteuer	% BIP	€, Mrd.
Deponien (keine Gefahrstoffe) - keine Inertstoffe	0,01%	0,88
Deponien - Inertstoffe	0,0006%	0,04
Abfallverbrennung / Mechanisch-biologische Abfallbehandlung	0,01%	0,92
Luftverschmutzung	0,03%	2,06
Wasserentnahme	0,11%	8,81
Abwasser	0,02%	1,34

Umwelt-/Ressourcensteuer	% BIP	€, Mrd.
Pestizide	0,02%	1,58
Zuschlagstoffe	0,02%	1,53
Verpackungen	0,02%	1,61
Einwegtüten	0,01%	0,42
Düngemittel	0,00001%	0,001
Steuern auf Umweltverschmutzung und Ressourcenverbrauch	0,24%	19

Tabelle E-1-4 stellt das potenzielle Aufkommen durch die Erhöhung bestehender Umweltsteuern dar. Dabei steht das erwartete Steueraufkommen in den einzelnen Ländern in engem Zusammenhang mit der jeweiligen Wirtschaftsleistung.

Tabelle E-1-11: Steueraufkommen na	ch Mitgliedstaat für	r ausgewählte Jahre	e in € Mrd.
(reale Werte für 2014)			

Mitgliedstaat	2017	2020	2025
Bulgarien	528	921	946
Zypern	212	379	425
Dänemark	851	1.585	1.809
Finnland	1.502	2.581	3.110
Deutschland	14.278	33.821	41.375
Griechenland	1.239	2.326	2.889
Irland	701	1.680	2.010
Lettland	250	485	642
Malta	93	212	280
Niederlande	2.815	6.779	9.405
Slowenien	134	228	299
Spanien	9.667	23.550	28.390
Schweden	1.967	5.450	6.583
Vereinigtes Königreich	4.065	10.207	12.743
Gesamt	38.301	90.204	110.908



Tabelle E-1-5 zeigt das Aufkommen in % des BIP auf. Im Jahr 2025 liegt das geschätzte zusätzliche Aufkommen durch Umweltsteuern zwischen 0,62% (Vereinigtes Königreich) und 3,68% (Malta). Für die anderen betrachteten 12 Länder liegt die geschätzte Zunahme zwischen 0,69% und 2,7% des BIP.

Der indirekte Nutzen, der mit diesen Veränderungen für die Umwelt einhergeht wurde abgeschätzt, wobei diese Analyse nicht alle externen Nutzen der Veränderungen berücksichtigt. Die Nutzen hängen von einer Reihe von Faktoren ab, wie etwa der Ausgestaltung im Detail oder der Verwendung des Aufkommens. Tabelle E-1-6 zeigt auf, dass diese Nutzen sich zwischen 0,02% des BIP (Vereinigtes Königreich) und 0,81% des BIP (Lettland) bewegen. Die Herkunft dieses Nutzens spiegelt sich in den unterschiedlichen Quellen des zusätzlichen Steueraufkommens wieder.

Mitgliedstaat	Umweltsteuern gesamt in 2012, % BIP	Zusätzliche Umweltsteuern gesamt in 2025, % BIP
Bulgarien	2,82%	2,19%
Zypern	2,67%	2,64%
Dänemark	3,87%	0,69%
Finnland	3,07%	1,52%
Deutschland	2,18%	1,43%
Griechenland	2,85%	1,53%
Irland	2,49%	1,15%
Lettland	2,42%	2,47%
Malta	2,98%	3,68%
Niederlande	3,56%	1,51%
Slowenien	3,82%	0,85%
Spanien	1,57%	2,70%
Schweden	2,49%	1,50%
Vereinigtes Königreich	2,62%	0,62%
EU-Durchschnitt	2,29%	
EU-Maximum	3,87%	

Tabelle E-1-12: Steueraufkommen durch Umweltsteuern in % des BIP

Mitgliedstaat	% BIP	€, Mio.
Bulgarien	0,71%	392
Zypern	0,31%	59
Dänemark	0,02%	67
Finnland	0,06%	164
Deutschland	0,10%	3.487
Griechenland	0,45%	891
Irland	0,05%	96
Lettland	0,81%	268
Malta	0,27%	26
Niederlande	0,02%	189
Slowenien	0,09%	35
Spanien	0,14%	1.557
Schweden	0,04%	201
Vereinigtes Königreich	0,02%	408

Tabelle E-1-13: Geschätzter indirekter Nutzen durch verringerte Auswirkungen auf die Umwelt, 2025, % BIP und € Mio. (reale Werte für 2014)

Tabelle E-1-14: Steueraufkommen nach Mitgliedstaat durch höheren Kostendeckungsgrad in der Wasserversorgung und Abwasserbeseitigung und eine Besteuerung der Externalitäten durch den Schwerlastverkehr, € Mio. (reale Werte für 2014)

Mitgliedstaat	Höherer Kostendeckungsgrad Wasser und Abwasser	Besteuerung Schwerlastverkehr	Gesamt
Bulgarien	496	133	629
Zypern	5	54	59
Deutschland	0	1.346	1.346
Dänemark	0	110	110
Griechenland	1.420	290	1.710
Spanien	7.083	1.927	9.010



Mitgliedstaat	Höherer Kostendeckungsgrad Wasser und Abwasser	Besteuerung Schwerlastverkehr	Gesamt
Finnland	1.171	212	1.383
Irland	1.368	87	1.455
Lettland	65	70	135
Malta	66	5	71
Niederlande	1.517	306	1.823
Schweden	1.422	137	1.559
Slowenien	55	54	109
Vereinigtes Königreich	3.205	844	4.049
Gesamt	17.873	5.576	23.449

Tabelle E-1-7 zeigt das Aufkommen durch eine zunehmenden Kostendeckungsgrad in der Wasserversorgung und Abwasserbeseitigung und eine Besteuerung der Externalitäten durch den Schwerlastverkehr. Die Angaben werden von den Hauptergebnissen getrennt ausgewiesen, da diese Analyse zusätzlich zur Arbeit in der ersten Studie von 12 Mitgliedstaaten durchgeführt wurde. Damit wird die Konsistenz der allgemeinen Angaben in den beiden Studien gewährleistet.

E.5.0 Beschäftigung

Mit Blick auf die Schaffung von Arbeitsplätzen wurden die potenziellen Wirkungen einer umweltorientierten Fiskalreform auf die Beschäftigung abgeschätzt, wobei eine detaillierte Betrachtung nicht Gegenstand dieser Arbeit ist. Diese zeigt auf, dass die Auswirkungen wahrscheinlich positiv sind, wenn Umweltsteuern effektiv eingesetzt werden, um Steuern auf Beschäftigung zu reduzieren. In vielen Fällen ist dies ein explizites Ziel einer umweltorientierten Fiskalreform, etwa durch die Erstattung des Aufkommens durch eine niedrigere Besteuerung von Arbeit in der gleichen Größenordnung. Diese Einschätzung ist auch von Bedeutung in Situationen in denen eine Haushaltskonsolidierung verfolgt wird und sich die Frage stellt, ob ein höheres Steueraufkommen durch Umweltsteuern oder andere Steuerquellen generiert werden sollte.

E.6.0 Administrative Kosten

In den Ländern, die in dieser Studie betrachtet werden, stellt sich zum Teil die Frage nach den administrativen Kosten einiger bereits bestehender Umweltsteuern. Eine kurze Überprüfung zeigt, dass vieler dieser Steuern in Vergleich mit anderen Steuern vergleichsweise niedrige administrative Kosten aufweisen. Teilweise hängt dies mit der Ausgestaltung dieser Steuern ab, etwa wenn diese im Zusammenhang mit Markttransaktionen erhoben werden, wie etwa durch Energienetzbetreiber. Nicht alle Umweltsteuern haben jedoch diesen Charakter. Es wird daher empfohlen, dass

Mitgliedstaaten auf bereits bestehende administrative Strukturen zurückgreifen, um Steuern zu erheben, so dass die verbundenen administrativen Kosten minimiert werden. In Frage kommt auch die Nutzung bestehender Berichts- und Monitoringverpflichtungen. Dort wo diese nicht bestehen, können Steuern die Bereitstellung und Erfassung von Daten befördern, welche auch einen Wert für sich haben, jenseits des generierten Steueraufkommens.¹²

¹² Hogg, D. (1999) The Effectiveness of the UK Landfill Tax: Early Indications. In Thomas Sterner (Hg.) The Market and the Environment: Environmental Implications of Market-Based Policy Instruments, Cheltenham: Edward Elgar.



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All appendicies have been prepared as a separate document.



1.0 Introduction

Eunomia Research & Consulting (Eunomia), Aarhus University and Institute for European Environmental Policy (IEEP) are pleased to present this draft final report for the study *Environmental Fiscal Reform Potential in 14 EU Member States* to DG Environment of the European Commission. This report is a follow-on to four pilot studies on Environmental Fiscal Reform (EFR) carried out by the European Environment Agency on countries affected by the economic crisis that commenced in 2008, and a subsequent report for DG Environment on the potential for EFR in 12 Member States published on 3rd March 2014. The illustrative potential for EFR was outlined in the pilot studies, and a methodology for elaborating this in a relatively formulaic manner was developed in the subsequent work for DG Environment. The same approach is applied to the 14 Member States considered as part of this study.

1.1 Aim and Objectives

According to the Specification the purpose of this study is to:

"... provide empirical data or secondary sources on the potential economic and social benefits of environmental fiscal reform, to support the input in the European Semester process on environmental protection and resource efficiency".

The specification elaborates on this as follows:

"The task includes presenting data on the potential of revenues from environmental taxation and other indirect benefits such as job creation resulting from EFR in 14 selected countries, using the methodology the EEA has developed and which was also applied to the study published on 03.03.14 for 12 Member States".

This work covers the following 14 Member States:

- > Bulgaria
- > Cyprus
- > Denmark
- Finland
- Germany
- Greece
- Ireland

- > Latvia
- Malta
- > Netherlands
- Slovenia
- Spain
- Sweden
- United Kingdom

In line with the Specification, the work has been carried out in close alignment with the abovementioned studies conducted by the EEA from 2010 to 2013, and the report from early 2014.¹³ The approach taken is to ensure a high level of consistency with the latter

¹³ See Mikael Skou Andersen, Stefan Speck, David Gee and Jock Martin (2010) Further Environmental Tax Reform – Illustrative Potential in Ireland Prepared for the Environmental Tax Reform Workshop Dublin October 28 and 29, 2010, hosted by Comhar Sustainable Development Council, and organised with University College Dublin Earth Sciences Institute, Smart Taxes and Feasta. *EEA Staff Position Note (October 2010) SPN10/01;* Mikael Skou Andersen, Stefan Speck and Orsola Mautone (2011) Environmental Fiscal Reform – Illustrative Potential in Italy, Prepared for the Conference 'Environmentallyrelated Taxation and Fiscal Reform, Rome, December 5th 2011, hosted by Ministry of Economy and Finance, *EEA Staff Position Note (December 2011) SPN11/01;* Stefan Speck and Mikael Skou Andersen (2012) Environmental Fiscal Reform – Illustrative Potential in Spain, Prepared for the Seminar on



report so that comparable results are obtained for the Member States. The study covers all forms of environmental taxes within each Member State, but does not include environmental harmful subsidies.

The approach taken in this study has been to highlight the *potential* for revenue generation using environmental taxes, based on the application of tax rates using a consistent methodology. The intention was to indicate where this potential may lie, and to demonstrate the magnitude of the revenues that could be derived from the taxes. It is important, therefore, to note that the project uses a relatively mechanistic approach to the calculation of revenues, based on the tax rates assumed to be applied. Evidently, not all Member States are likely be equally interested in all the taxes explored. Equally, it should be noted that the tax rates considered here do not constitute an upper bound. Member States may set higher or lower tax rates, and they may implement changes faster or slower than is envisaged in this report. The intention is, however, to give some indication of the revenues which could be raised when the rates assumed in this study are applied.

1.2 Structure of the Report

An overview of the report is provided in Figure 1-1 below. From this figure it can be seen that the main report consists of a total of 21 Sections. The first five sections provide background details which form the basis of the study and set the scene for the main body of the report which includes individual chapters for each of the 14 Member States included in this study (Sections 7.0 to 20.0). In addition to these sections, there are a number of appendices which are referenced throughout this document. These have been prepared as a separate document and should be referred to for further details.

The Appendices include sections on the following:

- Good practice (Appendix A.1.0);
- Calculating revenues (Appendix A.2.0);
- Calculating indirect benefits (Appendix A.3.0);
- > Environmental fiscal reform and employment (Appendix A.4.0); and
- More detail on existing environmental taxes and model outputs for each Member State (Appendix A.5.0 to Appendix A.18.0).

This document is, as far as we are aware, correct as of the time of drafting, which began in summer 2014. Taxes (and charges) are changing all the time. Every attempt has been made, in the time available, to be current in the information provided. It is, however, in the nature of the subject that matters will evolve over time, rendering some of the material, in due course, out of date. For excise duties on energy (including transport fuels), data was taken from a European Commission publication showing the situation as

Environmental Fiscal Reform, Madrid, September 13th 2012, hosted by Ministerio de Agricultura, Alimentación y Medio Ambiente. *EEA Staff Position Note (September 2012) SPN12/01;* and Mikael Skou Andersen, Stefan Speck and David Gee (2013) Environmental Tax Reform – Illustrative Potential in Portugal Prepared for the Conference 'Green Taxation: A Contribution to Sustainability, Lisbon, April 30th 2013, hosted by Ministry of Fiscal Affairs and Ministry of Environment. *EEA Staff Position Note (April 2013) SPN13/01.*

at 1st July 2014, unless more recent data was obtained through our investigations, or proposed by in-country reviewers. Tax rates are regularly being revised, often at the start of a given calendar year.

Figure 1-1: Overview of the Report Structure





2.0 Approach

As noted above, the approach adopted in this study was in line with that used for the review of 12 Member States, the only significant difference being that environmentally harmful subsidies were not included as part of this work. The approach that has been taken is shown graphically in Figure E-1-1. From this it can be seen that the study was divided into three core stages:

- Stage 1 this initial stage aimed to gather all the relevant baseline information for the study and included gathering information on existing environmental taxes in each Member State (Sections 7.0 to 20.0), reviewing 'good practice' in Europe (Section 5.0), identifying some of the indirect benefits associated with environmental taxes (Section 6.0), and undertaking a literature review of the impacts of EFR on employment (Appendix A.4.0). Section 4.0 provides some commentary on the key issues that were faced in gathering this information. Independent reviewers commented on the Member State sections, and provided views on the context for EFR in their respective countries.
- Stage 2 in this stage a number of suggested reforms to the tax system were developed for each Member State (Sections 7.0 to 20.0). Independent reviewers commented on the Member State sections, and provided views on the context for EFR in their respective countries. As noted in Section 1.2 above, these rates have been applied in a relatively mechanistic manner, and they are used mainly to indicate the order of magnitude of revenues which could be generated from individual taxes, and from application of an overall package of measures. It is clear that ultimately, Member States will need to make decisions which best reflect their specific circumstances;
- Stage 3 as part of this stage a model was developed to determine the baseline situation in each Member State, and to estimate how much additional revenue could be raised for each of the suggested changes outlined in Stage 2 relative to the baseline, as well as for the overall package of suggestions in a given Member State (Sections 7.0 to 20.0). The report was then sent to Member State representatives for review.
- Stage 4 involved finalising the report based on the comments of review by Member State representatives.





2.1 Stage 1: Data Gathering and Literature Review

As noted above, the study proceeded with a desk-review of the existing situation based on the use of existing databases and information. The sources used for reviewing existing taxes included, but was by no means limited to, the following:

- The European Commission's DG TAXUD database;¹⁴
- DG TAXUD Excise Duties Tables (energy products and electricity); and¹⁵



¹⁴ European Commission (2013) *Taxes in Europe Database*, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

> The OECD/EEA's database on environmental taxes and charges.¹⁶

The project team produced the first summary of the existing taxes in each Member State, before passing the report via a number of independent country experts in each country. All reports were reviewed by the country experts who provided comments and helped to ensure that all relevant environmental taxes which are in scope of this study were identified. This initial research provided the baseline context for understanding the current situation within each Member State.

Recognising the desirability of a sound basis for making suggestions for EFR, a review of 'good practice' was undertaken as part of the earlier study which was led by Eunomia. The 'good practice' guidance was reviewed again as part of this project and updated to make it relevant for the 14 Member States which are the focus of this study (see Section 5.0). The 'good practice' covers the following environmental taxes:

- > Energy taxes:
 - Motor fuels;
 - Heating fuels; and
 - Electricity.
- > Transport taxes (excluding transport fuels):
 - Vehicle taxes; and
 - Aviation taxes.
- > Waste taxes:
 - Landfill taxes; and
 - Incineration/MBT taxes.
- Packaging taxes.
- > Taxes on single-use carrier bags;
- > Air pollution taxes;
- Water abstraction taxes;
- > Taxes on discharges to waste water;
- Pesticides taxes;
- Fertiliser taxes; and
- > Taxes on the use of aggregates.

http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/ra tes/excise_duties-part_ii_energy_products_en.pdf

¹⁶ OECD/EEA (2013) OECD/EEA Database on Instruments used for Environmental Policy and Natural Resources Management, <u>www2.oecd.org/ecoinst/queries/index.htm</u>

¹⁵ European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

The review of 'good practice' was undertaken with a view to identifying the types of tax rate that could be considered as applicable for estimating the potential for revenue generation through EFR in each Member State. These rates formed the basis for the development of the country specific suggestions of which environmental taxes could form part of an EFR programme. It is recognised that Member States could apply different rates to those indicated, and might not be equally interested in all the taxes under examination: the emphasis of the study has been to indicate the potential for additional revenue generation through adapting existing / introducing new environmental taxes.

In addition to a review of good practice research was also undertaken to identify how the introduction of the taxes listed above will lead to indirect environmental benefits (see Section 6.2 and Appendix A.3.0 for more details). A literature review was also undertaken to assess the relationship between EFR and employment (see Section 3.2 and Appendix A.4.0).

2.2 Stage 2: Develop Suggested Reforms

Following the above review of existing environmental taxes in each Member State a list of suggested reforms were drafted for each country. The suggestions, based on 'good practice', relate either to changes to existing taxes or for the introduction of new environmental taxes. It is important to note, that in the context of this work, the proposed rates should be considered as suggestions rather than firm recommendations. This is because the intention is to demonstrate the potential for revenue generation from EFR rather than to attempt to provide a detailed roadmap of how it is anticipated that EFR could be implemented in each Member State, with all that could imply in terms of understanding the political and economic realities in a given country. The suggestions, therefore, cover the broad range of taxes listed above, with the assumed rates being based on 'good practice', which generally correspond to those towards the upper end of what has been applied in the EU. It is acknowledged that these rates, and the suggested timings of implementation, are not definitive - it is understood that, should Member States choose to consider a particular tax that is suggested here, they will undertake further research and negotiations at the national/regional level to determine the appropriate level of taxation and means of implementation. The good practice rates are not intended to present 'upper bounds' for tax rates, but equally, Member States may feel that lower rates than those suggested are appropriate.

In many instances the proposed timing for the introduction of the suggested reforms is ambitious and may not be feasible in many cases. A new tax must be researched, discussed with interest groups, run through parliament, carefully designed, implementation planned, announced etc. However, in order to model the potential revenue that could be gained from implementing the taxes it is necessary to set a timeframe for when the taxes will be implemented. The implementation dates suggested in the report should, therefore, be seen as indicative and understood in the context of modelling which has been to illustrate the potential for revenue generation, this favouring an earlier, rather than a later, implementation (and it should be noted that for some countries in both this and the previous study are confronting mounting debts which might, to some degree, be aided by fiscal consolidation through deployment of environmental taxes, and the potential for a 'net stimulus' from shifting taxes towards environmental bases and away from those which might be more likely to constrain growth).

Initial country specific reforms were prepared before being sent for review by the country



experts in each country. The assistance of these country experts is gratefully acknowledged, though the project team takes ultimate responsibility for the work presented here and the final presentation of the suggested reforms. Following review by the country experts the country specific reports were then amended to reflect these comments.

2.3 Stage 3: Model Revenue Outruns and Indirect Benefits

The modelling of revenues was based on projections of the tax base (e.g. energy consumed) in the absence of any change, and changes to those projections as a result of the suggested change in tax rate. This modelling of the changes in the tax base in response to changes in tax rates / new taxes is not especially sophisticated, but designed to impose some realism into the modelling. The estimates of revenue generation were made on the basis of the changed tax bases. The changes in the tax base between the 'with' and 'without' tax projections were used to make estimations of the environmental impact of the changes.

It should be noted that the revenue projections are not based on macroeconomic modelling, and interactions between the measures are not explicitly modelled. In essence, the revenue figures assume each tax is implemented independently of the others. In reality, one would expect some interaction between, for example, taxes on abstraction and taxes on discharges to waste water, and taxes on transport fuels and taxes on vehicles (especially where these are designed to increase the fuel efficiency of the stock of vehicles in use).
3.0 Environmental Fiscal Reform in Context

Even before the financial downturn in 2008 there was significant interest in environmental tax policies which can promote sustainable economic growth and increase employment.¹⁷ The protracted economic recovery has further stimulated interest in environmental tax reform which has now become a core objective of the European Commission. The Roadmap to a Resource Efficient Europe, for example, includes the following objective:¹⁸

"By 2020 a major shift from taxation of labour towards environmental taxation, including through regular adjustments in real rates, will lead to a substantial increase in the share of environmental taxes in public revenues, in line with the best practice of Member States".

Since the Roadmap's publication in 2011 a number of reports have been issued by the Commission focusing on the need for environmental fiscal reform as a means of promoting sustainable growth.¹⁹

Prior to Rio+20 in June 2012, the Director of the International Monetary Fund (IMF), Christine Lagarde, called for a greening of the economy, as a key element in defining a new economic trajectory – one which was focused on job creation and sustainable economic development. She stressed how one important element in a green market economy is to ensure that prices better reflect the full environmental and social costs of goods and services:

"Getting the prices right, means using fiscal policy to make sure, that the harm we do is reflected in the prices we pay".²⁰

This line of reasoning echoes statements from institutions of the European Union, including from Heads of State in the European Council. Prior to Rio+20 the European Council stated that *"promoting a more resource-efficient, greener and more competitive*"

¹⁷ See for example: European Commission (2007) Green Paper on Market-Based Instruments for Environmentally and Related Policy Purposes, COM(2007) 140 final,

<u>http://ec.europa.eu/environment/enveco/green_paper.htm;</u> European Environment Agency (2005) Market-Based Instruments for Environmental Policy in Europe, <u>www.eea.europa.eu/publications/technical_report_2005_8</u>

¹⁸ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>, p. 11.

¹⁹ See for example: European Commission (2013) *Tax Reforms in EU Member States 2013: Tax Policy Challenges for Economic Growth and Fiscal Sustainability,*

<u>http://ec.europa.eu/economy_finance/publications/european_economy/2013/pdf/ee5_en.pdf;</u> European Commission (2012) Tax Reforms in EU Member States 2012: Tax Policy Challenges for Economic Growth and Fiscal Sustainability; and European Commission (2011) Taxation Papers – Quality of Taxation and the Crisis: Tax Shifts from a Growth Perspective,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_papers/taxation_paper_29_en.pdf

²⁰ International Monetary Fund (2012) *Back to Rio—the Road to a Sustainable Economic Future*, Speech by Christine Lagarde, 12th June 2012, Accessed 3rd February 2014, <u>https://www.imf.org/external/np/speeches/2012/061212.htm</u>.

economy is crucial",²¹ whilst also acknowledging the link between fiscal policies and a green economy:

"Tax policy can contribute to fiscal consolidation and growth. In line with the Council conclusions of 21 February, and recognising Member States' competences in this area, the European Council invites Member States, where appropriate, to review their tax systems with the aim of making them more effective and efficient, removing unjustified exemptions, broadening the tax base, shifting taxes away from labor, improving the efficiency of tax collection and tackling tax evasion"²².

EU Member States are well aware of the needs to develop a broader and sounder tax base, so as to meet the requirements for budgets which, in the longer term, are both balanced and sustainable. It is in the context of shifts in the tax burden from labour to environmental taxes and the removal of unjustified exemptions, that the notion of 'environmental fiscal reform' (EFR), also known as 'environmental tax reform' (ETR), comes into its own. As pointed out in a recent IMF staff paper:²³

"Several factors point to continued momentum for environmental tax reform. One is pressure for new revenues to strengthen fiscal positions. Another is growing acceptance among policymakers that emissions pricing instruments are far more effective at exploiting the entire range of emissions reduction opportunities than are regulatory approaches. Swapping environmental taxes (that apply to traded goods) for labor taxes might also be means to improve competitiveness. And environmental problems are of growing concern, from rising greenhouse gas (GHG) concentrations to deteriorating urban air quality in industrializing nations to increasing congestion (a related externality) of transportation systems.

The EU's 2020 targets aim to create new economic activity and employment opportunities. In looking for appropriate policy instruments for these purposes the Commission DG for Employment, Social Affairs and Inclusion have noted that fiscal measures related to the environment provide an important tool that deserves careful consideration:

"It should be noted that the average contribution of environmental taxes in the EU amounts to 6.3% of the overall tax bill. If all Member States were to raise this figure to 10% the result would yield an additional tax revenue equivalent to around 1.4% of EU GDP that could be used to reduce budget deficits or labour taxes. Studies show that the positive impacts in terms of job creation of the green policies would outweigh the shortcomings. For example, the increased investments in energy efficiency would stimulate job creation in the construction and manufacturing of construction materials and sectors and would have limited impact on the reduction in jobs in the fossil fuels mining sectors".²⁴

²¹ European Council (2012) European Council – Conclusions, Brussels, 1st to 2nd MARCH 2012, <u>http://europa.eu/rapid/press-release_DOC-12-4_en.doc</u>, p. 7

²² Ibid, p 4.

²³ D Heine et al (2012) Environmental Tax Reform: Principles from Theory and Practice to Date, IMF Working Paper WP/12/180, <u>www.imf.org/external/pubs/ft/wp/2012/wp12180.pdf</u>, p. 4

²⁴ European Commission (2012) Exploiting the Employment Potential for Green Growth, SWD. Accompanying the Communication on 'Towards a Job-Rich Recovery,

3.1 The European Semester Process

The previous study took place in the context of the European Semester process, which provides an opportunity to ensure that macroeconomic policies are sustainable, not only economically and socially, but also environmentally.²⁵ Furthermore, in order to secure the jobs and growth benefits of resource-efficiency in the transition to a low-carbon economy, EU and national policies need to fully exploit the growth potential of the green and low-carbon economy.

The 2015 European Semester round began with the adoption of the Annual Growth Survey (AGS) in November 2014. The AGS contains priorities which should be addressed in the National Reform Programmes (NRPs) which are due by the end of April 2015. Subsequently, the Commission will propose a series of Country Specific Recommendations (CSRs) accompanied by an analysis in the form of Commission Staff Working Documents (SWDs) for each Member State.²⁶ The CSRs will be discussed and subsequently adopted following endorsement by the European Council in June/July. It is intended that this study may feed into the development of the CSRs for 2015.

The 2015 AGS acknowledges that "employment and growth can be stimulated by shifting the tax burden away from labour towards other types of taxes which are less detrimental to growth, such as recurrent property, environment and consumption taxes".²⁷ The AGS sets out three pillars that will underpin the EU's economic and social policy for 2015:

- > A coordinated response to boosting investment;
- > A renewed commitment to structural reforms; and
- > The pursuance of fiscal responsibility.

On 26-27 June 2014, the European Council endorsed the Country Specific Recommendations on ETR or removal of environmental harmful subsidies for several Member States (BE, CZ, ES, IE, FR, HU, IT, LT, LU & LV); they were adopted by the ECFIN Council on 08.07.14. In the analytical Staff Working Documents by the Commission published on 2 June 2014, ETR or removal of Environmental Harmful subsidies was only not mentioned for 4 Member States namely: BG, CY, GR and UK.²⁸

3.2 Environmental Fiscal Reform and Employment

In 1991 Pearce suggested that environmental taxation could lead to a 'double dividend' as well structured schemes could help to curb harmful environmental activities and at the same time boost employment opportunities.²⁹ Employment can be increased either directly through private actors responding to the tax by finding innovative ways to reduce

²⁹ Pearce, D. (1991) The Role of Carbon Taxes in Adjusting to Global Warming, *Economic Journal*, Vol. 101, pp. 938-948.



<u>http://ec.europa.eu/social/main.jsp?catId=89&langId=en&newsId=1270&moreDocuments=yes&tableNa</u> <u>me=news</u>, p. 6

²⁵ See for more on this: <u>http://ec.europa.eu/environment/integration/green_semester/index_en.htm</u>

²⁶ The 'Programme countries' (Cyprus, Greece, Portugal) follow a slightly different procedure.

²⁷ European Commission (2014) *Annual Growth Survey* 2015, November 2014, <u>http://ec.europa.eu/europe2020/pdf/2015/ags2015_en.pdf, p. 15</u>

²⁸ See Written Question E-4485/14

their tax burden (and therefore pollution), or indirectly, as a result of government using Government using the revenue raised by the environmental tax to reduce taxes on labour.³⁰ Although it is widely accepted that EFR can help to stimulate employment, the degree to which this occurs is very much dependent on the specifics of the environmental tax being considered, how the revenues are to be used, and the employment/economic dynamics within a country (e.g. the size of the informal sector, extent of unemployment, and the flexibility of different elements of the labour force).

Over the last few decades a growing body of literature has emerged which has looked at the relationship between EFR and employment.³¹ Although a substantial amount of work has been done, much of this is based on theoretical modelling as opposed to the gathering of empirical evidence (perhaps unsurprisingly, given the difficulties of gathering empirical data and assigning cause and effect to a particular policy intervention in such a complex setting). Nevertheless, the findings of detailed modelling work appear to be relatively consistent and suggest that gains in employment may be achieved under certain circumstances (typically, when revenues derived from the taxes are used to offset social security taxes). It should be noted, however, that some studies have suggested that unemployment may rise as a result of environmental tax reform, but these are certainly more limited than those which suggest net positive gains in employment.³²

Employment generation appears to be most well documented in relation to energy and carbon taxes as opposed to other forms of environmental taxes such as resource taxes, or taxes on pollution. Given that the underlying principle - of shifting taxes away from employment and onto pollution and resource use – remains the same, however, there are reasons to believe that a positive outcome would result from their application in these areas also. This seems especially likely in some sectors, such as waste management, where improved management of resources tends to increase demand for labour.

http://ec.europa.eu/economy_finance/publications/european_economy/2013/pdf/ee5_en.pdf; European Environment Agency (2012) Environmental Tax Reform in Europe: Implications for Income Distribution, January 2012, www.eea.europa.eu/publications/environmental-tax-reform-in-europe; Anger, N., Böhringer, C., and Löschel, A. (2010) Paying the Piper and Calling the Tune?: A Meta-Regression Analysis of the Double-Dividend Hypothesis, Special Section: Ecosystem Services Valuation in China, Vol.69, No.7, pp.1495–1502; European Commission (2011) Impact Assessment on the Proposal for a Council Directive Amending Directive 2003/96/EC Restructuring the Community Framework for the Taxation of Energy Products and Electricity.

³⁰ European Environment Agency (2012) *Environmental Tax Reform in Europe: Opportunities for Ecoinnovation*, January 2012, <u>www.eea.europa.eu/publications/environmental-tax-reform-opportunities</u>

³¹ See for example: European Commission (2013) Tax Reforms in EU Member States 2013: Tax Policy Challenges for Economic Growth and Fiscal Sustainability,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/sec_2011_409_impact_assesmen t_part1_en.pdf; Vivid Economics (2012) Carbon Taxation and Fiscal Consolidation: the Potential of Carbon Pricing to Reduce Europe's Fiscal Deficits, Report for the European Climate Foundation and Green Budget Europe, May 2012; Jacobs, M., Ward, J., Smale, R., Krahé, M. and Bassi, S. (2012) Less Pain, More Gain: the Potential of Carbon Pricing to Reduce Europe's Fiscal Deficits, November 2012, Report for Centre for Climate Change Economics and Policy Grantham Research Institute on Climate Change & the Environment, http://www.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PP-carbon-pricing-europe-fiscaldeficits.pdf

³² Patuelli, R., Nijkamp, P., and Pels, E. (2005) Environmental Tax Reform and the Double Dividend: A Meta-analytical Performance Assessment, *Ecological Economics*, Vol.55, No.4, pp.564–583

For the full review please refer to Appendix A.4.0. This Appendix contains more details and separately examines, where literature is available, a number of different types of environmental taxes.

3.3 EFR and the Counterfactual

As noted above, EFR is frequently discussed as a means of bringing about a so called 'tax shift' in which a progressive increase in the revenues generated through environmental taxes provides a rationale for reducing taxes derived from other sources, such as income, profits and employment, the taxation of which is less desirable. The rationale for using an increase in revenues from environmental taxes in this manner is entirely sound where the fiscal position in the country concerned is relatively healthy.

However, where budgets are out of balance, and in particular, where deficits are leading to increasing indebtedness (leading, potentially, to increased costs of borrowing, and perceived risks of sovereign default, where no action is taken to address such deficits), the more immediate concern may be to reduce the gap between expenditure and revenue generation. Evidently, improved efficiency in public services, coupled with some retrenchment, will reduce public spending, but the exchequer may need to act to increase revenue take to completely close the gap between income and expenditure. Generating additional revenues from taxation may also limit the extent to which austerity has to bear the brunt of adjustment required to bring the fiscal position back into balance. In such situations, the question becomes one of which taxes to deploy to help reduce budgetary deficits.

To the extent that environmental taxes may have a role to play in such situations, their use as a means to reduce budget deficits is not so different to their deployment in the context of environmental tax reform: in both cases, it could be argued that the counterfactual situation (to that where additional environmental tax revenues are generated) is one where other forms of tax have to be used to generate the equivalent revenue.^{33,34} As such, even where there are no explicit offsetting reduction in other forms of taxation, fiscal consolidation through increasing environmental tax revenue might implicitly keep the level of other taxes below that which might otherwise have prevailed.

It should be noted that this study makes no specific assumptions about the way in which any revenue that might be generated from environmental taxes (or saved from the removal of environmentally harmful subsidies) should be used. For this reason (and for reasons associated with the project timeframe), no modelling of a 'tax shift' has been undertaken.

³⁴ Vivid Economics (2012) Carbon Taxation and Fiscal Consolidation: the Potential of Carbon Pricing to Reduce Europe's Fiscal Deficits, Report for the European Climate Foundation and Green Budget Europe, May 2012



³³ Jacobs, M., Ward, J., Smale, R., Krahé, M. and Bassi, S. (2012) *Less Pain, More Gain: the Potential of Carbon Pricing to Reduce Europe's Fiscal Deficits*, November 2012, Report for Centre for Climate Change Economics and Policy Grantham Research Institute on Climate Change & the Environment, <u>http://www.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PP-carbon-pricing-europe-fiscal-deficits.pdf</u>

4.0 Key Issues

This Section raises some key issues associated with the approach to the study. This is also intended to highlight some general features of the approach we have adopted.

4.1 Definitions Used

This study concentrates on environmental taxes, as opposed to charges. The definition that has been used is that of the European Commission of 2001, the same definition also being used in Regulation EU 691/2011 on *'European Environmental Economic Accounts'*. This defines environmental taxes as a tax *"whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment"*.³⁵ Such taxes include taxes on energy, transport, and pollution and resources. They do not include VAT.

It is important to clarify terminology in respect of the transport taxes. Because taxes on transport fuels are classified as energy taxes, transport taxes are often referred to as 'transport taxes (excl. fuel)'. Although this is implicit in the definition of energy taxes, this terminology serves to ensure that readers who are not acquainted with the definitions understand that transport taxes – mainly related to either registration taxes, or circulation taxes, or vignettes – do not include taxation on transport fuels. The Eurostat publication, '*Taxation Trends in the European Union*', seeks to clarify matters further by referring to a subcategory of energy taxes which relate to the transport use of fuels as 'transport fuel taxes'.³⁶ Motor fuels are also one of the classes of energy carrier for which minimum tax rates are specified under the Energy Tax Directive (Directive 2003/96/EC, as amended).

It should be noted that where the term 'transport taxes' is used in this report without any qualifier, then this should be interpreted as referring to, 'transport taxes excluding taxes on transport fuel'. The term is used without qualification for the sake of the flow of the text.

4.2 Taxes or Charges?

Taxes are generally considered to be unrequited payments to (usually) national or regional governments with no individual counterpart service received in exchange for the payment. Charges, on the other hand, are typically payments made in exchange for a service, with the charges usually levied in proportion to the quantum of service received, and so the terms 'user charges', or 'cost recovery charges' are often used in this context.

This distinction is not always so clear cut. For example, some 'taxes' might be considered to have a 'cost recovery charge' element to them (for example, some vehicle taxes have, historically, been used to fund maintenance of transport infrastructure), but in this case, those paying the tax may not, themselves, be direct beneficiaries of the payments made. The distinction is also made more opaque by the fact that some 'taxes' are referred to as

³⁵ European Commission (2001) *Environmental Taxes – A Statistical Guide*, 2001 Edition, Luxembourg: Office for Official Publications of the European Communities, p.9.

³⁶ European Commission (2013) *Taxation Trends in the European Union: Data for the EU Member States, Iceland and Norway, 2013 Edition, Luxembourg: Publications Office of the European Union.*

'charges' (and vice versa). This often appears to be the case where revenues from what appear to be taxes, but are usually described as charges, are destined for Environmental Funds, whose purpose is (usually) to make use of the revenues generated for environmental projects. Equally, some user charges, which are used to fund the delivery of a service, are levied on an environmental basis.

The distinction is most difficult, perhaps, in respect of:

- 1. Charges for waste water treatment, which typically have an environmental rationale (i.e. they vary by load of pollutant), but which might be sufficient only to recover the financial costs of the treatment being used;
- 2. Charges for water abstraction, which may also vary by the source of abstracted water, but may also be sufficient only to cover the maintenance and upkeep of the resource; and
- 3. Road user charges, which might be designed to recover the costs of maintaining transport infrastructure.

Where user charges accrue to Environmental Funds, there is an additional question to be considered regarding whether, and if so, how, any increases in the rates applied might accrue to the state budget. In principle, it might be possible to define, separately, revenues which are used to recover financial costs of relevant infrastructure and activities, and revenues which should accrue to the central (or regional) government budget. Unless it is clear that revenues would accrue elsewhere, the assumption has generally been that revenues would accrue to national finance ministries.

In addition to these cases, there are taxes in place on products and packaging which are applied only to a very limited extent since they are intended to induce (or at least, this is clearly their effect) those who place products or packaging on the market to participate in compliance schemes, or otherwise to demonstrate that they have met their obligations in respect of recycling and recovery.

Note that because we are focused on environmental taxes, we have not included discussion of the charges levied by, for example, producer responsibility organisations on their members since these are clearly mechanisms used to recover the costs of meeting their obligations under Member State law. Similarly, we have not included information on so-called 'pay-as-you-throw' systems used to fund, and incentivise, improvements in, household waste management. These are also mechanisms used to (partially) fund the provision of the waste management service, and to do so in such a way that the households have incentives to (usually) manage waste in a better way.

In making suggestions for how existing regimes may be adapted, or when suggesting new taxes, the full complexity of the existing situation is not always completely understood by us. Partly because of the difficulties in understanding this in full, the country chapters and appendices include information on some measures which are not taxes, but are, in reality, charges. The fiscal implications of increasing user charges, as opposed to levying new taxes, are likely to be dependent on the nature of the funding system prior to the user charges being implemented. If, for example, transport infrastructure costs are recovered by levies on transport, but ones not related to road use, then a shift to road use charging could, for example, be offset by a reduction in the rates of other levy rates which had, until then, generated the bulk of the required revenue.

The approach taken for specific taxes under consideration is considered in the Appendix on good practice (A.1.0).



4.3 Allowance Trading Schemes

It is worth commenting on trading schemes here. They are of interest to this study to the extent that they have fiscal implications, and to the extent that Member States have freedom to influence the potential revenue generation from such schemes. For example, schemes may exist where, instead of grandfathering all allowances, some are, or could be, auctioned, with the associated revenue accruing to regional, or national governments. Price floors may seek to ensure that where allowance prices fall below a defined level, taxes are effectively applied to ensure a given level of incentive for environmental improvement.

Evidently, the major trading scheme of relevance to this study is the EU Emissions Trading Scheme (EU-ETS), the basis for which is Directive 2003/87/EC, as amended.³⁷ In Phase III of the scheme, the default means of allocating allowances is auctioning. The power sector is included under the EU-ETS, and in Phase III of the scheme, which commenced in 2013, no free allowances will be given to the power sector. Two of the countries in this study - Bulgaria and Cyprus - have availed themselves of a derogation (under Article 10(c) of the revised EU-ETS Directive) which allows them to allocate, free of charge, a diminishing number of allowances to existing power plants for a transitional period (the number allocated free of charge has to be zero by 2020).³⁸ This is conditional upon the countries concerned making use of at least as much revenue as would have been obtained from auctioning the free allowances in the modernisation of their electricity sector. Otherwise, these countries might expect to see additional revenues flowing to them over time as a result of the progressive increase in the number of allowances being auctioned, whilst the effect on countries already auctioning all allowances to the power sector will depend on how the price of allowances changes over time (as the overall allocation is reduced).

Because of the rules governing the way in which the EU-ETS functions, we have not made major suggestions regarding how the power sector should be taxed other than in respect of air pollution (i.e., excluding greenhouse gases). In principle, it is possible for Member States to consider setting price floors (the UK, for example, has done so), but we have taken the view that in the absence of a process being led at the European level, the implied message would be that the cap within the EU-ETS was insufficiently tight. Evidently, the EU-ETS is intended to address only those greenhouse gases covered by the scheme. However, it should also be considered that a minimum rate of tax for electricity (on the output side) exists under the existing (and proposed) Energy Taxation Directive. In addition, we have considered the situation in respect of the level of taxes on air pollution. For these reasons, we have not proposed changes other than in relation to air pollution taxation.

In addition, it should be mentioned that although the EU-ETS Directive provides for 15% of EU aviation allowances to be auctioned in Phase III, auctioning has effectively been suspended pending the development of a proposal from the International Civil Aviation Organisation (ICAO). For this reason, we have included consideration of schemes for

³⁷ A number of Commission Regulations and Decisions have also shaped the form and function of the EU-ETS – for a list of relevant legislation, see <u>http://ec.europa.eu/clima/about-us/climate-</u> <u>law/index_en.htm#EU_ETS</u>

³⁸ Both Latvia and Malta were eligible for this derogation but chose not to use it.

taxing flights, recognising that the nature of the scheme anticipated is not completely clear at present. Such taxes could be removed, for example, if the nature of the market based instrument which ICAO proposes is such as to effectively replace the tax.

4.4 VAT

The changes suggested in this study (in terms of changes in tax rates) could be expected to have implications for the budget through their effect on the overall VAT take. We have not calculated these in this study.

In general, these could be expected to be positive since VAT is generally raised on the price of a good inclusive of the environmental tax. Though businesses might be able to reclaim VAT, consumers will not generally be able to do so. Furthermore, other than for items such as single-use carrier bags, the response of consumers to the taxes is not expected to be especially strong (the demand for many of the goods and services is, especially over the short-term, relatively inelastic – see Appendix A.2.0 for a review in respect of energy, for example). In principle, therefore, additional VAT revenues might be expected to accrue to the central budget. The amounts will, however, depend upon the applicable VAT rates, and the changes in demand for the goods / services being taxed.

4.5 Administrative Costs

The suggested taxes will each have, associated with them, an administrative cost. These costs will tend to vary depending upon the nature of the good or service being taxed, whilst the incremental costs of the administration (arguably, what matters most here) depend very much on the administrative apparatus already in place.

From the budgetary perspective, it is clear that taxes which require a considerable amount of administration relative to the revenue they generate are of limited value. Some authors have expressed concerns regarding these costs where some charges / taxes are concerned. Vítek et al suggest that in the Czech Republic, the charges on air pollution that were collected from medium-sized sources at a cost which exceeds the revenue generated.³⁹ The same authors cite some estimates of administrative costs of introducing environmental taxes:

"Convery, McDonnell and Ferreira (2007) demonstrate that regularly administrative costs for plastic bag levy in Ireland are approximately 3 % of revenue because of it is possible to integrate reporting and collection into existing Value Added Tax reporting systems.

OECD (2006) in its summary publication states in the chapter eight, that AC for a collection of environmental charges and evaluation of environmental projects in Poland vary between 0.8 % and 4.5 %. According to OECD (2005), administrative costs for the government related to the aviation fuel tax (Norwegian aviation fuel tax) are very limited. Sweden National Tax Board presented that CO_2 tax incorporated into the existing petroleum tax, energy tax, and environment tax on

³⁹ Vítek, Leoš, Pavel, Jan, Jílková, Jiřina (2007) Comparison of the Administrative Costs of the Environmental Charges on Air Pollution for Large and Extra-Large Sources of Air Pollution, Banská Bystrica 4th December 2007, in Marta Orviská ns Peter Pisár (ed.). Európske Financie – Teória, Politika a Prax (European finance - theory, politics and practice) [CD-ROM]. Banská Bystrica : Ekonomická fakulta Univerzity Mateja Bela, 2007, s. 15. ISBN 978-80-969535-8-5



domestic air traffic is from the perspective of AC effective (AC for collecting are approximately 3 mil. SEK)."

The first paragraph, regarding the Irish levy on plastic bags, indicates that even where the revenue generated by a tax is relatively low, the administrative costs do not need to be high. Pavel and Vitek appear to confirm this:⁴⁰

"Overviews of studies presented in Vaillancourt (1987), Evans (2003) and Klun and Blazic (2004) of personal, corporate and sales taxes, on the one hand, and existing modest evidence for environmental taxes on the other hand, indicate that the transaction costs of environmental taxes are rather low compared with those of other taxes, notably income taxes."

They add, by way of explanation:

"This is due mainly to their design, in the case of energy and mineral oil taxes based on the principles of excise duties (a small number of taxpayers, a tax base oriented around market transactions, and a relatively simple construction of the tax base). In this way both the administrative costs of governments and the compliance costs of the private sector are reduced"

Evidently, not all taxes have this character, but through relying on existing mechanisms for reporting on transactions, or on emissions, the administrative costs can be minimised.

It is not possible to consider all the existing taxes in this study, and to comment on the administrative costs of collecting the associated revenue. It is clear, however, that when considering the introduction of new taxes, due consideration should be given to how to make best use of existing administrative structures as a means to simplify administration of the tax, and reduce the costs of collecting revenue. It might also be the case that some taxes which exhibit high administrative costs relative to their revenue generation do so for the simple reason that the tax rates are too low to generate significant revenue (not least in situations where there has been no indexing of rates over an extended period of time). Finally, it may be considered that where existing reporting mechanisms do not exist, the fact that taxes can help to drive the provision, and capture of, data has some value in itself beyond that of the revenue generated by the tax.

4.6 Revenue Estimates

The revenue estimates that have been made for each tax are based on the what might be expected if the tax is implemented in isolation, and with no assumption made regarding what might happen if other taxes (such as those on employment) were changed at the same time. They are estimates based on a set of assumptions which are set out in this document.

Two things follow from this:

1. The revenues actually generated from any given tax which has been suggested should not be treated as perfectly accurate given that they are based upon

⁴⁰ J Pavel and L Vitek (2012) *Transaction costs of environmental taxation: the administrative burden*, pp 273-282 in J Milne and MS Andersen (eds) Handbook of research on environmental taxation, Cheltenham: Edward Elgar.

assumptions regarding tax rates, and the response to them, which might be different to what occurs in reality;

2. Because the implementation of one tax may have implications for the revenue generated from another tax (for example, vehicle taxes might effect, over time, the use of fuel, and hence, the revenues generated from transport-related fuel taxes), then if a range of taxes is introduced, it would be wise to consider the nature of these interactions.

It should also be considered that tax revenues generated would also be affected by decisions regarding whether or not to deploy changes in taxes as part of a tax shifting process (this might be expected to affect the state of the economy, and hence, the nature of the response to the tax).



5.0 'Good Practice'

In this section we outline the approach to making suggestions for new environmental taxes, or changes in existing ones. In Section 6.1 below, we indicate how we have estimated the revenue that may generated by such taxes. On energy and transport, as will become clear, we have been guided by the proposed revision to the Energy Tax Directive,⁴¹ referred to as 'the proposed ETD', and the Commission's proposal of 2005 regarding vehicle taxation,⁴² Referred to as 'the Commission's 2005 proposal'. The former is still being debated, whilst the latter never became law, but they are considered to represent the Commission's most recent publicly available view regarding these two taxes, and it was agreed with the Steering Group to base suggested changes around these. The exposition below is a summary of a more comprehensive Appendix produced in the context of the study. The reader is referred to Appendix A.1.0 for further details. This also indicates that in many cases, the presumption is that taxes are indexed to a measure of inflation to ensure that the incentive conveyed is not eroded by inflation.

5.1 Energy Taxes

The proposed ETD sets out a formula which seeks to equalize treatment of different fuels within a given grouping. It proposes adoption of a formula for the calculation of tax rates which suggests that the tax rate for all fuels in a given group (motor fuels, motor fuels used in commercial and industrial purposes,⁴³ and heating fuels) is based on:

- 1. A common rate of tax per unit of energy content; and
- 2. A common rate of tax per unit of CO₂ emissions (considered in the proposal to be set at €20 per tonne CO₂).

It suggests that whether the rates set in a Member State are at or above the proposed minimum rates, this formula should be applied to ensure equal treatment. It also has the merit of identifying a specific CO_2 component, enabling entities included in the EU-ETS to be exempted from that specific element of any tax.

5.1.1 Motor Fuels

Most countries have set rates higher than the minimum rates in the proposed ETD for at least one energy carrier within this group of fuels. Given the emphasis in this study on the potential for generating revenue, then suggested changes are based on upward harmonization of tax rates within the group of transport fuels to the rate which is, according to the formula set out in the proposed ETD, the highest in terms of the implied rate of tax per unit of energy content, assuming that the CO₂ element of the duty is €20/tonne of emissions of CO₂. Where this implied rate of tax per unit of energy is below

⁴² European Commission (2005) Proposal for a Council Directive on Passenger Car Related Taxes, Brussels, 5.7.2005, COM(2005) 261 final, <u>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0261:FIN:en:PDF</u>

⁴¹ This is considered in the form in which it exists as a firm proposal: European Commission (2011) Proposal for a Council Directive amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, Brussels, COM(2011) 169/3, <u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/com_2011_169_en.pdf</u>

⁴³ As set out in Article 8(2) of the (existing and) proposed ETD.

the minimum level proposed in the ETD, the minimum level in the ETD becomes the basis for harmonization.

5.1.2 Motor Fuels used for Purposes Set Out in Article 8(2) of the ETD

The same approach is adopted as for motor fuels above. It should be noted that the proposed ETD indicates, for the calculation of minimum rates of tax, much lower rates per unit of energy content for these uses than for Motor Fuels (€0.15 per GJ as opposed to €9.6 per GJ).

5.1.3 Heating Fuels

The same approach is applied for heating fuels with one modification. Within the group of heating fuels, some fuels (notably kerosene and diesel / gas-oil) are taxed at the same rate for heating as for motor fuels. If tax rates were harmonised on this basis, it would imply enormous increases in heating tax rates given the difference in the minimum rate per unit of energy content for heating and for motor fuel in the ETD (€0.15 per GJ as opposed to €9.6 per GJ). For this reason, we have calculated the implied tax rate per unit of energy for the other heating fuels, and then harmonized fuels upwards on the basis of the highest level within this sub-set of heating fuels.

5.1.4 Electricity

For electricity, the proposed approach is to increase electricity taxes to the level proposed in the ETD (≤ 0.15 per GJ) where they are not already at that level (in principle, this is generally the case since the proposed ETD minimum rate is little different to that in the existing ETD (Directive 2003/96/EC).

5.1.5 Indexation

In line with Article 4(4) of the proposed ETD, we have indexed rates in line with inflation to maintain the price signal imparted by the above taxes.

5.2 Transport Taxes (Excluding Transport Fuels)

5.2.1 Vehicle Taxes

The considerable variation in approaches and experience with taxation on vehicles, and with vignettes, makes it difficult to propose an unequivocal package of measures in the case of the taxation of transport (excluding transport fuels). Directive 2011/76/EU on the charging of heavy goods vehicles for the use of certain infrastructures sets common rules on distance-related tolls and time-based user charges for vehicles with a maximum permissible gross laden weight of not less than 12 tonnes.⁴⁴ For Heavy Goods Vehicles, this makes provision for MSs to charge for externalities (air pollution and noise) on top of the mechanisms to recover the costs of infrastructure provision. Revenues from currently applied infrastructure charges (tolls or vignettes) are estimated to amount to only about 10% of total road infrastructure costs on average. Road charges are often applied to

⁴⁴ Directive 2011/76/EU amending Directive 1999/62/EC on the charging of heavy goods vehicles for the use of certain infrastructures, OJEU 14.10.2011, L 269, pp.1-16, <u>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:269:0001:0016:EN:PDF</u>



heavy goods vehicles only, and on a limited part of the network. Some Member States do not have any road charges in place.

Revenue generation from transport taxes (excl. fuel) varied from 0.05% GDP to 1.49% GDP across the EU-28 in 2011.⁴⁵ When revenues from transport fuels are included, the variation is from 1.31% GDP to 3.01% GDP.⁴⁶ There is clearly considerable potential for further revenue generation from taxation of transport over and above that raised from fuels.

The countries examined have different combinations of registration and circulation taxes. The approach we have adopted is to suggest that the overall revenue take from transport, including revenue from transport fuels, is moved to levels equating to the average of upper quartile performance in the EU-28, expressed in terms of GDP, this being 2.67% of GDP. This is effectively used as a revenue target. Where Member States are below this, we have considered what revenue gap exists, and the extent to which that gap is closed by increased taxes on transport fuel (see above). Some Member States already have taxes in place that exceed this level. It is clear that there is scope to generate additional revenue over and above what is proposed here, and hence, the proposals (as for other taxes) should be seen as indicative only.

In terms of the means used to close that gap, in line with the Commission's 2005 proposal, we have suggested that circulation taxes are increased, and that these are banded in such a way as to encourage a shift to vehicles with lower emissions (not only of CO₂, but also, other pollutants such as particulate matter). Several Member States already have such taxes in place. It is suggested that the banding is adjusted periodically to reflect technological change, to maintain incentives to use vehicles with lower emissions, and maintain revenue levels.

We also suggest that Member States give consideration to their approach to taxing HGVs in line with Directive 2011/76/EU. A recent report indicates that there is wide variation in the extent to which Member States are aligned with the approach set out in the Directive.⁴⁷ In some additional analysis (relative to the previous work), we have considered the potential revenues which could be generated from what Directive 2011/76/EC refers to as external cost charges related to air pollution and noise. The estimates assume – in line with the study's focus on revenue potential – that vehicles have applied to them maximum rates of externality charge for air pollution and noise as set out in Annex IIIb of the Directive. We have, however, applied the (lower) rates applicable to interurban roads (for air pollution and noise) and the (lower) rates applicable for daytime for noise.

5.2.2 Aviation Taxes

Some Member States deploy levies on passenger flights. Aviation emissions have been included under the ETS since the start of 2012, and 15% of EU Aviation Allowances

⁴⁵ European Commission (2013) *Transport in Figures 2013, Part 2: Transport*, Directorate General for Mobility and Transport, Tables 2.1.11 and 2.1.12.

⁴⁶ European Commission (2013) *Transport in Figures 2013, Part 2: Transport*, Directorate General for Mobility and Transport, Tables 2.1.11 and 2.1.12.

⁴⁷ See Ricardo-AEA (2014) Evaluation of the Implementation and Effects of EU Infrastructure Charging Policy since 1995, Final Report to DG MOVE, January 2014.

(EUAAs) were to have been auctioned. In April 2013 the EU decided to temporarily suspend enforcement of the EU ETS requirements for flights operated in 2010, 2011, and 2012 from or to non-European countries, while continuing to apply the legislation to flights within and between countries in Europe. In October 2013 the International Civil Aviation Organization (ICAO) Assembly agreed to develop, by 2016, a global market-based mechanism (MBM) addressing international aviation emissions and apply it by 2020.

We have suggested the introduction of passenger levies based on distance. For the purpose of modelling, the data available to us relates to flights within the country concerned, outside the country concerned but within the European Union, and outside the country concerned, and outside the European Union. As a proxy for a distance related tax, we have applied levels of tax of €15 per passenger, €25 per passenger and €50 per passenger, respectively, for these different types of flight. We would, however, expect Member States to set such taxes with reference to distance rather than what is, effectively, a country listing. In addition, in line with the approach adopted in France, we have also suggested a tax of €1.25 per tonne of freight carried by air. We have assumed these rates are maintained in real terms over time.

It should be noted that the interface with the mechanism to be proposed by the ICAO would need to be kept under review. That mechanism could lead to some revenue being generated through the auctioning of allowances to the aviation sector (as had been envisaged under Phase III of the EU-ETS).

5.3 Pollution and Resource Taxes

5.3.1 Waste

A recent report from the European Commission highlights both the variability in landfill taxation, but also, its importance in driving improved waste management.⁴⁸ The suggested approach is based upon moving tax rates for landfilling to a level of €50 per tonne where they are below this level. The implementation of major changes in landfill tax in short periods of time without prior announcement can be problematic in a sector which is characterised by long lead times. As such, the implementation is phased over a period of years, depending upon the rate of tax already applied in the Member State concerned.

In order to ensure landfill taxes generate movement of waste into upper tiers of the hierarchy, it is also suggested that a tax is implemented on incineration. Although Denmark has a much higher tax rate for incineration, the suggestion is that rates similar to those in France would be appropriate. The tax rate proposed is ≤ 15 per tonne, with the rate being phased in so that it is achieved in the same year as the landfill tax proposed above.

As regards inert (construction type) wastes, for countries with no tax in place at present, it is suggested the tax is set at €2.40 per tonne. In conjunction with aggregates taxes

⁴⁸ E. Watkins, D. Hogg, A. Mitsios, S. Mudgal, A. Neubauer, H. Reisinger, J. Troeltzsch, M. van Acoleyen (2012) Use of Economic Instruments and Waste Management Performances, Final Report to DG Environment, 10 April 2012, <u>http://ec.europa.eu/environment/waste/pdf/final_report_1004201éf2.pdf</u>



(see below), such taxes can help to encourage recycling of construction wastes for use as secondary aggregates.

These taxes are assumed to be indexed to inflation (either through index linking, or through periodic adjustments to rates).

5.3.2 Packaging

Although Member States have made major strides in respect of packaging recycling, there has been less emphasis on packaging waste prevention. Some countries included in this study make use of deposit refund schemes which may increase use of refillable beverage packaging relative to the counterfactual scenario. The recently abolished Danish tax appears to have had some success in constraining the growth in packaging.⁴⁹ The suggested approach for packaging is to introduce a tax which reflects the embodied greenhouse gas emissions of materials typically used in packaging. This is a relatively conservative approach to the extent that such a tax does not account for other impacts associated with manufacture of such materials. The suggested rates for this work are shown in Table 5-1 (see Appendix A.1.0 for more details). It should be noted that whilst there are mechanisms, in some countries, to levy charges, under producer responsibility schemes, on packaging producers in respect of the packaging they place on the market, these are essentially mechanisms used to recover the cost of meeting obligations rather than a tax. The tax was modelled as being introduced in 2016. The rates are assumed to be indexed to inflation.

Material	Tonnes CO ₂ Embodied in Material	€ per Tonne of Material
Aluminium	9.84	€196.88
Plastics	3.18	€63.57
Steel	2.71	€54.16
Paper and Card	1.02	€20.35
Glass	0.89	€17.89
Wood	0.67	€13.32

Table 5-1: Weight-based Packaging Tax Rates Based on Embodied CO₂ Content (€/kg)

5.3.3 Single-use Carrier Bags

Plastics dominate marine litter and represent a significant threat to the marine environment due to their abundance, longevity in the marine environment and their ability to travel vast distances.⁵⁰ Despite representing only 10% of all waste produced,

⁴⁹ The Nordic Council (2008) *Extension of environmental taxes,* consulted October 2008 <u>http://www.norden.org/webb/news/news.asp?id=6237</u>

⁵⁰ KIMO (2010) Economic Impacts of Marine Litter, Kommunernes Internationale Miljøorganisation Local Authorities International Environmental Organisation, September 2010, available at

plastics are believed to account for between 50-80% of marine litter and this is not expected to decline for the foreseeable future (particularly as plastics do not degrade quickly).⁵¹ Terrestrial litter is also increasingly recognised as problematic, and a source of considerable disamenity.⁵²

There is a growing body of evidence which highlights the dramatic reduction in use of single-use carrier bags that a simple tax can generate. The suggested approach is a tax on all single-use carrier bags (not just plastic ones) as a means of encouraging the use of reusable bags, and reducing terrestrial and marine litter. The rate, reflecting levels which appear to have achieved major reductions elsewhere, has been proposed as $\in 0.10$ per bag. This has been adjusted to reflect purchasing power in the different Member States. Where the countries concerned already have such taxes in place, they are increased to this level. Experience indicates that allowing such taxes to be hollowed out by inflation leads to an increase in consumption, so indexing of these rates is assumed to occur.

5.3.4 Air Pollution

Several Member States implement taxes on air pollution. Such taxes provide incentives for further abatement of emissions which are harmful to human health, and are especially important in countries which are experiencing exceedance of air quality thresholds. Most existing taxes (where they exist at all) are, typically, well below the levels of the externalities which are believed to be generated. The suggestion is that there is scope for introducing such taxes where other equivalent schemes (such as emissions trading) are not already in operation, and for increasing them where they already exist. We have suggested rates of $\leq 1,000$ per tonne of SO₂, $\leq 1,000$ per tonne of NOx, and $\leq 2,000$ per tonne of PM₁₀ (and / or $\leq 3,000$ per tonne of PM_{2.5}). Such rates are still well below the level of the externalities generated, but are likely to generate some additional incentive for abatement. The suggested transition period from existing rates, or where there is no air pollution tax in place, is from 2015 to 2018, and the rates are assumed to be indexed to inflation.

5.3.5 Water Abstraction

The need for providing improved incentives for management of the water resource varies on a catchment by catchment basis. A number of countries already apply taxes on water abstraction as a means to reduce exploitation of the water resource and to address leakages. Such measures may also encourage companies to adopt measures to improve resource efficiency.

http://www.kimointernational.org/Portals/0/Files/Marine%20Litter/Economic%20Impacts%20of%20Marine%20Litter%20Low%20Res.pdf

⁵¹ Thompson, R.C., Swan, S.H., Moore, C.J. and vom Saal, F.S. (2009a) Our Plastic Age. Philosophical Transactions of the Royal Society B: Biological Sciences 364(1526): 1969-2166; Barnes, D.K.A., Galgani, F., Thompson, R.C. and Barlaz, M. (2009) Accumulation and fragmentation of plastic debris in global environments. Philosophical Transactions of the Royal Society B: Biological Sciences 364(1526): 1985-1998; Thompson, R.C., Moore, C.J., vom Saal, F.S., and Swan, S.H. (2009b) Plastics, the environment and human health: current consensus and future trends. Philosophical Transactions of the Royal Society B: Biological Sciences 364(1526): 2153-2166.

⁵² Eunomia (2013) *Exploring the Indirect Costs of Litter in Scotland*, Report to Zero Waste Scotland, <u>http://www.zerowastescotland.org.uk/sites/files/wrap/Indirect%20Costs%20of%20Litter%20-</u> <u>%20Final%20Report.pdf</u>



The suggested approach takes, as its point of departure, the Danish scheme, considered to be good practice for households, and the Dutch scheme, as good practice for businesses, with the lowest business rate applied in the Netherlands also applied to agricultural abstractions. The Danish and Dutch rates are weighted according to indices of purchasing power parity. It was also considered desirable to reflect some indicator of water scarcity in the proposal. Although there is no perfect indicator in this regard, the indicator used was the water exploitation index. PPP-adjusted rates were multiplied by:

- 0.25 for Member States with a WEI <10%;
- 0.50 for Member States with a WEI >10%, <20%;</p>
- > 0.75 for Member States with a WEI between >20%, <30%; and
- > 1.00 for Member States with a WEI >30%.

The rates applied are shown in Table 5-2 below, and are phased in over a period to 2018. After this, they are assumed to be indexed in line with inflation.

Member State	Public Supply	Manufacturing	Agriculture
Bulgaria	60	40	5
Cyprus	460	280	40
Denmark	180	110	16
Finland	160	100	14
Germany	280	170	24
Greece	230	140	19
Ireland	150	90	12
Latvia	130	80	11
Malta	300	190	26
Netherlands	290	180	25
Slovenia	110	70	9
Spain	480	300	40
Sweden	180	110	15
United Kingdom	290	180	25

Table 5-2: Suggested Tax Rates for Water Abstraction (€ per '000 m³)

5.3.6 Discharges to Waste Water

The review of good practice identified the Dutch system as being the most comprehensive and well designed. A number of countries included in this study have

systems of waste water charges in place, some of these being extremely comprehensive in their pollutant coverage.

The absence of a comprehensive dataset on emissions to waste makes it difficult to understand the existing situation in different countries, and makes modelling of revenue from any taxes rather challenging. In this case, we have modelled a tax only on BOD, which is set at the Dutch tax rate for BOD, &2.47 per kg BOD in 2013. The rate applied in each Member State is adjusted for relative purchasing power in the different countries. The rates applied are as shown in Table 5-3.

Member State	Tax Rate
Bulgaria	1.03
Cyprus	1.93
Denmark	1.62
Finland	2.77
Germany	2.34
Greece	1.92
Ireland	2.46
Latvia	2.14
Malta	1.69
Netherlands	0.00
Slovenia	1.81
Spain	2.04
Sweden	3.01
United Kingdom	2.44

Table 5-3: Rate of Tax to be Applied for BOD, € per kg

5.3.7 Additional Analysis on Charges for Water Supply and Treatment

Article 9 of the EU's Water Framework Directive (2000/60/EC) (WFD) establishes that Member States "shall take account of the principle of the recovery of costs of water services" and requires that by 2010, they have ensured "that water-pricing policies provide adequate incentives for users to use water resources efficiently and thereby contribute to the environmental objectives of this directive".

The preamble of the WFD states that *"there is a need for a greater integration of qualitative and quantitative aspects of both surface waters and ground waters"*. Although the WFD is primarily concerned with water quality, control of quantity is an



'ancillary element' to this purpose. The WFD specifically defines the 'available groundwater resource' for potable water in view of the need to respect the *"long-term annual rate of flow required for achieving the ecological quality objectives for associated surface waters"*. This definition is effectively linking water abstraction to ecological water quality, which in turn explains why the WFD mandates influencing the demand for water through the mechanism of water pricing.

We have made estimates as to the extent to which cost recovery is achieved in different countries for water supply and treatment. We have then provided estimates as to the revenue which could be generated as a result of moving to full cost recovery. We recognise that these might not be taxes per se, but they are likely to have fiscal implications, and they also help to separate the matter of below cost recovery levels of charging, and the implementation of taxes (in line with the rates suggested in preceding sections).

5.3.8 Pesticides

A number of Member States have, or have had, pesticides taxes in place. In the past, it was common to set taxes based simply on the amount of active ingredient used. Good practice is to band the tax according to the potential impact of the pesticide in the environment, with Norway and Denmark being prime examples of this approach.

Member States have developed national action plans for the management of the use of pesticides.⁵³ Several of these indicate a desire to reduce use of pesticides, and to reduce the risks associated with their use. Suitably designed pesticide taxes have a role to play in this regard. It remains possible, also, that this can improve the efficiency of agriculture by signalling to farmers the need to consider the rate of application of existing products.

It has not been possible to gain data for each country disaggregated by the nature of the active ingredient. We have, therefore, modelled revenue generation based on a tax per unit of active ingredient, though we would expect the instrument to be designed with banding of active ingredients by some indicator of potential impact. The tax rate used is based on the level of the Danish and Norwegian taxes, and the equivalent revenue per kg active ingredient. We have suggested a central rate of €10 per kg active ingredient, and adjusted this in line with differences in relative price levels of the various national agricultural sectors. The adjustment index refers to the effective CAP support schemes per hectare of utilised agricultural area in Member States, and has been derived from the CAPRI-model.⁵⁴ The resulting tax rates at the Member State level are indicated in Table 5-4 below.

⁵³ See

http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/national_action_plans_en.htm

⁵⁴ Annex III 'Intensity of spending for CAP pillar 1 and pillar 2 per hectare of UAA' in European Environment Agency (2009) *Distribution and Targeting of the CAP Budget from a Biodiversity Perspective*, EEA Technical Report 12/2009.

Table 5-4: Tax Rates Suggested for Member States for Pesticides Based on Relative Levels of CAP Support (€ per kg active ingredient)

Rate	€2.50	€5.00	€7.50	€10.00	€12.50	€17.50
	LV	BG	ES	FI	IE	DK
				SE		DE
Member States				UK		
Oldloo				CY		
				SI		

The suggested transition period from existing rates, or where there is no such tax in place, from zero rates, is from 2016 to 2018. Thereafter, rates are assumed to remain constant in real terms.

5.3.9 Fertilisers

Relatively few countries have currently taxes on fertilisers. Usually, the focus has been on nitrate pollution, with phosphate being of some interest also. Although there has been some experience with nutrient surplus taxation in the Netherlands, a decision by the European Court in the MINAS case, that input taxation is required for a scheme to be compatible with the Nitrates Directive, suggests that a tax should be based on the input of nutrients, and not to surpluses over a specified level.⁵⁵ The Dutch scheme was abandoned as a result of this ruling.

We have suggested a rate of €0.2 per kg N applied, and have, as with the rates of pesticides tax above, adjusted this in line with differences in relative price levels of the various national agricultural sectors. The resulting tax rates at the Member State level are in Table 5-5 below.

Table 5-5: Tax Rates Suggested for Member States for Nitrogen Fertilisers Based on Relative Levels of CAP Support (€ per kg N)

Rate	0.05€ per kg N	0.10€ per kg N	0.15€ per kg N	0.20€ per kg N	0.25€ per kg N	0.3€ per kg N	0.35€ per kg N	0.4€ per kg N
	LV	BG	ES	CY	IE	DK	NL	EL
				FI		DE		
Member States				SE		MT		
otateo				SI				
				UK				

The suggested transition period from existing rates, or where there is no such tax in place, from zero rates, is from 2016 to 2018. Thereafter, rates are assumed to remain constant in real terms.

⁵⁵ European Court, 2002, Case C-322/00, Commission v. Netherlands, Opinion of Advocate General Léger.



5.3.10 Aggregates

Few materials are subject to primary resource taxes in the EU-28. Aggregates stand out in this regard, partly because they are not so widely traded, and for the associated reason that their relatively low value but considerable bulk means that they tend to be transported only over relatively short distances (albeit with some exceptions). Impressive results from the combined effect of taxes on aggregates and on the landfilling of construction and demolition (C&D) wastes have been observed in the UK. The instrument should be considered in conjunction with the suggestion above (regarding the taxation of landfilled C&D wastes).

It is suggested that the implementation of such taxes should be such that the rates applied to aggregates in the UK (\leq 2.40 per tonne) are applied to the types of materials covered by such taxes. There appears to be little reason to phase this tax in. It is suggested that the tax is implemented at, or raised to, this rate by 2016. It is assumed that the tax rate is indexed to inflation.

5.4 Competitiveness Issues

The above discussion has not entered into the detail of how countries might seek to ensure that domestic industries are not rendered less competitive in export markets. However, in principle, this can be overcome through the specification of the taxable event such that exports are effectively exempt from the tax (though they could be taxed in the destination country). It might be appropriate for the opposite to be the case where what is being exported is effectively a service (for example, incineration of waste). In this case, it may be more appropriate to tax exports of waste, and exempt waste imports. Other ways to overcome potential impacts are in respect of supporting research and innovation in respect of processes and products which help industries overcome the potential downsides of any environmental taxes.

5.5 Regulatory Issues

It should be noted that when any environmental tax is introduced, or changed, the nature of incentives confronting the various actors in the affected markets also changes. The altered structure of incentives will incentivise means to evade the impact of the tax, including behaving illegally.

In this context, the potential for such behaviour to arise (and give rise to environmental problems) needs to be considered and anticipated. As such, it may be sensible to consider strengthening of the relevant regulatory apparatus, including the sanctions that may be applied, in advance of, or alongside, the tax's introduction. A classic examples in this respect is in terms of responses to taxes on landfilling, in which respect, the potential for triggering illegal, or questionable activities should be considered.

6.0 Estimating Revenues and Indirect Benefits

This section summarises the approach to calculating the revenue potential resulting from the application of environmental fiscal reform in the 12 Member States. The detailed approach is described in Appendices A.2.0 and A.3.0.

6.1 Revenue Implications of Good Practice

In calculating the revenue potential resulting from environmental fiscal reform in the 14 Member States, a number of approaches were taken depending on the different types of taxes. These approaches are outlined as follows (note this approach is detailed in Appendix A.2.0 with full references to data sources):

- > Energy Taxes:
 - The overall approach to estimating revenues from energy taxation was to seek to perform the calculations at the lowest level of granularity possible. In most cases revenue data is not broken down by fuel type, and it is not possible to access Member State's detailed budgets. Therefore making exact revenue calculations is not possible. The approach was to use as detailed data as possible on the quantities of fuels consumed in the Member States, along with the latest published excise duty rates, in order to estimate the revenue potential by fuel type.
 - The first step is to align the energy consumption data (from the International Energy Agency tables) with the categories of excise duties in the ETD. The categories in the IEA tables are not disaggregated to the same extent as the excise duties, and as such some simplifying assumptions were needed to apportion fuel consumption to different excise duties (gas oil as an industrial / commercial motor fuel versus as a heating fuel, for example).
 - Once the consumption of fuels had been split out to the extent possible, the existing excise duty rates were applied to the fuel quantities and the resultant proportions used to 'pro-rate' the latest total revenue figures (from official sources) to the different categories of fuel. The implied tax base for each fuel category was then calculated.
 - Baseline fuel consumption was assumed to remain constant in future years. To estimate a change in demand for the different fuel an own-price elasticity calculation was performed. It is recognised that there would be substitution effects in the consumption of fuels (using cross-price elasticities also would be ideal) but the aim was to show some level of realism in the revenue forecasts, not to generate complex forecasting models. The elasticities were then used to estimate a reduction in the tax base based upon the percentage change in the price of the fuel as the excise duty rates were increased based upon the application of good practice (see Section 5.2.1). Some assumptions around fuel pricing were also needed to perform this calculation.
 - The 'adjusted' tax base was then multiplied by the tax rates (assumed to stay constant in real terms i.e. adjusted upwards for inflation on an annual basis), to calculate future revenue generation by fuel type.



> Transport Taxes (excluding transport fuels):

- Vehicles the calculation of revenue was undertaken simply by multiplying the % GDP increase in tax revenue by GDP in real terms for future years. GDP was assumed to increase at the same rate as the latest real GDP growth rate projection made by Eurostat (i.e. the rate for 2015 by Member State was used to project GDP out to 2025).
- Passenger aviation an elasticity based approach was taken, with data on the number of passenger flights taken from Eurostat. The tax base was projected forward based upon historic trends, and revenue calculated by multiplying the rate by the adjusted tax base (and the same was done with all the taxes listed below).
- Air-freight a simple overall reduction estimate to the tax base was made given the lack of relevant elasticities and price data. Data on the amount of freight transported was taken from Eurostat.

Pollution and Resource Taxes:

- Waste disposal revenues from taxes on landfilling and incineration / MBT were calculated based upon a tax base adjusted using an elasticity approach. Data was taken from the European Reference Model on Municipal Solid Waste Management.
- All other pollution and resource taxes were calculated by taking evidence from the literature on the levels of reduction in demand that might be expected following the implementation of a tax (in percentage terms) or where no evidence was available, assuming marginal decreases to take some price-response into account. The following types of data were taken for the historic tax bases for each of the relevant taxes.
 - Landfilled construction and demolition mineral wastes (Eurostat Waste Statistics Regulation);
 - Aggregates extracted for domestic use (Eurostat Material Flow Accounts);
 - Packaging generation (Eurostat Packaging Directive);
 - Single-use carrier bags (CBA DG Environment);
 - Air emissions of SOx, NOx and PM (EEA Airbase);
 - Water abstracted for public water supply, manufacturing purposes and agriculture (Eurostat);
 - Discharge of water from waste water treatment plants (EEA Urban Waste Water Treatment Directive);
 - Sales of active ingredients in pesticides (Eurostat); and
 - Use of nitrogen in fertiliser (Eurostat).

6.2 Indirect Benefits

The project specifications state that data on indirect benefits resulting from environmental fiscal reform should be presented. Our approach, therefore, has been to estimate potential environmental benefits which result from increases in rates of taxation. This cannot be comprehensive in a study of this duration, so the aim has been to seek quantification of some of the environmental benefits rather than all of them.

The following points summarise the methodology:

- Data on the tax bases, and how they change based upon increased levels of taxation, is presented in Appendix A.3.0. This indicates the reduction in demand for the activities which are taxed (and which have an environmental impact);
- > The environmental impacts from the following main activities were included:
 - Change in use of transport fuels;
 - Change in use of fuels used in stationary engines;
 - Change in use of fuels used for heating;
 - Change in the use of electricity;
 - Change in emissions to air of certain air pollutants from industrial processes and power plants;
 - Change in the use of vehicles;
 - Change in the number of passenger flights;
 - Change in the demand for air freight;
 - Diversion of mixed municipal type wastes from landfill;
 - Diversion of mixed municipal type wastes from incineration and MBT plants;
 - Change in the amount of water abstraction;
 - Change in the amount of pesticides produced;
 - Change in the amount of aggregates extracted;
 - Change in the generation of various types of packaging wastes;
 - Change in the production of single-use carrier bags; and
 - Change in the production of nitrogen based fertilisers.
- Factors for the emission of greenhouse gases and other air pollutants were taken from the literature;
- Damage costs were applied to the air emission to estimate a 'value' of the offset environmental damages, resulting in an estimate of benefit;
- Carbon was valued using the approach applied in the proposed Energy Tax Directive (€20 per tonne CO₂ eq). Other air emission (such as NOx, SOx and particulates) were valued using data from the European Environment Agency;⁵⁶
- The total 'indirect' environmental benefits are then presented along with the revenue estimates.

⁵⁶ The methodology used is summarised in: European Environment Agency (2011) *Revealing the Costs of Air Pollution from Industrial Facilities in Europe*, EEA Technical Report No 15/2011, November 2011.

7.0 Bulgaria

7.1 Country Overview

7.1.1 Key Facts about the Economy and Tax System

- Bulgaria achieved significant economic growth in the between 2003 and 2008, with GDP increasing by an average of 6.3% per annum in real terms. The global recession hit hard in 2009, with GDP decreasing by 5.5% in real terms against 2008. Since then, in the period 2010 to 2013 there has been a return to growth although typically at a rate of less than 1% per year the exception being 2011 which saw GDP increase by 1.8% in real terms.⁵⁷
- Bulgaria's overall tax revenue (including social contributions) as a percentage of GDP is the lowest in the EU-28, at 27.7% for 2012. This has fallen from a high of 33.3% in 2007.⁵⁸
- Indirect taxes accounted for over half (55.3%) of total tax revenues in Bulgaria in 2012. Social contributions made up 25.8%, while direct taxes made up the smallest proportion of the total tax take at 18.8%. The indirect tax share has risen since 2002, when it stood at 44.1%.⁵⁹
- In 2012, environmental taxes amounted to 2.82% of Bulgaria's GDP. This percentage share is up overall compared to 10 years ago, but has fallen from a high of 3.45% in 2006.⁶⁰
- The largest proportion of revenues from environmental tax in 2012 came from energy taxes, which amounted to 2.82% of the country's GDP. Taxation of transport (excluding fuels) account for a much lower proportion at 0.26% of GDP, with taxation on pollution and resource amounting to only 0.05% of GDP.⁶¹
- Energy taxes accounted for 89% of Bulgaria's total environmental tax revenue in 2012, the highest rate over the past 10 years.⁶²

7.1.2 Relative Position within the EU

In 2012, revenue from environmental taxes as a percentage share of the country's GDP was higher than the EU-28 average of 2.4%. The GDP percentage

⁵⁷ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁵⁸ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

⁵⁹ Ibid.

⁶⁰ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

⁶¹ Ibid.

⁶² Ibid.

share of energy taxes was higher than the EU-28 average of 1.8%, while the share for transport (excluding fuel) taxes was lower than the average of 0.5%. The share for taxation on pollution and resource was half that of the average of 0.1% (see Figure 7-1).⁶³



Figure 7-1: Environmental Taxes in Bulgaria as a % of GDP vs EU-28 Levels (2012)

Relative to the rest of the EU-28, Bulgaria ranked 9th overall in terms of environmental tax revenue expressed as a share of GDP in 2012. In terms of energy tax revenue as a share of GDP it ranked highly, coming in second out of all Member States. The proportional contributions made by transport (excluding fuel) and pollution and resource taxation rank somewhat lower, at 19th and 17th place respectively (see Table 7-1).⁶⁴

Table 7-1: Ranking of Bulgaria's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	9
Energy Taxes as a Share of GDP (%)	2
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	19
Pollution & Resource Taxes as a Share of GDP (%)	17

Source: based on Eurostat data

63 Ibid.

64 Ibid.



7.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.5.0 (see separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon GDP in current prices from Eurostat. ^{65,66}

- > Energy Taxes:
 - The Bulgarian excise duties on fuels and electricity are shown in Table 7-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Excise Duty	Unit	Rate Applied in Bulgaria	Existing ETD Minimum	EU-28 Average	EU-28 Median			
Transport Fuels	Transport Fuels							
Leaded Petrol ¹	€ per 1000 litres	BGN 830.00 (€424.38)	€421	€585	€583			
Unleaded Petrol ²	€ per 1000 litres	BGN 688.00 (€351.77) - BGN 710.00 (€363.02)	€359	€519	€509			
Gas Oil (Diesel) ³	€ per 1000 litres	BGN 645.00 (€329.79)	€330	€427	€405			
Kerosene	€ per 1000 litres	BGN 645.00 (€329.79)	€330	€440	€405			
Liquid Petroleum Gas	€ per 1000 kg	BGN 340.00 (€173.84)	€125	€209	€180			
Natural Gas ⁴	€ per GJ	BGN 0.85 (€0.43)	€2.60	€3.03	€2.66			
Motor Fuels – Industry /	Commercial Use							
Gas Oil (Diesel)	€ per 1000 litres	BGN 645.00 (€329.79)	€21	€221	€163			
Kerosene	€ per 1000 litres	BGN 645.00 (€329.79)	€21	€283	€330			
Liquid Petroleum Gas	€ per 1000 kg	BGN 340.00 (€173.84)	€41	€126	€125			
Natural Gas ⁴	€ per GJ	BGN 0.85 (€0.43)	€0.30	€1.76	€1.50			
Heating – Business Use								

Table 7-2: Standard Rates of Excise Duties on Fuels and Electricity in Bulgaria

⁶⁵ Eurostat (2014) Euro/ECU Exchange Rates – Annual Data [ert_bil_eur_a], Accessed 5th August 2014, <u>http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ert_bil_eur_a&lang=en</u>

⁶⁶ Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014, <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD</u> P_C

Excise Duty	Unit	Rate Applied in Bulgaria	Existing ETD Minimum	EU-28 Average	EU-28 Median		
Gas Oil (Diesel)	€ per 1000 litres	BGN 50.00 (€25.56)	€21	€221	€163		
Kerosene	€ per 1000 litres	BGN 50.00 (€25.56)	€0.00	€270	€330		
Heavy Fuel Oil	€ per 1000 kg	BGN 50.00 (€25.56)	€15	€70	€25		
Liquid Petroleum Gas	€ per 1000 kg	BGN 0.00 (€0.00)	€0.00	€82	€40		
Natural Gas	€ per GJ	BGN 0.60 (€0.31)	€0.15	€1.36	€0.46		
Coal and Coke	€ per GJ	BGN 0.60 (€0.31)	€0.15	€1.27	€0.31		
Heating – Non-Business	s Use						
Gas Oil (Diesel)	€ per 1000 litres	BGN 50.00 (€25.56)	€21	€179	€125		
Kerosene	€ per 1000 litres	BGN 50.00 (€25.56)	€0.00	€279	€330		
Heavy Fuel Oil	€ per 1000 kg	BGN 50.00 (€25.56)	€15	€85	€26		
Liquid Petroleum Gas	€ per 1000 kg	BGN 0.00 (€0.00)	€0.00	€111	€42		
Natural Gas	€ per GJ	BGN 0.00 (€0.00)	€0.30	€2.04	€0.94		
Coal and Coke	€ per GJ	BGN 0.60 (€0.31)	€0.30	€1.77	€0.32		
Electricity							
Business Use	€ per MWh	BGN 2.00 (€1.02)	€0.50	€8.42	€1.03		
Non-Business Use ⁵	€ per MWh	BGN 2.00 (€1.02)	€1.00	€14.53	€2.06		
Notes:							

1. Leaded petrol is no longer sold in Bulgaria.

2. The lower rate applies for petrol containing minimum 4% biofuels.

3. Farmers are eligible to receive a 50% discount on this rate.

4. This rate is below the EU Directive minimum and Bulgaria has applied to the European Commission to use a provision in the Directive allowing lower rates of the tax on natural gas when less than 15% of the total energy consumption is natural gas.

5. Household usage of electricity is exempt from the excise duty.

Sources: European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/r ates/excise_duties-part_ii_energy_products_en.pdf

Ministry of Finance (Bulgaria) (no date) Excise Duties and Tax Warehouses Act, no date, <u>http://www.minfin.bg/document/12064:2</u>

• As shown in Table 7-2, the excise duty rates for Bulgaria are lower (in some cases significantly so) than the EU averages for almost all fuels except gas oil and liquid petroleum gas for industrial or commercial use. Natural gas rates are lower than the EU ETD minimum rates, but all other rates are

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over the minimum required.

- Revenue: The total revenue of all excise duties on energy products in 2012, the latest year for which figures are available, were BGN 1.95 billion (€995 million), equivalent to 2.5% of GDP.⁶⁷
- Transport Taxes (excluding transport fuels):
 - There is no registration tax on vehicles in Bulgaria.
 - Circulation (Road) Tax:68
 - All vehicles, aircraft and ships pay an annual circulation tax to the relevant local Municipality under the Local Taxes and Fees Act.The range of rates of the tax is set by the government, with each Municipality able to determine the level they wish to charge within this range.
 - For passenger cars, the rate is set according to the engine power and age of the vehicle and ranges from BGN 0.34 (€0.17) per kW to BGN 3.69 (€1.89) per kW, with vehicles with greater engine power paying a higher rate. These rates are multiplied by a specific coefficient which depends on the age of the vehicle – newer vehicles pay a higher rate than older vehicles.
 - Rates for motorcycles are based on the engine size and range from BGN 12.00 (€6.14) to BGN 300.00 (€153.39). Buses and lorries are also required to pay circulation tax. For details of rates for these vehicles, please see Appendix A.5.0. Electric vehicles are exempt and vehicles with engine power up to 74 kW can receive a reduction in the rate if they meet particular emissions classes.⁶⁹
 - Revenue in 2012 (the latest year for which figures are available) was BGN 180 million (€92 million), equivalent to 0.23% of GDP.⁷⁰
 - Bulgaria implemented an aircraft noise tax in November 2012. This tax is levied on all aircraft traffic at one of five international airports in within the country.⁷¹ The tax rate is calculated as a multiple of a "base noise unit"

⁶⁷ European Commission (2014) Taxes in Europe Database, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

⁶⁸ European Commission (2014) Taxes in Europe Database, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

⁶⁹ Ministry of Finance (Bulgaria) (no date) Transport Vehicle Tax, accessed 21 September 2014, <u>http://www.minfin.bg/en/page/779</u>

⁷⁰ Eurostat (2014) Revenue Data by Individual Tax (National Tax List), accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

⁷¹ Ministry of Transport (Bulgaria) (2012) Ordinance on the taxes for use of public airports and navigational services in Bulgaria, 30th November 2012,

http://caa.gateway.bg/upload/docs/NAREDBA_za_taksite_za_izpolzvane_na_letisata_za_obsestveno_polz vane_i_za_aeronavigacionno_obslujvane.pdf

(set at EUR 3.74 since 01.01.2013). The multiplier used varies according to the maximum takeoff weight of the aircraft (helicopters and aircraft under 9 tonnes MTOW are exempt) as well the time of the day of the takeoff or landing and the noise categorization of each aircraft type. Revenue for the 1-year period from July 2013 to June 2014 for Sofia airport is estimated at BGN 641 thousand (€328 thousand), equivalent to 0.0008% of GDP. The other 4 Bulgarian international airports may be expected to generate significantly less revenue from the noise tax, based on traffic volumes.⁷²

Bulgaria also uses a road vignette system, where cars must pay an annual fee to use public roads in the national road network (outside of settlement road networks). The rate depends on the type of the vehicle (with heavy goods vehicles paying a much higher rate than passenger vehicles), the validity period of the vignette and, for some vehicles, the emissions class. From 1 January 2014, annual vignette fees range from €34 for passenger vehicles to €665 for heavy goods vehicles with emissions classes Euro 0, Euro I or Euro II.⁷³

> Pollution and Resource Taxes:

- Landfill tax:
 - Bulgaria is one of the most recent EU Member States to impose a tax on landfilling waste, having introduced the tax from 1 January 2011.⁷⁴
 - Rates have increased each year from 2011 through 2014. Since 2011, the rate has increased more than ten-fold. The current rate for all waste types is BGN 22 (€11.25) per tonne, with plans to increase this rate to BGN 95 (€48.57) by 2020. Rates are double for landfills that do not conform to the standards in the Landfill Directive.⁷⁵
 - Landfill tax is paid on a quarterly basis by municipalities to the Regional Inspectorates for Environment and Water. Total revenues in 2012 amounted to BGN 27.4 million (€14 million), equivalent to 0.035% of GDP.

75 MOEW (2013) Landfill Tax Ordinance 7/2013,

http://www.moew.government.bg/files/file/Waste/Legislation/Naredbi/waste/NAREDBA_7_ot_19.12.201 3_g. za_reda_i_nachina_za_izchislqvane_i_opredelqne_razmera_na_obezpecheniqta_i_otchisleniqta_izis kvani_pri_deponirane_na_otpadaci.pdf



⁷² Sofia Airport (2014) *Airport Taxes Income and Expenses*, 28th February 2014, <u>http://www.sofia-airport.bg/UserFiles/%D0%9F%D1%80%D0%B8%D0%B8%D0%BE%D0%B6%D0%B5%D0%B5%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%D0%9F%D1%80%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%20%D0%B8%20%D0%9F%D1%80%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%D0%B8%20%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%D0%B8%20%20%20%</u>

⁷³ Road Infrastructure Agency (Bulgaria) (2014) Vignette Stickers, accessed 21 September 2014, <u>http://www.api.bg/index.php/en/vinetni-stikeri</u>

⁷⁴ European Topic Centre on Sustainable Consumption and Production (2012) Overview of the Use of Landfill Taxes in Europe, Report for European Environment Agency, April 2012, <u>http://scp.eionet.europa.eu/publications/WP2012_1/wp/WP2012_1</u>, pp. 24-25.

- Single-use bag levy:
 - Bulgaria has imposed a product tax on single-use plastic bags since October 2011. The tax was first imposed at a rate of BGN 0.15 (€0.08) per bag.⁷⁶ Since then it has increased annually to the current rate (2014), which is BGN 0.55 (€0.28) per bag. All producers and importers of plastic bags are required to pay the tax, the cost of which is usually passed on to the consumer. Revenues from the plastic bag tax were BGN 18,182 in 2013.^{77 78}
- Although there are no further pollution and resources taxes in Bulgaria, there are a number of additional relevant levies. These include:
 - Environmental product fees (under a producer responsibility scheme), paid by producers of certain items within six waste streams, including packaging materials, batteries, WEEE and vehicles.⁷⁹ Most producers and importers are members of a producer responsibility scheme and thus pay a licence fee to these. Total revenues for 2013 for the product fees amount to BGN 2.1 million (€1.1 million), equivalent to 0.0027% of GDP.⁸⁰
- Water taxes: The Water Act stipulates several taxes related to the use of water, water bodies and water pollution. The total revenue from all water taxes in 2013 amounts to BGN 51.4 million (€26.3 million), equivalent to 0.066% of GDP. This is the single most important revenue source for EMEPA (Enterprise for Management of Environmental Protection activities, a fund operated by the Ministry of Environment and Water).
 - Water abstraction taxes: There is a system of tariffs which are different depending on the purpose (household water supply, hydropower, industry, cooling, irrigation, etc.) and source (surface or groundwater) of water.⁸¹ Rates vary from BGN 0.0003 (€0.0002) to BGN 0.75 (€0.38) per m³.⁸²
 - Tax for the extraction of inert materials from water bodies. The current tax rate is BGN 1 (€0.51) per m³ of inert materials.

⁸⁰ EMEPA (2013) Report of the Company for Management Activities 2013, http://pudoos.bg/%D0%BE%D1%82%D1%87%D0%B5%D1%82%D0%B8/

⁷⁶ Using the fixed exchange rate since 1999.

⁷⁷ Earth Policy Institute (2014) Plan B Updates: The Downfall of the Plastic Bag: A Global Picture, accessed 3 September 2014, <u>http://www.earth-policy.org/plan_b_updates/2013/update123</u>

⁷⁸ Adamowski, J. (2012) Bulgaria to Increase Plastic Bag Tax by 233%, accessed 22 September 2014, <u>http://www.europeanplasticsnews.com/subscriber/headlines2.html?id=1643</u>

⁷⁹ IEEP (2013) Steps to Greening Country Report: Bulgaria, Report for the European Commission, p.19

⁸¹ Ministry of Environment (2012) Tariff for the taxes for water abstraction, use of water bodies and discharge of wastewater, 1st January 2012,

http://www3.moew.government.bg/files/file/Water/Legislation/tarifi/Ttaksi_vodovz_polzv_zamyrs.pdf

⁸² Ministry of Environment and Water (2012) Tariff of Fees for Water Use, 1st January 2012

Water pollution taxes. A tax rate of BGN 0.005 (€0.0026) per m³ for discharge to surface water bodies applies. The tax rate for discharge to groundwater bodies is dependent on a number of variables, including the level of pollution in the wastewater. The tax rate can range from a maximum of BGN 1 (€0.51) per kg of pollutant to a minimum of BGN 0.0001 (€0.000051) per kg of pollutant.⁸³

7.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Bulgaria. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

7.2.1 Current Status of EFR

As shown in Section 7.1.1, a large proportion of environmental taxation in Bulgaria (89%) consists of revenue from taxation on energy products. As Section 7.1.3 shows, however, this is not necessarily because of high tax rates, as Bulgaria's rates are below the EU average in the case of many of the energy products. Instead, this is due to a highly energy intensive economy.⁸⁴ In recent years, following a transition period after Bulgaria's accession to the EU, some excise duty rates on energy products have been increased, including small changes to the kerosene and gas oil rates; an excise duty on natural gas was also implemented in 2012. Following the introduction of the tax on natural gas, the rate on natural gas used for heating for business use was subsequently subject to a five-fold increase in January 2014.^{85 86}

A new energy tax on renewable electricity providers, set at the rate of 20% of the feed-in tariffs paid to producers of solar and wind power, was proposed in December 2013. However, this was never implemented and was deemed unconstitutional by the Bulgarian Constitutional Court in July 2014. According to the then Minister for the Economy and Energy Mr. Dragomir Stoynev, the rationale for this tax, as a "type of corporate tax", was related to the need for affordable electricity tariffs for the Bulgarian households, lifting some of the burden of previous renewable energy incentive schemes on energy consumers, and was in line with renewable energy reforms limiting such

<u>http://www.novinite.com/articles/153735/Bulgaria+Asks+EC+to+Keep+Reduced+Excise+Rate+on+Natural+Gas+for+Motor-Fuel+Use</u>



⁸³ Ministry of Environment and Water (2012) *Tariff of Fees for Water Use*, 1st January 2012

⁸⁴ European Commission (2014) Assessment of the 2014 National Reform Programme and Convergence Programme for Bulgaria, June 2014,

http://ec.europa.eu/europe2020/pdf/csr2014/swd2014_bulgaria_en.pdf, p. 12

⁸⁵ European Commission (2014) Taxes in Europe Database, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

⁸⁶ Sofia News Agency (2013) Bulgaria Asks EC to Keep Reduced Excise Rate on Natural Gas for Motor-Fuel Use, accessed 20 September 2014,

schemes already in place in other EU countries.⁸⁷ The first instance and the full judgment from the Court has yet to be released, but earlier challenges to the tax were made on the basis of its anti-competitive nature, rather than environmental, grounds.⁸⁸

A key concern in Bulgaria, which will likely limit the appetite for increasing energy taxes (and possibly other environmental taxes) is the impact of high energy costs on the population. The government has, this year, started providing farmers with a total of BGN 84 million (€43 million) worth of financial support which will see the tax rate on gas oil reduced by 50% to BGN 0.31 (€0.16) per litre.⁸⁹ Furthermore, protests over the cost of electricity were re-ignited in spring 2014, following a proposal for increased prices which was laid before the national energy regulator. In 2013, Prime Minister Boiko Borisov was forced to resign over the issue of electricity prices. When in power, the Bulgarian Socialist Party (May 2013 – July 2014) lowered electricity prices twice: first by 1.5%, and then by a further 0.8%. The subsequent government – an interim government assigned by the president – increased electricity prices by 9.77% on 1st October, 2014.^{90,91}

In relation to vehicle taxation, it is worth noting that an excise duty on motor vehicles was in place from 1994 to 2009. The rate for this tax was determined by the engine power and whether the vehicle was used or new.⁹² Revenues were BGN 15.2 million (€7.8 million), equivalent to 0.02% of GDP in 2009.⁹³ Additionally, a quarrying fee, collected by municipalities, which was previously included under the Local Taxes and Fees Act,⁹⁴ was repealed in 2008; the reasons behind this decision are not known. The fee was charged on the extraction of materials such as sand, clay and limestone. The level of the fee in 2006 was BGN 0.4 (€0.20) per m³ of extracted material and revenues totalled BGN 1.2

⁸⁹ Council of Ministers (Republic of Bulgaria) (2014) *Minister Grekov: The Distribution of Vouchers for Reduced Excise Duty on Diesel to Farmers Started*, accessed 20 September 2014, <u>http://www.government.bg/cgi-bin/e-cms/vis/vis.pl?s=001&p=0234&n=437&g=</u>

⁹⁰ State Commission for Energy and Water Regulation (2014) *Decision No. C-16*, 10th January 2014, <u>http://www.dker.bg/files/DOWNLOAD/res_c16_2014.pdf</u>

⁸⁷ Ministry of the Economy, Energy and Tourism (2013) *Press Release from December 10, 2013*, Accessed October 17th 2014, <u>http://www.mi.government.bg/bg/news/ministar-stoinev-podkrepi-vavejdaneto-na-20-taksa-ot-preferencialnata-cena-pri-izkupuvane-na-energi-1469.html</u>

⁸⁸ The Sofia Globe (2014) Bulgarian Constitutional Court Repeals Renewable Energy Tariff Fee, Accessed 20 September 2014, <u>http://sofiaglobe.com/2014/07/31/bulgarian-constitutional-court-repeals-renewable-energy-tariff-fee/</u>

⁹¹ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Monthly Progress Update: 01 June - 30 June (Issue 15/2014), Report for European Commission - DG Clima, June 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/progress_201406_en.pdf</u>, p. 7

⁹² European Commission (2014) Taxes in Europe Database, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

⁹³ Eurostat (2014) Revenue Data by Individual Tax (National Tax List), accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

⁹⁴ A previous version of the Local Taxes and Fees Act (ca. anno 2007) is available in English here: <u>http://www.minfin.bg/document/1915:1</u>

million (€0.61 million) in 2008.^{95 96} No information has been found to suggest that either of these taxes and fees are likely to be re-introduced in the near future.

It thus appears that, although there has been some shift towards environmental taxation in recent years (including the introduction of the single use plastic bag tax and the landfill tax), there has also been movement in the opposite direction. Finally, it is worth noting that no country specific recommendations relating to environmental fiscal reform were made as part of the 2014 European Semester.

7.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Bulgaria. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- Energy Taxes:
 - It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€9.7 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€7.9 per GJ). Finally, the rates for heating fuels are equalised using the ETD minimum rate for gas oil of €0.15 per GJ.
 - The existing electricity taxes are harmonised and above the ETD minimum of €0.15 per GJ so no change is suggested.
 - Table 7-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the good practice section on energy taxes (Section 5.1). The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
 - For propellants, essentially, rates are harmonised upwards in line with existing rates for petrol. This implies a major increase in taxes on LPG, and less significant, though important ones, on diesel and kerosene. Natural gas, currently not taxes at all, comes under the tax regime.

⁹⁶ Eurostat (2014) Revenue Data by Individual Tax (National Tax List), accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>



⁹⁵ Marinov, A. (2006) Analysis of the Organizational Changes in the Local Taxes and Fees Administration, Trakia Journal of Science, Vol.4, No.4, pp.52–60

- For industrial and commercial motors, the major change is, once again, for LPG.
- For business and non-business heating fuels, all fuels witness significant increases, reflecting the low levels currently.
- No adjustment is required for electricity.

Table 7-3: Existing and Suggested Rates Based upon Proposed Revisions to the ETD

Energy Tax	Units	Suggested Rates	Existing Rates			
Transport Fuels						
Motor spirit (petrol)	€ per 1000 litre	363	363			
Light fuel oil (diesel)	€ per 1000 litre	393	330			
LPG (propellant)	€ per 1000 kg	504	174			
Kerosene	€ per 1000 litre	395	330			
Natural gas (prop)	€ per GJ	11	0.43			
Industry and Commercial Motors						
Gas oil	€ per 1000 litre	330	330			
Kerosene	€ per 1000 litre	332	330			
LPG	€ per 1000 kg	422	174			
Natural gas	€ per GJ	9	0			
Business Heating						
Gas oil	€ per 1000 litre	57	26			
Heavy fuel oil	€ per 1000 kg	68	26			
Kerosene	€ per 1000 litre	56	26			
LPG	€ per 1000 kg	65	0			
Natural gas	€ per GJ	1.27	0.31			
Coal	€ per GJ	2.04	0.31			
Non-Business Heating						
Gas oil	€ per 1000 litre	57	26			
Heavy fuel oil	€ per 1000 kg	68	26			
Kerosene	€ per 1000 litre	56	26			
Energy Tax	Units	Suggested Rates	Existing Rates			
--------------------------------	---------------	--------------------	----------------			
LPG	€ per 1000 kg	65	0			
Natural gas	€ per GJ	1.27	0.00			
Coal	€per GJ	2.04	0.31			
Electricity						
Electricity - business use	€ per MWh	1.02	1.02			
Electricity - non-business use	€ per MWh	1.02	1.02			

> Transport Taxes:

- Vehicles: It is suggested that there is no increase as vehicle taxes and transport fuel taxes combined already amount to 2.7% of GDP, which is around the level of the good practice benchmark (see Section 5.2.1). However, it should be noted that only 0.2% of GDP is derived from vehicle circulation and registration taxes, and that there is significant scope for increasing these should the Government be seeking additional sources of revenue. Furthermore, the existing national vignette appears to levy relatively low rates on HGVs as compared with, for example, the levels applied under the Eurovignette (covering Belgium, Netherlands, Denmark, Luxembourg and Sweden), even though the rates applied therein have not risen since 2001.⁹⁷
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. The introduction of a tax on passenger flights and air freight is recommended in Bulgaria. The suggested rates for the air passenger tax for are €15 per passenger (flights within the country concerned), €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). The suggested air transport tax rate is €1.25 per tonne of freight. The year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted in the good practice section, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax (see Section 5.2.2).
- > Pollution and Resource Taxes:
 - Aggregates: An aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is

⁹⁷ See Ricardo-AEA (2014) Evaluation of the Implementation and Effects of EU Infrastructure Charging Policy since 1995, Final Report to DG MOVE, January 2014.



in-line with the flagship initiative 'A Resource Efficient Europe'.⁹⁸ Bulgaria currently has an aggregates tax only on the extraction of inert materials from water bodies, with a tax rate of €0.51 per m³. It is suggested that this rate should be increased to €2.40 per tonne from 2016, and that thereafter, kept constant in real terms. The tax should also be expanded to include extraction of aggregates from land, and could include the following types of materials:

- o Marble
- o Chalk and dolomite
- o Slate
- Limestone and gypsum
- Sand and gravel

The total amount of aggregates extraction in 2013 was 11.9 million tonnes (construction materials and natural stone/rocks, not including industrial minerals). Thus, such a tax could provide a significant stream of additional revenue.

Waste - landfill tax: Landfill taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive. Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. Landfill taxes also provide support to the application of the waste hierarchy. In 2012, the rate of waste landfilled (directly or indirectly) in Bulgaria was 73% (excluding major mineral wastes, dredging spoils and contaminated soils),99 considerably higher than the EU-28 average of 29%.¹⁰⁰ A landfill tax is in place in Bulgaria. Two rate structures are used to encourage the disposal of waste in landfills that conform to the EU Landfills Directive: a rate of €11.25 per tonne is specified for municipal and non-hazardous waste deposited in a landfill that conforms to Directive. while a higher rate of €35.79 per tonne is applied to waste deposited into a landfill that does not conform to the Directive. There are plans to gradually increase the rate of the former tax to €48.57 (in nominal terms) by 2020. It is suggested that, in order to further incentivise reduction in the landfilling rate, the rate for non-hazardous waste is raised to a minimum of €50 per tonne in real terms by 2019. An early announcement of this tax and its escalation over a number of years would help drive the change in the waste management sector needed to meet EU targets in

⁹⁸ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

⁹⁹ Communication from the Bulgarian's Ministry of Environment and Water to the European Commission, 2014.

¹⁰⁰ Eurostat (2014) Landfill Rate of Waste Excluding Major Mineral Wastes, Accessed 14th October 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=t2020</u> <u>rt110&tableSelection=1</u>

2020 and beyond. We suggest this tax should be indexed to an appropriate measure of inflation.

- Waste incineration / MBT tax: In order to ensure that wastes are not simply shifted from landfill to incineration, it is suggested that an incineration tax is introduced, up to €15 per tonne in real terms over the same period as the landfill tax is increased (i.e. up to 2019). An equivalent rate is also proposed for MBT facilities. These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe.¹⁰¹
- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. According to the Bulgarian ExEA 89.55% of the urban population in Bulgaria is exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg per m³) for over 35 days per year.¹⁰² A recent report on air quality by the EEA found that particular sites in Bulgaria and Poland registered annual mean concentrations of PM_{2.5} concentrations close to or above double the target value threshold.¹⁰³ This might be improved in part by the changes in energy taxes proposed above, which may affect the use of transport, and the choice of vehicle type.

In most Bulgarian cities, high PM emissions are mainly caused by the widespread use of wood and coal for household heating. State subsidies to poorer households serve to encourage the use of these fuel types. In Sofia, emissions from transport are also a significant source of PM. Industrial facilities are significant contributors at several specific locations, mainly in smaller cities such as Pernik, Dimitrovgrad and Galabovo.

Bulgaria does not currently have a system of air pollution taxes in place, although many industrial users currently pay fines for high emissions. It is suggested that an air pollution tax could be implemented for industry, in order to generate improvements, at the margin, in air quality. The suggested tax rates used in our modelling are as follows:

- o SOx €1,000 per tonne
- NOx €1,000 per tonne
- PM10 €2,000 per tonne

¹⁰³ European Environment Agency (2013) *Air Quality in Europe*, p.32, <u>http://www.eea.europa.eu/publications/air-quality-in-europe-2013/at_download/file</u>



¹⁰¹ European Commission (2011) *Roadmap to a Resource Efficient Europe*, 20th September 2011, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN</u>

¹⁰² Bulgarian Executive Environmental Agency (2012) National Report of the State of the Environment, <u>http://eea.government.bg/bg/soer/2012</u>

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

 Packaging: A small number of Member States have implemented packaging taxes for all packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested that the following rates could be applied to all packaging placed on the market in Bulgaria:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2016 and be kept constant in real terms.

- Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that *"Member States shall take account* of the principle of recovery of the costs of water services, including environmental and resource costs". Water abstraction charges are currently in place in Bulgaria; however, some charges do not ensure full cost recovery and an increase in rates is suggested. Increases would be appropriate on water abstraction for drinking water, manufacturing purposes, and agriculture; recommended rates are €60 per 1,000 m³, €40 per 1,000 m³ and €5 per 1,000 m³ respectively. We have assumed that the additional revenue which such rates may generate can accrue to the central budget. A transition period from 2016 to 2021 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.
- Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21st May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.¹⁰⁴ Bulgaria does charge users for wastewater treatment as part of water charges. A water pollution tax on the discharge of waste water to surface and groundwater bodies is also in place. To improve prevention of water pollution we suggest consolidation of this tax so that tax rates are directly proportionate to the level of pollution in the waste water, and to adjust tax rates in-line with

¹⁰⁴ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

good practice (see Section 5.3.6). With relative price levels in Bulgaria this would imply, for BOD, a rate of €1.03 per kg of the pollutant. For freshwater discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. It is suggested that rates should be held constant in real terms once they reach the 2019 levels.

 Pesticides: Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

> "...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> <u>designed to achieve these targets</u>".

There is a trend towards banding taxes to reflect the level of hazard associated with them, and we would suggest such an approach is suitable in Bulgaria. Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €5.00 per kg active ingredient. The suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark) would be a concrete measure that would contribute towards the aims of the Action Plan.

 Fertilisers: Bulgaria does not currently implement a tax on nitrogen (or other) fertilisers. It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of 0.1 € per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

7.2.3 Summary of Revenue Outcomes

Table 7-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).



Table 7-4: Potential Additional Revenue from Environmental Fiscal Reform in Bulgaria, million BGN (real 2014 terms)¹⁰⁵

Тах	2017	2020	2025
Energy Taxes			
Transport fuels	44	169	285
C&I / Heating	76	151	151
Electricity	26	26	26
Sub-total Energy, million BGN	146	346	463
Sub-total Energy, % GDP	0.17%	0.41%	0.55%
Transport Taxes	<u>.</u>		
Passenger Aviation Tax	252	552	656
Freight Aviation Tax	0.03	0.06	0.06
Sub-total Transport, million BGN	252	552	656
Sub-total Transport, % GDP	0.30%	0.65%	0.78%
Pollution and Resource Taxes	<u>.</u>		
Landfill Tax - Non-haz General	41	47	9
Incineration / MBT Tax	3	9	9
Air Pollution Tax	336	646	507
Water Abstraction Tax	7	17	17
Waste Water Tax	23	32	32
Pesticides Tax	7	14	15
Aggregates Tax	201	124	131
Packaging Tax	16	13	11
Fertiliser Tax	0.026	0.056	0.070
Sub-total Pollution & Resource, million BGN	634	903	732

¹⁰⁵ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014, http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD

P_C

Тах	2017	2020	2025
Sub-total Pollution & Resources, % GDP	0.75%	1.07%	0.86%
Total Environmental Taxes			
Total, million BGN	1,032	1,801	1,850
Total Increase, % GDP	1.22%	2.13%	2.19%

Table 7-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 7-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Bulgaria, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	133
Increased Cost Recovery for Water Use	496
Total	629

7.2.4 Environmental Benefits

Table 7-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.5.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, BGN 761 million of benefits are anticipated annually by 2025 in real terms.

Table 7-6: Monetised Environmental Benefits from Implementation of Suggested Taxes, million BGN (real 2014 terms)¹⁰⁶

Тах Туре	2017	2020	2025
Energy Taxes	4	10	13
Transport Taxes (excluding transport fuels)	2	5	6
Pollution and Resource Taxes	204	710	748

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C



 $^{^{106}}$ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

Тах Туре	2017	2020	2025
Total, million BGN	210	725	767
Total, % GDP	0.23%	0.75%	0.71%

7.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Bulgaria:¹⁰⁷

- In 2012, environmental taxes generated revenue equivalent to 2.82% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Bulgaria. These could generate BGN 1.0 billion in 2017 (EUR 0.5 billion), rising to BGN 1.8 billion in 2025 (EUR 0.9 billion) (both in real 2014 terms). This is equivalent to 1.19% and 2.16% of GDP in 2017 and 2025 respectively.
- The largest single contribution to revenue comes from the suggested Passenger Aviation Tax. This accounts for BGN 0.66 billion by 2025 (EUR 0.34 billion) (real 2014 terms), equivalent to 0.61% of GDP.
- The next largest contribution to revenue comes from an Air Pollution Tax. This accounts for BGN 0.51 billion by 2025 (EUR 0.26 billion) (real 2014 terms), equivalent to 0.47% of GDP.
- Revenue potential from a C&I / Heating Tax would raise BGN 0.15 billion by 2025 (EUR 0.08 billion) (real 2014 terms), equivalent to 0.14% of GDP.
- An Aggregates Tax is also suggested. This would contribute BGN 0.13 billion by 2025 (EUR 0.07 billion) (real 2014 terms), equivalent to 0.12% of GDP.
- In addition, a range of more minor taxes on could generate revenue of BGN 0.094 billion by 2025 (EUR 0.048 billion) (real 2014 terms), equivalent to 0.09% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around BGN 0.8 billion by 2025 (EUR 0.4 billion) (real 2014 terms), equivalent to 0.70% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €629 million per annum could be raised in addition to the above.

¹⁰⁷ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

8.0 Cyprus

8.1 Country Overview

8.1.1 Key Facts about the Economy and Tax System

- Cyprus experienced erratic economic growth between 2003 and 2008, with its year on year increase in GDP averaging out at 3.8% per annum in real terms. Following a 1.9% decrease in GDP in 2009, 2010 brought some recovery with a 1.3% in real terms increase against the previous year. From 2011 to 2013, however, the economic situation has become steadily worse, with growth falling from a 0.4% increase in real terms in 2011 to a 5.4% decrease in 2013.¹⁰⁸
- Cyprus's overall tax revenue (including social contributions) is below the EU-28 average of 39.8%, at 35.3% of GDP. This has risen overall from 30.9% in 2002, although it has dropped since peaking at 40.1% in 2007.¹⁰⁹
- In 2012, indirect taxes made up 42.7% of Cyprus's total tax revenue, with direct taxes providing 31.4% and social contributions making up the remaining 25.9%. Since 2007, the shares of direct and indirect taxes have been falling (from 34.4% and 46.8% respectively) with social contributions rising.¹¹⁰
- In 2012, environmental taxes in Cyprus amounted to 2.67% of GDP. This percentage is at a 10 year low, and has been falling year on year since reaching a high of 4.02% in 2004.¹¹¹
- Energy taxes accounted for the greatest proportion of environmental taxes in 2012, amounting to 1.89% of Cyprus' GDP in 2012. Revenues from transport (excluding fuel) taxes amounted to 0.78% of GDP. According to Eurostat, Cyprus does not generate any revenue from taxation placed on pollution and resource.¹¹²
- The contribution of energy taxes to overall environmental tax revenue for 2012 stood at 70.8%. This contribution has risen considerably over the past 10 years, from 33.4% in 2002. There has therefore been a corresponding fall in the proportion of the revenue which is raised from transport taxes.

¹¹² Ibid.



¹⁰⁸ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

¹⁰⁹ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T AX_AG

¹¹⁰Ibid.

¹¹¹ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

8.1.2 Relative Position within the EU

The proportion of environmental tax revenue as a percentage share of GDP in Cyprus was higher than the EU-28 average of 2.4% in 2012. Both the GDP percentage shares of energy tax and transport (excluding fuel) tax revenue were higher than the EU-28 averages (1.89% and 0.5% respectively). As Cyprus is not recorded as deriving any revenue from taxes on pollution and resource, the corresponding percentage share is obviously below the average of 0.1% of GDP for the EU-28 (see Figure 8-1).¹¹³



Figure 8-1: Environmental Taxes in Cyprus as a % of GDP vs EU-28 Levels (2012)

In terms of revenues derived from all environmental taxes expressed as a percentage share of GDP, Cyprus ranked 11th in the EU-28 for 2012. Looking similarly at revenue from energy taxes alone, Cyprus ranked 15th, while it ranked in a higher position of 7th place for revenue from transport (excluding fuel) taxes. Owing to the fact that Cyprus is not recorded as having any revenue from the taxation of pollution and resource, for this measure it ranked joint 27th with Greece, for which revenue from this group of tax sources is similarly absent (see Table 8-1).¹¹⁴

¹¹³ Ibid.

¹¹⁴ Ibid.

Table 8-1: Ranking of Cyprus's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	11
Energy Taxes as a Share of GDP (%)	15
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	7
Pollution & Resource Taxes as a Share of GDP (%)	27

Source: based on Eurostat data

8.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.6.0. This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{115,116}

> Energy Taxes:

• The Cypriot excise duties on fuels and electricity are shown in Table 8-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Excise Duty	Unit	Rate Applied in Cyprus	Existing ETD Minimum	EU-28 Average	EU-28 Median	
Transport Fuels						
Leaded Petrol	€ per 1000 litres	€421	€421	€585	€583	
Unleaded Petrol	€ per 1000 litres	€479	€359	€519	€509	
Gas Oil (Diesel)	€ per 1000 litres	€450	€330	€427	€405	
Kerosene	€ per 1000 litres	€450	€330	€440	€405	
Liquid Petroleum Gas	€ per 1000 kg	€125	€125	€209	€180	

Table 8-2: Standard Rates of Excise Duties on Fuels and Electricity in Cyprus

¹¹⁵ Eurostat (2014) *Euro/ECU Exchange Rates – Annual Data* [ert_bil_eur_a], Accessed 5th August 2014, <u>http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ert_bil_eur_a&lang=en</u>

¹¹⁶ Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014, <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD</u> P_C

Excise Duty	Unit	Rate Applied in Cyprus	Existing ETD Minimum	EU-28 Average	EU-28 Median
Natural Gas	€ per GJ	€2.60	€2.60	€3.03	€2.66
Motor Fuels – Industry,	/ Commercial Use	·			
Gas Oil (Diesel) ¹	€ per 1000 litres	€450	€21	€221	€163
Kerosene ¹	€ per 1000 litres	€450	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€125	€41	€126	€125
Natural Gas	€ per GJ	€2.60	€0.30	€1.76	€1.50
Heating – Business Use)		·		
Gas Oil (Diesel)	€ per 1000 litres	€124.73	€21	€221	€163
Kerosene	€ per 1000 litres	€124.73	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€15	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	-	€0.00	€82	€40
Natural Gas	€ per GJ	€2.60	€0.15	€1.36	€0.46
Coal and Coke	€ per GJ	€0.31	€0.15	€1.27	€0.31
Heating – Non-Busines	s Use				
Gas Oil (Diesel)	€ per 1000 litres	€124.73	€21	€179	€125
Kerosene	€ per 1000 litres	€124.73	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€15	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	-	€0.00	€111	€42
Natural Gas	€ per GJ	€2.60	€0.30	€2.04	€0.94
Coal and Coke	€ per GJ	€0.31	€0.30	€1.77	€0.32
Electricity					
Business Use ²	€ per MWh	-	€0.50	€8.42	€1.03
Non-Business Use ²	€ per MWh	-	€1.00	€14.53	€2.06
Notes:					

 When gas oil or kerosene is used as a motor fuel in a stationary motor, a reduced rate applies: €124.73 per 1,000 litres of fuel.

No excise duty is levied on electricity as a separate tax on electricity exists.

Sources: European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

<u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/r</u> <u>ates/excise_duties-part_ii_energy_products_en.pdf</u>

- Many of the excise duty rates increased significantly in 2013 as a part of fiscal consolidation measures undertaken by the government in order to eliminate its budget deficit as required by the Economic Adjustment Programme that has been implemented since April 2013. Despite these increases most excise duty rates are still at or below the EU average, though a few are above.
- Full exemptions from excise duty apply for gas oil and kerosene used in certain machineries in agricultural, horticultural and piscicultural works and in forestry. Other exemptions include fuels used by the armed forces; fuels used for the purpose of air and sea navigation (the latter within EU waters only); fuels used for the production of electricity or for agricultural, horticultural and piscicultural works and in forestry.¹¹⁷
- Revenue from all excise duties on energy products in 2012 (the latest year for which figures are available): €317 million (equivalent to 1.8% of GDP).¹¹⁸
- Electricity levy ('Tax on Energy Conservation (Funds)'):119
 - A levy is applied to all uses of electricity. The income from this levy is dedicated to supporting renewable electricity and energy conservation projects (through the Special Fund for Renewable Energy Sources and Energy Conservation). The levy is collected by the Electricity Authority of Cyprus at a flat rate of €5.00 per MWh¹²⁰
 - Revenue from the Electricity Levy in 2012 (the latest year for which figures are available) was €21 million (equivalent to 0.12% of GDP).¹²¹

¹¹⁸ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

¹¹⁹ Partasides, G. (2013) Feed-In Tariff Specifications, Features, Amendments, and Current and Future Challenges in Cyprus, paper given at Third IRENA Assembly Meeting: Workshop on Renewable Energy Policies, 12 January 2013,

https://www.irena.org/DocumentDownloads/2013/January/Workshop/Country%20Case%20Study%20-%20Cyprus%20-%20George%20Partasides.pdf

¹²⁰ European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/ra tes/excise_duties-part_ii_energy_products_en.pdf

¹²¹ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>



¹¹⁷ Customs & Excise Department (Cyprus) (no date) *Excise Duties - Frequently Asked Questions*, accessed 12 September 2014,

http://www.mof.gov.cy/mof/Customs/customs.nsf/All/722042670E887148C2257BF10032FAD1?Open Document

Transport Taxes (excluding transport fuels):

- Registration Tax / Vehicle Excise Duty (Φόροι κατανάλωσης):¹²²
 - Cars imported into Cyprus are required to pay excise duty (registration tax) before being registered in Cyprus.¹²³ This is a 'oneoff' tax. The level of taxation is based on the CO₂ emissions, engine capacity or, in the case of a few specific vehicles, the value of the vehicle.
 - Electric vehicles and hybrids are exempt from the excise duty, as are trucks, buses and vehicles with more than 9 seats. The level of the duty is reduced for used vehicles. The level of reduction takes the age, type, condition and mileage of the vehicle into account and is also applicable to motorcycles.
 - The basic rates of the excise duty are outlined in Appendix A.6.0 and range from €0 to more than €2,000 for the most polluting vehicles. Additionally, regardless of any relief of the excise duty (in respect of used vehicles) an additional €0.02 per cc of engine capacity is charged for each vehicle.
 - Revenue in 2013 (the latest year for which figures are available) was €14.8 million (equivalent to 0.09% of GDP).¹²⁴
- Road Tax (for a Circulation License):¹²⁵
 - Cars registered in Cyprus are required to pay an annual 'road tax' in order to receive a circulation license. All vehicles are required to pay this tax, including both public and private vehicles.
 - The tax was amended with effect from 1 January 2014. Vehicles registered in Cyprus after this date pay according to the CO_2 emissions of the vehicle, whilst vehicles registered prior to this date pay an amount based on engine size, though with an added malus payment depending on CO_2 emissions and engine size.
 - Rates and other discounts and exemptions are outlined in Appendix A.6.0. For vehicles registered since 1st January 2014, the rates range from €10 per year for the least polluting vehicles to €240 for vehicles emitting 180 g per km CO₂ plus an additional €8 per g per km CO₂ above 240 g per km CO₂. Revenue from the road tax in

¹²² Customs & Excise Department (Cyprus) (2013) Vehicles from Member States of the European Union -On Payment of Excise Duties and VAT, accessed 31 August 2014,

http://www.mof.gov.cy/mof/Customs/customs.nsf/All/505369EB35BEDE8B422579040055CC92?Open Document

¹²³ This is in additional to customs duties, which vehicles from outside the EU must also pay.

¹²⁴ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

¹²⁵ Cyprus Advanced Driving and Road Safety Network (2014) *Road Tax - Circulation Licence*, accessed 31 August 2014, <u>http://www.cyprusdriving.net/documents/Road_Tax_Cyprus.php</u>

2012 (the latest year for which a total figure is available) was €91.9 million (equivalent to 0.52% of GDP).¹²⁶

- Additionally, there are a number of fees and charges relating to transport in Cyprus, all of which are considered 'taxes' within a variety of sources (e.g. they appear in Eurostat's National Tax List and are discussed as taxes in academic literature). This study does not consider these as taxes, but outlines them here for completeness:
 - The registration fee for all vehicles since January 2014 is €150 per vehicle.¹²⁷ Prior to January 2014, this fee was based on the type of vehicle and its engine power and generated a more substantial amount of income.¹²⁸ Revenue in 2012 (the latest year for which figures are available): €10.4 million (equivalent to 0.06% of GDP).¹²⁹
 - Fees for driving licences and road use permits: Rates unknown. Revenue for driving licences: €1.8 million in 2012 (equivalent to 0.01% of GDP). Revenue for road use permits: €0.3 million in 2012 (equivalent to 0.002% of GDP).¹³⁰
- Additional transport 'taxes' included within the Eurostat National Tax List include:¹³¹
 - Ship registration fees (revenue in 2012: €1.3 million, equivalent to 0.007% of GDP); Fees for professional licenses of road transporters (revenue in 2012: €0.0 million); Ships' wireless licence fees (revenue in 2012: €0.1 million, equivalent to 0.001% of GDP); and Tax on ship management services (revenue in 2012: €1.9 million, equivalent to 0.011% of GDP).
- There are no air transport taxes in Cyprus.

¹³¹ Ibid.

¹²⁶ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

¹²⁷ Τμήμα Οδικών Μεταφορών (Road Transport Department) (no date) Οχήματα - Τέλος Εγγραφής (Vehicles - Registration Fee), accessed 3 September 2014,

http://www.mcw.gov.cy/mcw/RTD/rtd.nsf/All/FFDD4D44F29E862DC2257824002B1F92?OpenDocumen

¹²⁸ Adamou, A., and Clerides, S. (2013) Tax Reform in the Cypriot Road Transport Sector, *Cyprus Economic Policy Review*, Vol.7, No.1, pp.87–114

¹²⁹ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985</u> <u>_en.htm</u>

¹³⁰ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

- Pollution and Resource Taxes:
 - There are no pollution or resources taxes in Cyprus, apart from property and land ownership taxes which are not considered in this study.
 - Although no waste taxes are in place, there are charges for municipal waste disposal, and some producer responsibility schemes in place, requiring payment of fees for packaging waste (ranging from €21.28 for aluminium to €105.89 for plastic), WEEE and batteries.¹³² These are not taxes and fall out of scope of this study.

8.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Cyprus. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

8.2.1 Current Status of EFR

There is a reasonable amount of interest in implementing environmental fiscal reform across the country, although Cyprus is not currently very far along the road in the implementation of many environmental taxes. As an example, the European Commission Representation in Cyprus jointly hosted a conference with the Cyprus University of Technology on Environmental Tax Reform in Nicosia in June 2014.¹³³ In one of the opening speeches for this conference, the Agriculture Minister, Nicos Kouyialis, discussed the necessity of moving towards a 'Green Economy' stating that the Ministry of Agriculture, Natural Resource and the Environment is currently working on an action plan with this aim. A key element of this new economy will be new forms of environmental taxation, though other economic instruments will also be used and environmentally harmful subsidies removed. No specific initiatives or taxes were introduced at the time, but it does seem that there is commitment to some degree of environmental fiscal reform. ^{134,135}

Some recent changes have been made in relation to energy- and transport-related environmental taxation. This includes increasing excise duty rates for motor fuels (petrol and gas oil) in 2013 and 2014 as well as implementing an emissions-based increase in

¹³² IEEP (2013) Steps to Greening Country Report: Cyprus, Report for the European Commission, p.11

¹³³ European Commission Representation in Cyprus (2014) *Environmental Tax Reform in Times of Economic Crisis: What are the Prospects?*, accessed 31 August 2014, <u>http://ec.europa.eu/cyprus/events/20140526_en.htm</u>

¹³⁴ Kouyialis, N. (2014) Opening Speech of Agriculture Minister Nicos Kouyialis at 'Environmental Tax Reform in Times of Economic Crisis: What are the Prospects?', June 2014, <u>http://ec.europa.eu/cvprus/documents/2014/20140526 speech minister kouvialis greentax.pdf</u>

¹³⁵ Psillides, C. (2014) 'Green Tax' Plans to Boost 'Green Growth' Says Minister, accessed 3 September 2014, <u>http://cyprus-mail.com/2014/06/07/green-tax-plans-to-boost-green-growth-says-minister/</u>

the circulation tax for vehicles in 2014.^{136,137} In 2013, the Parliamentary Committee for Environment also tabled a proposal for a biofuel exemption from excise duties.¹³⁸

Within pollution and resources taxes, less progress has been made overall. Although there are indications that various taxes have been considered in one way or another, no pollution taxes are currently in place in Cyprus. As an example, proposals for a plastic bag tax or charge were tabled by the Greens in 2008 but did not result in new legislation.¹³⁹ Furthermore, no mention of plans for a pesticides tax have been made in Cyprus' National Action Plan on pesticide usage.¹⁴⁰ However, a study was done on the 'optimum' pesticides tax rate in Cyprus in 2011 by the Economics Research Centre at the University of Cyprus, a centre which is part funded by several government ministries.¹⁴¹

Cyprus receives financial support from the European Central Bank and the International Monetary Fund through the Economic Adjustment Programme. There are terms and conditions associated with this support programme and in order not to duplicate these, no country specific recommendations have been applied to Cyprus as part of the European Semester programme.

8.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Cyprus. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

¹⁴¹ Kalaitzidakis, P., Tzouvelekas, V., Mamuneas, T.P., Stengos, T., and Gregoriou, P. (2011) *Optimal Tax Rates for Pesticides Usage in Cyprus Agriculture Production*, November 2011, <u>http://www.ucv.ac.cv/erc/documents/DOP05-11.pdf</u>



¹³⁶ European Commission - DG ECFIN (2014) *The Economic Adjustment Programme for Cyprus: Fourth Review - Spring 2014*, June 2014,

http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/pdf/ocp197_en.pdf, pp. 95-96.

¹³⁷ Psillides, C. (2014) *Big Cars to Pay Higher Road Tax*, accessed 31 August 2014, <u>http://cyprus-mail.com/2014/01/09/big-cars-to-pay-higher-road-tax/</u>

¹³⁸ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Country Report: Cyprus, January 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/cy_2014_en.pdf</u>, p. 13.

¹³⁹ Earth Policy Institute (2014) *Plan B Updates: The Downfall of the Plastic Bag: A Global Picture,* accessed 3 September 2014, <u>http://www.earth-policy.org/plan_b_updates/2013/update123</u>

¹⁴⁰ Available in English on the European Commission website: <u>http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/national_action_plans_en.htm</u>

> Energy Taxes:

- It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€13.2 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€11.3 per GJ). Finally, the rates for heating fuels are equalised using the minimum rate for kerosene of €2.1 per GJ.
- There are no existing electricity taxes, so a new tax at the ETD minimum of €0.15 per GJ is suggested.
- Table 8-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the good practice section on energy taxes (Section 5.1). The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not
- In the case of propellants, the revisions imply a major increase in taxes on LPG, and an alignment of taxes on diesel and kerosene with those on petrol. The tax on natural gas also increases significantly.
- In the case of fuels used in commercial and industrial motors, again, taxes on natural gas and on LPG are the ones that are increased most as a result of the alignment associated with the proposed revision to the ETD;
- On heating fuels (business and non-business), the changes imply significant uplifts in taxes on heavy fuel oil and coal (both by a factor of around 10), whilst LPG – at present, untaxed for this purpose – sees a significant tax imposed.
- Because there is currently no tax on electricity, this is also increased in line with the proposed revision of the ETD,

Table 8-3: Existing and Suggested Rates Based upon Proposed Revisions to the ETD

Energy Tax	Units	Suggested Rates	Existing Rates
Transport Fuels			
Motor spirit (petrol)	€ per 1000 litre	479	479
Light fuel oil (diesel)	€ per 1000 litre	518	450
LPG (propellant)	€ per 1000 kg	666	125
Kerosene	€ per 1000 litre	520	450
Natural gas (prop)	€ per GJ	14	3
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	450	450

Energy Tax	Units	Suggested Rates	Existing Rates	
Kerosene	€ per 1000 litre	453	450	
LPG	€ per 1000 kg	579	125	
Natural gas	€ per GJ	12	3	
Business Heating				
Gas oil	€ per 1000 litre	125	125	
Heavy fuel oil	€ per 1000 kg	145	15	
Kerosene	€ per 1000 litre	125	125	
LPG	€ per 1000 kg	154	0	
Natural gas	€ per GJ	3.20	2.60	
Coal	€ per GJ	3.97	0.31	
Non-Business Heating	·			
Gas oil	€ per 1000 litre	125	125	
Heavy fuel oil	€ per 1000 kg	145	15	
Kerosene	€ per 1000 litre	125	125	
LPG	€ per 1000 kg	154	0	
Natural gas	€ per GJ	3.20	2.60	
Coal	€per GJ	3.97	0.31	
Electricity				
Electricity - business use	€ per MWh	0.54	0.00	
Electricity - non-business use	€ per MWh	0.54	0.00	

> Transport Taxes:

• Vehicles: No increase in vehicle taxes is suggested since the revenue from vehicle taxes and transport fuel taxes combined are already 2.7% of GDP, which is the good practice benchmark (see Section 5.2.1). However, only 0.9% of GDP was derived from vehicle circulation and registration taxes in 2011 (the year the benchmark relates to). It should be noted that Cyprus appears to have the most polluting HGVs of all European Member States, as assessed by the measure of the proportion of vehicle kilometres travelled by vehicles in Euro Class I and below. Addressing this through appropriately differentiated charges would appear to make sense in

Cyprus.

• Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. Cyprus does not have any aviation taxes on passenger flights, so there is scope for introducing these. The suggested rates for the air passenger tax are €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). The suggested air transport tax rate is €1.25 per tonne of freight. The year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted in the Good Practice section, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax (see Section 5.2.2).

There has been some discussion about the introduction of an air passenger/freight tax in Cyprus. However, the country's reliance on tourism as a means of economic growth and as a source of revenue to help tackle the fiscal deficit means that there may be strong resistance to such a tax if it were not applied uniformly across Europe. Indeed, as noted above, this may come to pass depending on the final proposals that are put forward by ICAO. Nonetheless, we have applied the rates noted above, and the revenues are, as expected, significant (see below).

Pollution and Resource Taxes:

- Aggregates: There is currently no tax on aggregates in Cyprus on a national level. An aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is in-line with the flagship initiative 'A Resource Efficient Europe'.¹⁴² It is suggested that regional rates set by the levy on landscape protection and nature conservation are set at €2.40 per tonne from 2017, and that thereafter, they are kept constant in real terms. The types of materials that could be covered by the tax are:
 - o Marble
 - Chalk and dolomite
 - o Slate
 - Limestone and gypsum
 - Sand and gravel

The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues.

• Waste – landfill tax: There is currently no landfill tax in place in Cyprus. Landfill taxes provide incentives for improved waste management,

¹⁴² European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

encourage waste prevention and recycling and facilitate the meeting of targets under Article 11 of the Waste Framework Directive. Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. A landfill tax would also give support to the application of the waste hierarchy. The most recent data available for Cyprus indicated that 60% of all non-hazardous waste went to landfill in 2012, which is one of the highest rates of waste landfilled (either directly or indirectly) in an EU member state.¹⁴³ This is partly because recycling was only introduced in Cyprus in the last few years (i.e. 2006 for industry and incrementally from 2007 for households), and slow progress has been made in terms of educating the general public and industries and incentivising recycling as opposed to landfill and incineration.¹⁴⁴ It is suggested that the rate of landfill tax for non-hazardous wastes is raised to a minimum of €50 per tonne in real terms by 2021. An early announcement of this tax and its escalation over a number of years would help drive the change in the waste management sector needed to meet EU targets in 2020 and beyond. It is also suggested that a landfill tax be introduced for construction wastes in 2017 at a rate of €2.40 per tonne. We suggest these taxes should be indexed to an appropriate measure of inflation.

- Waste incineration / MBT tax: Although there is currently no incineration in Cyprus, in order to ensure that wastes are not simply shifted from landfill to incineration, it is suggested that an incineration tax is introduced, up to €15 per tonne over the same period as the landfill tax is increased (i.e. up to 2017). An equivalent rate is also proposed for MBT facilities. These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe. It is suggested that this is also applied to waste prepared for export for incineration.
- **Packaging:** A small number of Member States have implemented packaging taxes for all packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. Cyprus is not one of these. It is suggested that the following rates could be applied to all packaging placed on the market in Cyprus:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne

¹⁴⁴ Green Dot (Cyprus) (2014) *Green Dot Cyprus*, <u>http://www.greendot.com.cy/en/view-subpage-green2b/1/profile</u>



¹⁴³ Eurostat (2014) Landfill rate of waste excluding major mineral wastes, <u>http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=0&pcode=t2020_rt110&l</u> <u>anguage=en</u>

0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2017 and be kept constant in real terms.

- Single-use carrier bag tax: There is currently no tax on single-use carrier bags in Cyprus. Of these bags, plastic bags in particular cause many environmental problems when littered in the environment, especially when they are transported to, or littered in the riverine, or marine, environment. Moreover in countries such as Cyprus with high level of tourism littered plastic bags can deter visitors. A wide body of experience suggests that taxing single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.¹⁴⁵ Consequently, it is suggested that Cyprus implements a tax on single-use carrier bags at a rate of €0.09 per bag from 2017, and maintains the rate constant in real terms thereafter.
- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. According to Airbase (EEA) 100% of the urban population in Cyprus is exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg/m³) for over 35 days per year since 2010, when data first became available.¹⁴⁶ The sectors most responsible for the particulate matter are industrial processes (45%) followed by energy use (25%) and road transport (24%).¹⁴⁷ For ozone, the percentage of the total population exposed to ozone concentrations above the target value for the 26th highest daily maximum eight-hour average was 0% in 2010, down from 50.9% in 2009.¹⁴⁸ Part of the problem is that public transportation (i.e. buses) were only introduced in Cyprus in 2010.

¹⁴⁵ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

¹⁴⁶ Eurostat (2014) Resource Efficiency Scoreboard: EU Urban Population Exposed to PM10 Concentrations Exceeding the Daily Limit Value %, Accessed 21st January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=0&pcode=t2020_rn200&</u> <u>language=en</u>

¹⁴⁷ European Environment Agency (2013) *Air Pollution Fact Sheet* 2013 - Cyprus, 2013, <u>file:///C:/Users/christina.tsiarta/Downloads/Cyprus.pdf</u>

¹⁴⁸ European Environment Agency (2013) *Air Pollution Fact Sheet* 2013 - Cyprus, 2013, <u>file:///C:/Users/christina.tsiarta/Downloads/Cyprus.pdf</u>

No railways or trams exist making the society a predominantly car driven one, which contributes significantly to air pollution.¹⁴⁹ Cyprus does not currently have a system of air pollution taxes in place. It is suggested that an air pollution tax could be implemented in order to generate improvements in air quality as follows:

- SOx €1,000 per tonne
- o NOx €1,000 per tonne
- o PM10 €2,000 per tonne

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

 Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". Cyprus is one of four member states (the others being Malta, Italy and Spain) which are considered to be water stressed, together comprising 18% of Europe's population.¹⁵⁰ Cyprus' water exploitation index (WEI) for fresh surface water and groundwater abstraction¹⁵¹ was 68.8% in 2011, indicating the country has severe scarcity of fresh surface and ground water (WEI>40% indicates severe stress).¹⁵²

This means that Cyprus has high abstraction rates in relation to its available resources and is therefore prone to suffering severe competition for water, which may trigger water crises. Such severe water stress could also impact freshwater ecosystems which cannot remain healthy if the waters in a river basin are abstracted as intensely as indicated by a WEI that is greater than 40%.¹⁵³ It is also worth noting that countries with the highest agricultural water use also have the highest water consumption indexes,¹⁵⁴ such as Cyprus, where agricultural water use predominates. Cyprus' consumption index is about –25% and its exploitation index is

¹⁵² Eurostat (2014) Water Exploitation Index,

 $\underline{http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=0&language=en&pcode=tsdnr310$



¹⁴⁹ Wikipedia (2014) *Transport in Cyprus*, <u>http://en.wikipedia.org/wiki/Transport_in_Cyprus</u>

¹⁵⁰ Marcuello, C., and Lallana, C. (2003) Indicator Fact Sheet - Water Exploitation Index (WQ01c)

¹⁵¹ The indicator presents: i) the annual total fresh water abstraction in a country as a percentage of its long term average available water (LTAA) from renewable fresh water resources; ii) the annual groundwater abstraction as a percentage of the country's long-term annual average groundwater available for abstraction; and iii) the annual surface water abstraction as a percentage of the country's long-term annual average surface water resources available for abstraction. The latter is calculated as the total fresh water resources (external inflow plus precipitation less evapotranspiration) less groundwater available for abstraction.

¹⁵³ Marcuello, C., and Lallana, C. (2003) Indicator Fact Sheet - Water Exploitation Index (WQ01c)

¹⁵⁴ Water consumption index is the total consumption divided by the long term freshwater resources of a country. This index highlights those regions where higher consumptive uses are predominant.

about +43%, with the average water consumption index in Europe being 3%.^{155,156} As a result Cyprus has five desalination plants in place to meet its total water demand (three of which contribute 65% of total demand in drinking water to the water balance).¹⁵⁷ However, desalination plants consume vast quantities of energy and contribute to greenhouse gas emissions, marine pollution, and also generate noise pollution.

Currently, there are no taxes for abstraction in Cyprus (i.e. to address scarcity or the environmental impacts for abstraction), although charges on irrigation water exist and these are currently at the same rates that existed in the early 2000s before the Water Framework Directive was implemented, at €170 per 1,000 m³. National authorities are in the process of implementing higher irrigation water charges in order to cover the improve costs recovery for water provision (of the order of €210 per 1,000 m³). The existing charges are substantially lower than the 'optimal' rates for full cost recovery which are reported to be in the order of €450 per 1,000 m³.¹⁵⁸

It is suggested that appropriate levels of taxation would be of the order \leq 460 per 1,000 m³ for the public water supply, \leq 280 per 1,000 m³ for manufacturing purposes and \leq 40 per 1,000 m³ for agriculture. We have assumed that the additional revenue which such rates may generate can accrue to the central budget. A transition period from 2016 to 2021 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.

It is also considered imperative that the new Law for the Protection and Management of Water Resources¹⁵⁹ that was passed in February 2014 is implemented as soon as possible, to ensure compliance with Article 9 of the Water Framework Directive, and to make it easier to implement water levies in such a way that they cover both resource and environmental costs, in line with the requirements of the Directive.

¹⁵⁵ Marcuello, C., and Lallana, C. (2003) Indicator Fact Sheet - Water Exploitation Index (WQ01c)

 $^{^{156}}$ For the purpose of this assessment it has been assumed that 80 % of total water abstracted for agriculture, 20 % for urban use, 20 % for industry and 5 % for energy production is consumed and not returned to the water bodies from where it was abstracted (+/- 5-10%). Variation depends on the sector and other factors e.g. the actual water consumption in agriculture depends on climatic conditions, crop composition and irrigation techniques.

¹⁵⁷ Manoli, A. (2010) Desalination in Cyprus, Water Development Department, Ministry of Agriculture, Natural Resources and the Environment, March 2010,

http://www.moa.gov.cy/moa/wdd/Wdd.nsf/0/24B06DE543FBD990C22576EB002E2633/\$file/Desalina tion.pdf

¹⁵⁸ Personal communication with Theodoros Zachariadis, Department of Environmental Science and Technology, Cyprus University of Technology, 15th October 2014.

¹⁵⁹ Ministry of Agriculture, Natural Resources and the Environment, Republic of Cyprus (2014) Law for the Protection and Management of Water Resources

- Waste water: Council Directive 91/271/EEC concerning urban waste water treatment was adopted on 21 May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.¹⁶⁰ Cyprus does not currently have a waste water tax, although citizens to pay a fee for wastewater treatment which however does not account for any environmentally related concerns. To improve prevention of water pollution it is suggested to implement a waste water tax and adjust tax rates in-line with 'good practice'. With relative price levels in Cyprus this would imply, for BOD, a rate of €1.93 per kg of the pollutant. For fresh-water discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. Existing exemptions should be reviewed and adjusted accordingly. It is suggested that rates should be held constant in real terms once they reach the 2019 levels.
- **Pesticides:** Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> designed to achieve these targets".

Cyprus' Action Plan for 2013-2017¹⁶¹ sets out:

"...the quantitative and other targets, measures and timetables to reduce risks and impacts of plant protection products use on human health and the environment and for the development and introduction of integrated pest management and of alternative approaches and techniques in order to reduce dependency on the use of plant protection products."

Moving away from pesticides to other means of managing pests will be critical in minimising their use. Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €10 per kg active ingredient. The suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and

http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/docs/nap_cypriot_en.pdf



¹⁶⁰ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

¹⁶¹ European Commission (2013) The Plant Protection Products Law of 2011 - National Action Plan for Cyprus 2013-2017, October 2013,

Denmark) would be a concrete measure that would contribute towards the aims of the Action Plan.

Fertilisers: Cyprus does not currently implement a tax on nitrogen (or other) fertilisers. It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of 0.2 € per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

8.2.3 Summary of Revenue Outcomes

Table 8-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated). It is worth noting that the calculated revenue from transport taxes are high – this is due to the fact that the ratio of flights to GDP in Malta is the second highest in the EU-28.

Тах	2017	2020	2025			
Energy						
Transport fuels	3	13	23			
C&I / Heating	15	61	107			
Sub-total Energy, million EUR	19	74	130			
Sub-total Energy, % GDP	0.12%	0.46%	0.80%			
Transport						
Passenger Aviation Tax	107	203	195			
Freight Aviation Tax	0.01	0.02	0.01			
Sub-total Transport, million EUR	107	203	195			
Sub-total Transport, % GDP	0.67%	1.26%	1.21%			

Table 8-4: Potential Additional Revenue from Environmental Fiscal Reform in Cyprus, million EUR (real 2014 terms)¹⁶²

¹⁶² % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

Тах	2017	2020	2025		
Pollution and Resource					
Landfill Tax - Non-haz General	15	21	21		
Landfill Tax - Inerts (C&D)	0.3	0.2	0.2		
Incineration / MBT Tax	0.7	1.0	1.1		
Air Pollution Tax	11	22	18		
Water Abstraction Tax	11	27	27		
Waste Water Tax	0.9	1.2	1.2		
Pesticides Tax	3	6	6		
Aggregates Tax	33	21	22		
Packaging Tax	1.3	1.0	0.7		
Single Use Bag Tax	10	2	2		
Fertiliser Tax	0.000	0.0003	0.0002		
Sub-total Pollution & Resource, million EUR	87	102	100		
Sub-total Pollution & Resources, % GDP	0.54%	0.63%	0.62%		
Total Environmental Taxes					
Total, million EUR	212	379	425		
Total Increase, % GDP	1.32%	2.35%	2.64%		

Table 8-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 8-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Cyprus, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	54
Increased Cost Recovery for Water Use	5
Total	59



8.2.4 Environmental Benefits

Table 8-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.6.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, \in 58 million of benefits are anticipated annually by 2025 in real terms.

Table 8-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Cyprus, million EUR (real 2014 terms)¹⁶³

Тах Туре	2017	2020	2025
Energy Taxes	0	2	3
Transport Taxes (excluding transport fuels)	1	2	2
Pollution and Resource Taxes	14	47	53
Total, million EUR	15	51	59
Total, % GDP	0.09%	0.29%	0.31%

8.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Cyprus:¹⁶⁴

- In 2012, environmental taxes generated revenue equivalent to 2.67% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Cyprus. These could generate EUR 0.2 billion in 2017, rising to EUR 0.4 billion in 2025 (both in real 2014 terms). This is equivalent to 1.32% and 2.64% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the suggested Passenger Aviation Tax. This accounts for EUR 0.19 billion by 2025 (real 2014 terms), equivalent to 1.02% of GDP.

¹⁶³ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

 $^{^{164}}$ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

- The next largest contribution to revenue comes from the proposed tax on business heating fuels. This accounts for EUR 0.11 billion by 2025 (real 2014 terms), equivalent to 0.56% of GDP.
- Revenue potential from the suggested reforms to transport fuels would raise EUR 0.023 billion by 2025 (real 2014 terms), equivalent to 0.12% of GDP.
- A tax on aggregates has also been suggested. This would contribute EUR 0.022 billion by 2025 (real 2014 terms), equivalent to 0.11% of GDP.
- In addition, a range of more minor taxes could generate revenue of EUR 0.052 billion by 2025 (real 2014 terms), equivalent to 0.27% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.058 billion by 2025 (real 2014 terms), equivalent to 0.30% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €59 million per annum could be raised in addition to the above.



9.0 Denmark

9.1 Country Overview

9.1.1 Key Facts about the Economy and Tax System

- Between 2003 and 2007 Denmark's GDP grew by an average rate of 2% per annum in real terms, with growth peaking in 2006 when the country's GDP grew by 3.4% in real terms. The rate of growth slowed in 2007 and the country entered into recession in 2008. Denmark's GDP contracted markedly in 2009, decreasing by 5.7% in real terms. Since then, most years have seen muted growth, except for 2012 which saw a 0.4% real terms decrease in GDP.¹⁶⁵
- In 2012, Denmark's total tax revenue (including social contributions) as a percentage of GDP was the highest in the EU-28, at 49.9%. This high level of tax as a share of GDP has remained relatively constant since 2002, although it was at its highest in 2005 when the total tax take amounted to 51.9% of GDP.¹⁶⁶
- The contribution made by direct taxes to the total tax take is the highest in the EU-28 at 62%, and social contributions are the lowest at 3.8% (2012). Indirect taxes make up the remaining 34.2%.¹⁶⁷
- In 2012, revenues from environmental taxes amounted to 3.87% of Denmark's GDP, this share being the highest in the EU-28. Denmark has consistently had the highest rates of environmental taxation as a share of GDP for the past 10 years, and reached a high of 4.86% in 2005.¹⁶⁸
- In 2012, revenues from energy taxes made up the greatest proportion of the total stream of environmental taxes, amounting to 2.2% of Denmark's GDP. Revenues from transport (excluding fuel) taxes were equivalent to 1.44% of GDP, and income from pollution and resource taxes amounted to 2.4% of the country's GDP in 2012.¹⁶⁹
- Energy taxes made up 56.8% of Denmark's total environmental tax revenue in 2012. This percentage is now higher than it was in 2002 (53.8%) after having dipped around 2006–2007 and risen again in the interim.¹⁷⁰

¹⁶⁵ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

¹⁶⁶ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

¹⁶⁷ Ibid.

¹⁶⁸ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

¹⁶⁹ Ibid.

¹⁷⁰ Ibid.

9.1.2 Relative Position within the EU

Expressed as a percentage share of GDP, Denmark had the highest environmental tax revenue in 2012, well above the 2.4% average for the EU-28. Revenues from energy, transport (excluding fuel), and pollution and resource taxes amounted to 2.20%, 1.44%, and 0.24% of GDP, respectively – in all cases these are above the European average rates (see Figure 9-1).¹⁷¹



Figure 9-1: Environmental Taxes in Denmark as a % of GDP vs EU-28 Levels (2012)

In 2012, Denmark ranked 1st out of all EU-28 Member States in terms of revenue from environmental taxation expressed as a percentage of GDP. Denmark also ranked 1st in terms of revenue from transport (excluding fuel) taxation as a share of GDP, and it ranked high in terms of the share for energy taxes, and pollution and resource taxes, at 6th place on both accounts (see Table 9-1).¹⁷²

Table 9-1: Ranking of Denmark's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	1
Energy Taxes as a Share of GDP (%)	6
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	1
Pollution & Resource Taxes as a Share of GDP (%)	6

Source: based on Eurostat data

¹⁷¹ Ibid.

¹⁷² Ibid.



9.1.3 Existing Environmental

The structure and rates for each tax, as well as full references, are given in Appendix A.7.0. This section summarises key aspects of the main environmental taxes, and for energy, describes how the rates compare with European averages and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC):

Energy Taxes:

 In Denmark there are excise duties on fuels and electricity. These taxes are shown in Table 9-2, which shows how they compare to the recommended minimum rates in the existing ETD and the EU-28 average and median rates.¹⁷³

Excise Duty	Unit	Rate Applied in Denmark (1€=7.4582DKK)	Existing ETD Minimum	EU-28 Average	EU-28 Median
Motor Fuels - Propellant	t				
Unleaded Petrol	€ per 1000 litres	€595.99	€359	€519	€509
Gas Oil (Diesel)	€ per 1000 litres	€405.59	€330	€427	€405
Kerosene	€ per 1000 litres	€454.13	€330	€440	€405
Liquid Petroleum Gas	€ per 1000 kg	€502.80	€125	€209	€180
Natural Gas	€ per GJ	€10.13	€2.60	€3.03	€2.66
Motor Fuels – Industry ,	/ Commercial Use				
Gas Oil (Diesel)	€ per 1000 litres	€81.04	€21	€221	€163
Kerosene	€ per 1000 litres	€80.39	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€94.66	€41	€126	€125
Natural Gas	€ per GJ	€14.03	€0.30	€1.76	€1.50
Heating – Business Use					
Gas Oil (Diesel)	€ per 1000 litres	€404.92	€21	€221	€163
Kerosene	€ per 1000 litres	€404.92	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€462.58	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€502.80	€0.00	€82	€40

Table 9-2: Excise Duties on Fuels and Electricity in Denmark

¹⁷³ European Commission (2013) *Taxes in Europe Database*, Accessed 13th December 2013, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

Excise Duty	Unit	Rate Applied in Denmark (1€=7.4582DKK)	Existing ETD Minimum	EU-28 Average	EU-28 Median	
Natural Gas	€ per GJ	€10.92	€0.15	€1.36	€0.46	
Coal and Coke	€ per GJ	€11.76	€0.15	€1.27	€0.31	
Heating – Non-Busines	s Use					
Gas Oil (Diesel)	€ per 1000 litres	€404.92		€179	€125	
Kerosene	€ per 1000 litres	€404.92	€0.00	€279	€330	
Heavy Fuel Oil	€ per 1000 kg	€462.58	€15	€85	€26	
Liquid Petroleum Gas	€ per 1000 kg	€502.80	€0	€111	€42	
Natural Gas	€ per GJ	€10.92	€0.3	€2.04	€0.94	
Coal and Coke	€ per GJ	€11.76	€0.3	€1.77	€0.32	
Electricity						
Business Use	€ per MWh	€0.54	€0.5	€8.42	€1.03	
Non-Business Use	€ per MWh	€111.69	€1.0	€14.53	€2.06	

Sources: European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/ra tes/excise_duties-part_ii_energy_products_en.pdf

- Taxes on petrol and diesel were increased gradually in the late 1990's as part of Denmark's environmental tax reform. They peaked in 2002 and, although nominal tax rate adjustments have been made in recent years, they have gradually declined, with current rates being about 10% lower in real terms (e.g. 5 to 6 cents per litre). A legally mandated indexation of all energy tax rates since 2009 has brought the decline to a standstill.
- The discrepancy between tax rates for petrol and diesel has been fairly stable at about €0.18 to €0.20 per litre over the past two decades, but being close to 30% of the petrol tax, it is significant. The discrepancy is addressed with an offsetting circulation surtax on diesel vehicles, which has recently been increased.
- Denmark's fuel taxation has had an energy tax component as well as a CO₂ tax component for more than two decades, although with extensive exemptions. The energy tax component of non-motor fuels is refunded for business purposes liable to VAT, except the share of energy taxation corresponding to EU minima rates. The CO₂ tax rate is reduced for specific energy-intensive processes listed in the CO₂ tax law.



- In 2008 the carbon-energy tax system was amended, to exempt ETScovered installations from the CO₂ tax. Non-ETS business remains liable to the CO₂ tax.
- Following a decision in 2013 to reduce non-heating energy tax rates for business, the present rates for gas oil, kerosene, and gas listed in the TAXUD tables mainly reflect the EU minima plus Denmark's CO₂ tax. In addition, the energy tax on electricity for business has been reduced to the obligatory EU minimum. The CO₂ tax on electricity was renamed an energy savings tax, before being abolished in 2014.
- Fuels used for power production, including in CHP units, are exempt from energy and CO₂ fuel taxes for the non-heating share of their production. The tax burden on fuels used for heating, on the other hand, is scaled down – assigning heating fuels energy contents according to the 120% formula. Businesses that receive their heating from public suppliers can reclaim the share of energy taxes passed over in their heat bill, as well as 94% of the energy taxes due on their own heating fuels, but not the CO₂ tax applicable to heating.
- In addition to the energy and CO₂ taxes, there are air pollution taxes regarding SO₂ and NO_X relevant for fossil fuels (see section on Pollution and Resource Taxes below).

> Transport Taxes (excluding transport fuels):

- There is an *ad-valorem* registration tax on passenger vehicles at 105% of the list price for the first €10,600 and 180% for the remaining part. A bonus-malus adjustment complements the registration tax, pending on energy-efficiency (see Appendix A.7.0 for more details). Reduction in the registration tax to a 50% flatrate is available for passenger vehicles that are used partly for business purposes.
- The circulation tax for passenger vehicles ('grøn ejer-afgift') is also linked to the relative energy efficiency of the vehicle and varies between €32 and €4,052 annually (see Appendix A.7.0 for more details). Diesel vehicles are subject to a circulation surtax ('udligningsafgift'), which partly offsets the advantage conveyed with lower taxation of diesel relative to petrol. Finally, a €134 surtax for diesel vehicles without particle filters also applies in Denmark.
- For light-duty vehicles (<4 tonnes) there is an ad-valorem registration tax at 50% of the list price above €2,300. The bonus-malus adjustment for passenger vehicles applies for light-duty vehicles too. Light-duty vehicles (<3.5 tonnes) registered after 18th March 2009 are under the same energy-efficiency scale for circulation taxes as passenger vehicles and to comparable surtaxes.
- Heavy-duty vehicles (>4 tonnes) for freight transport are not subject to a registration tax. There is a road user charge for heavy-duty vehicles (>12 tonnes), which is part of the Eurovignette scheme in which Denmark participates. Duty vehicles between 3.5 and 12 tonnes are not subject to the road user charge, but to a weight-based circulation tax. It applies also to vehicles above 12 tonnes if they are not subject to the Eurovignette.

- In addition to the above, there are further transport-related taxes on large yachts, vehicle tires, vehicle license plates and insurances for pleasure boats and vehicles (see Appendix A.7.0 for more details).
- Pollution and Resource Taxes:
 - The Danish pesticide tax, which previously had an *ad-valorem* tax base, has (since 2013) been changed so that the base is now a score related to toxicity of the individual products.¹⁷⁴ The toxicity score depends on aspects relating to human health, diffusion, and biodiversity. The tax rate is DKK 107 (€14.36) for each unit of the score on the toxicity index. It is payable by all manufacturers and importers of pesticides. The revised tax is expected to increase the tax burden overall for pesticides.
 - Since 1987, landfilling and incineration of waste in Denmark has been subject to a tax.¹⁷⁵ All sites that receive waste are required to register. From 2010 the tax rate for incineration depends on the energy content of waste, harmonised with other energy taxes.
 - SO₂ emissions from fuels used in power plants and industrial installations have been subject to a tax since 1996. The tax only applies when the sulphur content of the fuel exceed 0.05% - fuels include, fossil fuels as well as certain biofuels, such as, straw, wood pellets, and waste. The tax rate is DKK 22.60 (€3.03) per kg of sulphur or DKK 11.30 (€1.52) per kg of SO₂ emitted.
 - NO_x emissions from fuels with airborne emissions are subject to a tax in Denmark (introduced in 2008). The tax applies to fossil fuels as well as to certain biofuels, including straw, wood pellets and waste. Following an increase in 2012 a tax rate of DKK 25.50 (€3.42) per kg of NO_x emissions now applies – this rate applies for motor fuels and for stationary emitters.
 - Methane emissions from natural gas and biogas are subject to a tax, when used for stationary motors or for heating purposes. The methane tax is DKK 0.065 (€0.009) per Nm³. For biogas, the rate is DKK 1.1 (€0.15) per GJ.
 - Discharges of waste water effluent (BOD, nitrogen and phosphorus) that are emitted directly to surface waters are (since 1995) subject to taxation.¹⁷⁶ Mainly, it is sewage outlets/sewage treatments plants and industries (e.g. food-processing) that are liable. The tax rates are DKK 16.50 per kg BOD (€2.21); 30 DKK per kg nitrogen (€4.03); and DKK 165 per kg phosphorus (€22.15).



¹⁷⁴ http://eng.mst.dk/topics/pesticides/international-seminar-on-a-new-pesticide-tax/

¹⁷⁵ The waste tax: an ex-post evaluation of incentives and environmental effects, Working report for the Danish Environmental Protection Agency 1997.

http://pure.au.dk/portal/files/78887428/waste_tax_87_7944_195_5.pdf

¹⁷⁶ Miljøstyrelsen (2004) Samfundsøkonomisk analyse af spildevandsafgiften, København.

- A tax on piped water supply applies for households and VAT-exempt entities.¹⁷⁷ The tax has a rate of DKK 5.46 (€0.73) per m³.¹⁷⁸ Water works are obliged to register and must collect the tax with the water bills. The law requires that at least 90% of the water sent into the distribution network must be accounted for, which provides an incentive to minimise leakages.
- A tax is charged on the extraction of raw materials in Denmark. The standard tax rate is DKK 5 (€0.67) per m³. About 30 different raw materials are subject to the tax, including, among others sand, stones, clay, chalk and peat. Extraction of raw materials requires a permit, whereby the relevant extracting businesses are officially registered, while importers have an obligation to register. For exported products containing raw materials a refund option is available.
- Taxes are charged on beverage packaging according to a complex system with differences in tax rates which partly reflect the environmental burdens of the various packaging materials. Higher rates have therefore been set for aluminium, other metals, and plastics; and lower rates for paper, cardboard, and wood. The tax rates are also linked to the existing deposit refund system. The same legislation prescribes taxes for disposable tableware and shopping bags. See Appendix A.7.0 for more details. A previous weight-based packaging tax on a range of non-beverage goods was abolished in 2013.¹⁷⁹
- Denmark has a tax on the phosphorous content in animal fodder, to minimise the environmental impacts on soils and freshwaters via livestock manure or other diffusion. The tax rate is DKK 4 (€0.54) per kg of mineral phosphorus. There is also a tax on nitrogen fertiliser with a rate of DKK 5 (€0.67) per kg but it applies only to smaller quantities. Farmers have obtained an exemption (see Appendix A.7.0 for more details).
- A tax is charged on CFC's and halons at a rate of 30 DKK per kg (€4.03). The tax is due for producers and importers of CFC's and halons. The tax can be refunded when these substances are embedded in products which are exported (see Appendix A.7.0 for more details).
- A tax is charged on PVC-foils and on PVC products with phthalates softeners for 10 different product groupings listed in the law. The tax rate is weight or volume based, with a specific rate for each product group (see Appendix A.7.0 for more details).

¹⁷⁷ MS Andersen et al (2014) Implications of water price reform for riverine and coastal surface water quality, EPI-WATER working paper.

¹⁷⁸ www.skat.dk/skat.aspx?old=2067490&vld=0

¹⁷⁹ MS Andersen (2012) Innovative responses to packaging taxes, powerpoint presentation at 13th Global Conference on Environmental Taxation, Vancouver. http://pure.au.dk/portal/en/persons/mikael-skouandersen(d6eb07fd-3020-4801-9beb-04c0cc0f0914)/activities.html
- Since 1996, a tax has been charged on chlorinated solvents, with the current rate being DKK 2 (€0.27) per kg. The tax is paid by producers and importers, but the tax base has been practically eliminated over the years.
- A waste management tax is charged on nickel-cadmium batteries at a rate of DKK 6 (€0.81) a piece. The tax is paid by producers and importers, but the tax base has been now been largely eliminated. A comparable tax on lead accumulators has been abolished after tax base elimination.
- A tax is charged on electric bulbs at a rate of DKK 2.42 (€0.32) per item. Eurostat labels it as a pollution tax, while Denmark regards it as a consumption tax along with coffee and cigarettes.
- A new tax on the distribution of printed commercial media to households has been approved by the Danish parliament and notified to the European Commission. The rates are DKK 2 to DKK 3 (€0.27-€0.40) per item.
- From the above list, the most significant taxes in terms of revenue raised are the tax on piped water supply, the tax on pesticides, the packaging taxes and the NO_X tax. Together, these taxes raise about 75% of Denmark's total revenues in the category of pollution and resource taxes.

9.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Denmark. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

9.2.1 Current Status of EFR

Denmark was one of the pioneers in broadening the tax base and during the 1990's introduced three successive phases of environmental fiscal reform:

- Phase one (1992-1993) targeted mainly households with income tax relief and environmental taxes;
- Phase two (1995-1996) targeted industry and resulted in a comprehensive scheme of carbon and energy taxation; and
- Phase three (1998-19999) further extended the scope of energy taxes, for example, to include natural gas, and aimed for approximating tax rates per GJ of energy within each of the categories of industry motors and heating.

Vehicle taxation is traditionally an important source of revenue in Denmark. From 1997 a new tax base was defined for the circulation tax, based on the energy efficiency of vehicles. This tax base was later extended to included light-duty vehicles.

During the decade of the 2000's Denmark experienced a 'tax stop', which resulted from a government that did not allow any tax rates to increase. Industrial installations covered by ETS were freed from the CO_2 tax. The registration tax was moderated by increasing the threshold for the highest tax rate and taxes on packaging were lowered. The resulting fiscal squeeze eventually brought a revival to tax reform, and in 2009 a 'green tax reform' was agreed. It lowered income taxes against introducing indexation of energy taxes and the foreseen revenues from auctioning of ETS-allowances.



Following the failure at COP15 and the deepening of the fiscal and economic crisis which started in 2008, Denmark dismantled some of the energy taxes on industry and business in 2013. The country has, however, kept in place for non-ETS business its national CO₂ tax on top of the minimum energy tax rates defined in the EU's ETD. A tax related to air pollution with NO_x from power plants and industry was introduced in 2012 at a rate of €3.36 per kg. There has also been an increase in the offsetting circulation surtax for diesel vehicles.

It is remarkable that environmentally-related taxes have declined by a full percentage point of GDP over the last decade. This mainly reflects the fact that registration taxes for passenger vehicles have been effectively reduced, and the 8-fold 'dieselization' of the passenger vehicle fleet, which has caused revenues from transport-related fuel taxes to decline markedly. The weakening of packaging and waste taxes has also played a role in this decline. Many of these changes have taken place in a relatively subtle manner without much attention being drawn to them.

9.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Finland. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- > Energy Taxes:
 - Energy taxes are harmonised based upon the highest energy content of all of the different fuels used for each purpose (propellants, heating etc). Transport fuels are equalised using the energy content on petrol (€12.7 per GJ). Motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€9.85 per GJ). Finally, due to the existing rates for gas oil used for heating being very close to the new minimum rates proposed for ETD, this proposal is applied to other heating fuels with the consistent approach implied (€0.15 per GJ and CO₂ at €20 per tonne).
 - Table 9-3 shows the increases in tax rates (using ETD units) for the different fuels by use. Due to the unusually high non-business electricity tax in Denmark the proposed average increase for business amounts to 1/3 or €0.40 per kWh.

Table 9-3: Existing and New Rates Based upon Proposed Revisions to ETD

Energy Tax	Units	Suggested Rates	Existing Rates	
Transport Fuels				
Motor spirit (petrol)	€ per 1000 litre	596	596	

Energy Tax	Units	Suggested Rates	Existing Rates
Light fuel oil (diesel)	€ per 1000 litre	643	406
LPG (propellant)	€ per 1000 kg	831	506
Kerosene	€ per 1000 litre	647	454
Natural gas (prop)	€ per GJ	18	10
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	81	81
Kerosene	€ per 1000 litre	80	80
LPG	€ per 1000 kg	96	95
Natural gas	€ per GJ	2	2
Business Heating			
Gas oil	€ per 1000 litre	405	405
Heavy fuel oil	€ per 1000 kg	463	463
Kerosene	€ per 1000 litre 407		405
LPG	€ per 1000 kg	519	506
Natural gas	€ per GJ	11.15	10.92
Coal	€ per GJ	11.92	11.76
Non-Business Heating			
Gas oil	€ per 1000 litre	405	405
Heavy fuel oil	€ per 1000 kg	463	463
Kerosene	€ per 1000 litre 407		405
LPG	€ per 1000 kg 519		506
Natural gas	€ per GJ 11.15		10.92
Coal	€per GJ	11.92	11.76
Electricity			
Electricity - business use	€ per MWh	40.00	0.54
Electricity - non-business use	€ per MWh	111.69	111.69



- In the case of propellants, the revisions imply a significant increase in the tax on diesel (58%), redressing the existing imbalance between petrol and diesel rates. There are also significant increases in taxes on kerosene, LPG and natural gas (43%, 64% and 80%, respectively).
- In the case of fuels used in commercial and industrial motors, there is very little change required (1% increase in the tax on LPG).
- On heating fuels (business and non-business), the minimal changes required reflect the relatively comprehensive approach already in place in Denmark. The largest increase is for LPG, for which the tax rate increases by less than 3%.

> Transport Taxes:

- Vehicles: The taxes on transport and on transport related fuels together raise revenues of the order 2.50% of GDP. The suggested increase in transport taxes for Denmark to meet the good practice benchmark is 0.13% of GDP. Transport taxes in Denmark are well above the average in the EU (1.49% of GDP compared to an average of 0.54% GDP). Even so, some changes could be considered. For example, the tax base is not related to emissions, and so is not in line with the Commission's 2005 proposal on taxes on passenger vehicles.¹⁸⁰ Along with other countries under the Eurovignette scheme, for heavy-goods vehicles, some differentiation according to EURO class, and extension of the scheme to vehicles between 3.5t and 12t could be considered. These vehicles are subject only to a weight based circulation tax.¹⁸¹
- Aviation: Currently there is no aviation tax in Denmark. It is suggested to implement an aviation tax on air passenger flights and on air freight. The suggested rates for the air passenger tax are €15 per passenger for flights within the Denmark, €25 per passenger for flights within the European Union, and €50 per passenger for flights to destinations outside the European Union. The suggested air transport tax rate is €1.25 per tonne of freight. The suggested year of implementation is 2016.

Pollution and Resource Taxes:

 Aggregates: Extraction of minerals for use as aggregates causes harm to the environment. An aggregates tax helps to reduce the environmental burden by increasing the price of raw materials, and so stimulates the market for recyclable materials. This ultimately reduces costs for businesses, but also is in-line with the flagship initiative 'A Resource Efficient Europe.¹⁸² Denmark has an existing volume-based aggregates tax

¹⁸⁰ European Commission (2005) Proposal for a Council directive on passenger car related taxes COM(2005)261 final.

¹⁸¹ European Environment Agency (2013) Road user charges for HGV – tables with external costs of air pollution, EEA Technical Report 1/2013, Copenhagen.

¹⁸² European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

that can be estimated to an average rate of about \pounds 0.40 per tonne.¹⁸³ It is suggested that Denmark adjusts and extends its aggregates tax to a rate of \pounds 2.40 per tonne from 2016, and following this keeps the rate constant in real terms. The types of materials that could be covered by the tax are:

- o Marble
- o Chalk and dolomite
- o Slate
- Limestone and gypsum
- o Sand and gravel

Not all of these are extracted in Denmark. The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues.

- Waste: the existing taxes, as well as a ban on landfilling, have been supporting more recycling of waste. Waste taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive. Further development of the waste tax would help drive changes in the waste management sector needed to meet EU targets in 2020 and give support to the application of the waste hierarchy. The recent change of its tax base to one relating to energy content is not deemed especially useful in this context, and has been difficult to deal with for those liable to the tax. It is suggested that tax base reverts to being weight-based, whereby lost revenues of about €100 million could be restored.
- Air pollution: It is suggested that in order to generate further improvements in air quality, the existing tax rates on air pollution are complemented with new taxes on emissions of primary particles:
 - PM_{2.5} €3,000 per tonne

Given the new tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2020. The rates are then held constant in real terms. Part of the revenues could accrue to national budget.

Waste water: Denmark has taxes in place on direct discharges of water pollution from industry and treatment plants. To improve prevention of water pollution, improve compliance and better reflect the environmental burdens it is suggested that the existing exemptions be reviewed. It is also suggested that the tax rates be brought in-line with good practice rates (see Section 5.3.6). With relative price levels in Denmark this would imply a rate of €3.25 per kg BOD (i.e. an increase of €1 on current rates) and corresponding adjustments of tax rates for phosphorus and nitrogen.

¹⁸³ Annex 1 of the relevant legislation defines a bulk density of 0.6 tonnes per m³ for several materials – although there is obviously some variation. The most common density of 0.6 tonnes has been used here to convert to a tonnage rate.



• **Packaging:** A small number of Member States have implemented packaging taxes for packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested to apply the following good practice rates to all packaging placed on the market in Denmark:

0	Paper and card	€0.07 per kg
0	Plastic	€1.40 per kg
0	Wood	€0.07 per kg
0	Metallic	€1.69 per kg
0	Glass	€0.25 per kg

- Plastic bag tax: There is a weight-based tax on shopping bags of both paper and plastic in Denmark. Plastic bags cause many environmental problems when littered in the environment, especially when they end up in the marine environment. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.¹⁸⁴ The weight-based tax in Denmark for a standard 25 g plastic bag can be estimated to about €0.07. It is suggested that Denmark adjusts its tax on single-use plastic bags to €0.22 to strengthen the incentive for reducing bag use.
- Fertilisers: A tax on the use of nitrogen in mineral fertilisers is suggested at a rate of €0.30 per kg N from 2016. This tax rate would reflect relative price levels for Denmark relevant to EU schemes under the CAP, and support the prevention of groundwater contamination, ammonia evaporation, emissions of greenhouse gases and surface water eutrophication.

9.2.3 Summary of Revenue Outcomes

Table 9-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

¹⁸⁴ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

Тах	2017	2020	2025	
Energy Taxes				
Transport fuels	143	565	977	
C&I / Heating	2	8	14	
Electricity	856	856	856	
Sub-total Energy, million DKK	1,001	1,429	1,847	
Sub-total Energy, % GDP	0.05%	0.07%	0.09%	
Transport Taxes (excluding transport fuels)				
Vehicle Taxes	523	2,092	2,618	
Passenger Aviation Tax	3,300	6,835	7,531	
Freight Aviation Tax	0.82	1.67	1.87	
Sub-total Transport, million DKK	3,823	8,929	10,150	
Sub-total Transport, % GDP	0.20%	0.46%	0.52%	
Pollution and Resource Taxes				
Landfill Tax - Inerts (C&D)	2.0	1.8	1.8	
Incineration / MBT Tax	145	190	197	
Air Pollution Tax	11	21	15	
Water Abstraction Tax	21	50	51	
Waste Water Tax	118	165	165	
Pesticides Tax	227	461	515	
Aggregates Tax	790	399	379	
Packaging Tax	181	169	166	
Single Use Bag Tax	26	6	6	

Table 9-4: Potential Additional Revenue from Environmental Fiscal Reform in Denmark, million DKK (real 2014 terms)¹⁸⁵

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C



¹⁸⁵ % GDP calculated using the following source: Eurostat (2014) *GDP and Main Components - Current Prices* [nama_gdp_c], Accessed 5th August 2014,

Тах	2017	2020	2025
Sub-total Pollution & Resource, million DKK	1,521	1,461	1,497
Sub-total Pollution & Resources, % GDP	0.08%	0.07%	0.08%
Total Potential for Environmental Fiscal Reform			
Total, million DKK	6,346	11,819	13,495
Total Increase, % GDP	0.33%	0.61%	0.69%

Table 9-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 9-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Denmark, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	110
Increased Cost Recovery for Water Use	0
Total	110

9.2.4 Environmental Benefits

Table 9-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.7.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, DKK 500 million of benefits are anticipated annually by 2025 in real terms.

Table 9-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Denmark, million DKK (real 2014 terms)¹⁸⁶

Тах Туре	2017	2020	2025
Energy Taxes	36	48	60
Transport Taxes (excluding transport fuels)	41	84	92

 $^{^{186}}$ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

Тах Туре	2017	2020	2025
Pollution and Resource Taxes	111	390	349
Total, million DKK	188	523	500
Total, % GDP	0.01%	0.02%	0.02%

9.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Denmark:¹⁸⁷

- In 2012, environmental taxes generated revenue equivalent to 3.87% of GDP. Although this is already high on European standards, the headline figures suggest that there is still considerable potential for additional revenue from environmental taxes in Denmark. These could generate DKK 6.5 billion in 2017, rising to DKK 13.6 billion in 2025 (EUR 1.8 billion) (both in real 2014 terms). This is equivalent to 0.33% and 0.70% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the proposed passenger aviation tax. This accounts for DKK 7.5 billion by 2025 (EUR 1.0 billion) (real 2014 terms), equivalent to 0.32% of GDP.
- The next largest contribution to revenue comes from the suggested increase in vehicle taxes. This accounts for DKK 2.6 billion by 2025 (EUR 0.4 billion) (real 2014 terms), equivalent to 0.11% of GDP.
- The suggested harmonisation of taxes on transport fuels with the rates set out in the proposed ETD could raise DKK 1.0 billion by 2025 (EUR 0.1 billion) (real 2014 terms), equivalent to 0.04% of GDP.
- Revenue potential from harmonisation of taxes on electricity would raise DKK 0.9 billion by 2025 (EUR 0.1 billion) (real 2014 terms), equivalent to 0.04% of GDP.
- A tax on aggregates has also been suggested. This would contribute DKK 0.5 billion by 2025 (EUR 0.1 billion) (real 2014 terms), equivalent to 0.02% of GDP.
- In addition, a range of more minor taxes on could generate revenue of DKK 1.1 billion by 2025 (EUR 0.2 billion) (real 2014 terms), equivalent to 0.05% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around DKK 0.5 billion by 2025 (EUR 0.1 billion) (real 2014 terms), equivalent to 0.02% of GDP.

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

¹⁸⁷ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €101 million per annum could be raised in addition to the above.

10.0 Finland

10.1 Country Overview

10.1.1 Key Facts about the Economy and Tax System

- On average Finland's GDP increased annually by 3.7% in real terms between 2003 and 2007. Between 2007 and 2008 economic growth stalled and increased by only 0.3%. Subsequently, a significant decrease in GDP of 8.5% in real terms was experienced in 2008 when the economy was at its worst. 2010 and 2011 saw a return to growth, with GDP increasing by 3.1% in real terms averaged between the two years; however, 2012 and 2013 both saw recession, with an average decrease in GDP of 1.2% in real terms.¹⁸⁸
- Finland's overall tax revenue (including social contributions) as a percentage of GDP is high and has been rising over the past few years to reach 44.3% in 2012, almost reaching previous levels (44.8% in 2002) from which there was a slight drop during 2006–2010.¹⁸⁹
- Finland's total tax revenue is fairly evenly split between direct taxes at 36.8%, indirect taxes at 33.2%, and social contributions at 30% (2012). Since 2002, the contribution of direct taxes has dropped by 5.9 percentage points, with both indirect taxes and social contributions rising.¹⁹⁰
- In 2012, revenue from environmental taxes accounted for 3.07% of Finland's GDP, which is high for the EU-28. This share of GDP was on the rise in the early 2000s, but began to fall in 2005, picking up again in 2010. At present, it is very close to the share that was typical of 10 years ago (3.06% in 2002).¹⁹¹
- Energy taxes represent the majority of environmental tax revenues, amounting to 2.08% of Finland's GDP in 2012. Transport taxes (excluding fuel taxes) amounted to 0.93% of GDP in the same period, while pollution and resource taxes were 0.06% of GDP.¹⁹²
- In 2012, energy taxes accounted for 67.8% of Finland's total environmental tax revenues. This share is 2.8% higher than the share in 2002, and has risen after falling to around 60% between 2004 and 2007.¹⁹³

¹⁹⁰ Ibid.

¹⁹² Ibid.

¹⁹³ Ibid.



¹⁸⁸ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

¹⁸⁹ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

¹⁹¹ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

10.1.2 Relative Position within the EU

In 2012, expressed as a percentage of GDP, Finland's revenue from environmental taxation was above the EU-28 average of 2.4%. Finland's individual revenue streams for taxes placed on energy and transport (excluding fuel), as percentages of GDP, were also above the respective EU-28 averages of 1.8% and 0.5%. However, revenues from pollution and resource taxes were below the EU-28 average of 0.1% (see Figure 10-1).¹⁹⁴



Figure 10-1: Environmental Taxes in Finland as a % of GDP vs EU-28 Levels (2012)

Taking revenue from all environmental taxes as a proportion of GDP, Finland ranked 5th in the EU-28 in 2012. For transport (excluding fuel) tax revenue as a share of GDP it ranked 4th, for energy 10th, and for pollution and resource tax 15th (see Table 10-1).¹⁹⁵

Table 10-1: Ranking of Finland's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	5
Energy Taxes as a Share of GDP (%)	10
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	4
Pollution & Resource Taxes as a Share of GDP (%)	15

Source: based on Eurostat data

¹⁹⁴ Ibid.

¹⁹⁵ Ibid.

10.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.8.0 (prepared as a separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{196,197}

Environmental taxes in Finland consist of energy taxes, transport taxes, emission taxes and waste-related taxes. As outlined in the previous section, two-thirds of environmental taxes are energy taxes on electricity and fuels, nearly one-third are various transport taxes levied on vehicles. The share of emission and resource taxes account for less than two per cent of total environmental taxes, with the main share of this from waste taxes. In 2012 environmental taxes accounted for seven per cent (€5.8 billion) of the entire tax revenue of the state.¹⁹⁸

- Energy Taxes:
 - An excise duty is levied on transport fuels, heating fuels and electricity. The rates are shown in
 - Table 10-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates. This table shows that apart from LPG, which is exempt from excise duties in Finland, all rates applied in Finland are well above the existing ETD minimum rates, as well as the average and median EU rates.
 - The excise duty is divided into three components: an energy content tax, a CO₂ tax and an additional surcharge, the strategic stockpile fee. For the specific rates of these components see Appendix A.8.0.
 - Revenue in 2012 (including all excise duties and the stockpile fee) was €4,000 million (equivalent to 2% of GDP).¹⁹⁹

¹⁹⁶ Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugi n=1</u>

¹⁹⁷ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

¹⁹⁸ .Tilastokeskus (2013) *Ympäristöverot 2012*, <u>http://tilastokeskus.fi/til/yev/2012/yev_2012_2013-11-07_fi.pdf</u>

¹⁹⁹ DG TAUXD (2014) Taxes in Europe Database, Finland Excise Duty – Energy Products, Accessed 19 August 2014,

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=844/1395070212&taxType=Energy+prod ucts+and+electricity

Excise Duty	Unit	Rate Applied in Finland	Existing ETD Minimum	EU-28 Average	EU-28 Median
Transport Fuels	-	•	· · · · · ·		
Unleaded Petrol ¹	€ per 1000 litres	€672.9	€359	€519	€509
Gas Oil (Diesel) ¹	€ per 1000 litres	€496.6	€330	€427	€405
Kerosene	€ per 1000 litres	€731.0	€330	€440	€405
Liquid Petroleum Gas	€ per 1000 kg	€0.0	€125	€209	€180
Natural Gas	€ per GJ	€3.18	€2.60	€3.03	€2.66
Motor Fuels – Industry,	/ Commercial Use		·		
Gas Oil (Diesel) ¹	€ per 1000 litres	€163.4	€21	€221	€163
Kerosene	€ per 1000 litres	€731.0	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€0.0	€41	€126	€125
Natural Gas	€ per GJ	€3.18	€0.30	€1.76	€1.50
Heating – Business Use)				
Gas Oil (Diesel) ¹	€ per 1000 litres	€163.4	€21	€221	€163
Kerosene	€ per 1000 litres	€731.0	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€192.1	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€0.0	€0.00	€82	€40
Natural Gas	€ per GJ	€3.18	€0.15	€1.36	€0.46
Coal and Coke	€ per GJ	€5.2	€0.15	€1.27	€0.31
Lignite	€ per 1000 kg	€132.71	-	-	-
Heating – Non-Busines	s Use		·		
Gas Oil (Diesel) ¹	€ per 1000 litres	€163.4	€21	€179	€125
Kerosene	€ per 1000 litres	€731.0	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€192.1	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€0.0	€0.00	€111	€42
Natural Gas	€ per GJ	€3.18	€0.30	€2.04	€0.94
Coal and Coke	€ per GJ	€5.2	€0.30	€1.77	€0.32

Table 10-2: Standard Rates of Excise Duties on Fuels and Electricity in Finland

Excise Duty	Unit	Rate Applied in Finland	Existing ETD Minimum	EU-28 Average	EU-28 Median
Lignite	€ per 1000 kg	€132.71	-	-	-
Electricity					
Business Use	€ per MWh	€7.03	€0.50	€8.42	€1.03
Non-Business Use	€ per MWh	€19.03	€1.00	€14.53	€2.06
Notes: Leaded petrol is no longer sold in Finland					

Source: DG TAUXD (2014) Taxes in Europe Database, Finland Excise Duty – Energy Products, Accessed 19th August 2014,

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=844/1395070212&taxType=Energy+prod ucts+and+electricity

> Transport Taxes (excluding transport fuels):

- Vehicle Tax:
 - The vehicle tax constitutes two elements: 1) a base tax levied on all registered vehicles which have a maximum permitted total mass of 3,500 kg under categories N or M (cars, vans, special purpose cars and lorries); and 2) a tax levied on propelling force. This second component is levied annually on all vehicles which use fuel other than petrol, i.e. diesel oil, kerosene, LPG or electricity.²⁰⁰
 - The propelling force tax is levied on passenger cars to even out differences between lower-taxed diesel vehicles and higher-taxed petrol vehicles based on total annual kilometres driven. The propelling force tax levied on HGVs aims to meet the requirements of the Eurovignette Directive.²⁰¹
 - Revenue in 2012: €758 million (equivalent to 0.39% of GDP)202 of which €434 million was from the base tax and €324 million from

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=621/1388754737&taxType=Other+indire ct+tax



²⁰⁰. DG TAUXD (2014) Taxes in Europe Database, Finland Motor vehicles tax – Vehicle Tax, Accessed 27 August 2014,

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=621/1388754737&taxType=Other+indire ct+tax

²⁰¹ Ministry of Transport and Communications (2014), *Fair and Intelligent Transport, Working Group Final Report*, 21 February 2014,

²⁰² DG TAUXD (2014) Taxes in Europe Database, Finland Motor vehicles tax – Vehicle Tax, Accessed 27 August 2014,

the propelling force tax. Revenue in 2013: €866 million (equivalent to 0.44% of GDP).²⁰³

- Car Tax:²⁰⁴
 - A once-off car tax is levied on the first registration for road use of new cars or motorcycles purchased in Finland or second-hand cars or motorcycles imported into the country.
 - Passenger cars, delivery vans, busses weighing less than 1,875 kg and motorcycles are subject to the tax. The tax is based on CO₂ emissions and on the taxable value of the car. In case no CO₂ emission information is available, the tax rate is based on the mass and the energy source of the vehicle.²⁰⁵
 - Revenue in 2012: €1,066 million (equivalent to 0.55% of GDP).²⁰⁶
 Revenue in 2013: €932 million (equivalent to 0.48% of GDP).²⁰⁷
- Railway Tax:²⁰⁸
 - The railway tax is used to cover the costs of building and maintenance of railway infrastructure.
 - Rate in 2006: goods transport for diesel-driven trains: €0.001 per gross tonne-km; goods transport for electric trains: €0.0005 per gross tonne-km; investment surtax on the Kerava-Lahti railway:
 €0.0050 per gross tonne-km (in addition to the basic tax); and passenger transport: €0.0001 per gross tonne-km.
 - Revenue in 2010: €18 million (equivalent to 0.01% of GDP).²⁰⁹
- Pollution and Resource Taxes:

²⁰⁵ Ibid.

²⁰⁶ Ibid.

²⁰⁷ Valtiokonttori (2014), *Valtion Tilinpaatos Vuodelta 2013*, 9.4.2014, Accessed 19.9.20114 <u>http://www.valtiokonttori.fi/fi-</u>

FI/Tietoa_Valtiokonttorista/Media/Valtion_tilinpaatos_vuodelta_2013(50407

²⁰⁸ OECD (n.d.) Database on instruments used for environmental policy, Taxes, fees or charges – Main characteristics of selected countries – Finland, Accessed 28 August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=36808684-770f-4ed7-9a3b-5f000506834e&QryCtx=1&QryFlag=3</u>

²⁰³ Valtiokonttori (2014), *Valtion Tilinpaatos Vuodelta 2013*, 9.4.2014, Accessed 19.9.20114 <u>http://www.valtiokonttori.fi/fi-</u>

FI/Tietoa_Valtiokonttorista/Media/Valtion_tilinpaatos_vuodelta_2013(50407

²⁰⁴ DG TAUXD (2014) Taxes in Europe Database, Finland Motor vehicles tax – Car Tax, Accessed 27 August,

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=253/1388754737&taxType=Other+indire ct+tax

²⁰⁹ OECD (n.d.) Database on instruments used for environmental policy, Taxes, fees or charges – Revenues raised by environmentally related taxes for selected countries – Finland, Accessed 28 August 2014, http://www2.oecd.org/ecoinst/queries/QueryResult_3.aspx?Key=1e14c362-3df6-452d-a8c7-a3706593e75e&QryCtx=2&QryFlag=3#

- Landfill Tax:²¹⁰
 - The waste tax is paid by landfill site operators on taxable waste groups (based on the Waste Tax Act (1126/2010).
 - Rate: €50 per tonne of waste in 2013. If the weight of the waste cannot be measured a special conversion coefficient is applied.
 - Revenue in 2012: €56 million (equivalent to 0.029% of GDP).
 Revenue in 2013: €55.8 million (equivalent to 0.029% of GDP).²¹¹
- Excise Duty on Certain Beverage Packages:²¹²
 - This excise duty is levied on retail packages made of various materials for alcoholic beverages, soft drinks, water and certain other beverages. Rates applied in 2014 are 51 cents/litre of packaging product.
 - Revenue in 2012: €15 million (equivalent to 0.007% of GDP).
 Revenue in 2013: €15 million (equivalent to 0.007% of GDP).²¹³
- Water Level Regulation Charge:
 - Water abstraction charges are levied by municipal authorities.²¹⁴
 - The rate of the charge is separately set through an environmental permit procedure.²¹⁵
- Water User Charges:²¹⁶
 - The water user charge is based on the amount of water consumed. Furthermore, fixed components are paid by the users.
 - Average rate in February 2011: €1.51 per m³.

FI/Tietoa_Valtiokonttorista/Media/Valtion_tilinpaatos_vuodelta_2013(50407

²¹⁶ Ibid.

²¹⁰ DG TAUXD (2014) *Taxes in Europe Database, Finland Landfill Tax,* Accessed 27 August, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=252/1388754737&taxType=Other+indirect+tax</u>

²¹¹ Valtiokonttori (2014), *Valtion tilinpaatos vuodelta* 2013, 9.4.2014, Accessed 19.9.20114 <u>http://www.valtiokonttori.fi/fi-</u>

²¹² DG TAUXD (2014) Taxes in Europe Database, Finland Excise Duty – Beverage Packages, Accessed 27 August,

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=246/1388754737&taxType=Other+indire ct+tax

²¹³ Valtiovarainministerio (2014), *Hallitus esittaa useita muutoksia verolakeihin*, 138/2014. 15.9.2014, Accessed 19.9.2014.

 $http://www.vm.fi/vm/fi/03_tiedotteet_ja_puheet/01_tiedotteet/20140915Hallit/name.jsp$

²¹⁴ EEA (2013) Assessment of cost recovery through water pricing, EEA Technical Report, No 16/2013, <u>http://www.eea.europa.eu/publications/assessment-of-full-cost-recovery</u>

²¹⁵ OECD (n.d.) Database on instruments used for environmental policy, Taxes, fees or charges – Main characteristics of selected countries – Finland, Accessed 28 August 2014, http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=36808684-770f-4ed7-9a3b-5f000506834e&OryCtx=1&OryFlag=3

- o Revenue in 2010: €385.1 million (equivalent to 0.21% of GDP).²¹⁷
- Wastewater User Charges:
 - The charge is based on water consumption or on the volume and quality of waste water. Furthermore, fixed components, such as a connection charge or a meter charge, are added to the volume based charge. The average rate in February 2011 was €2.28 per m³ in total.²¹⁸
 - Revenue in 2010: €516.1 million (equivalent to 0.28% of GDP).²¹⁹

10.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of EFR in Finland, this is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, as well as the basis for the calculation of revenue generation. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

10.2.1 Current Status of EFR

Finland has a long history with EFR, being the first country to introduce a CO₂ tax over 20 years ago. The early EFR reforms were not only used as a means to achieve environmental objectives, but also primarily as part of a wider tax shifting policy to partly off-set revenue losses from the reduction in labour taxes which was made to stimulate employment.²²⁰ In 2008, the employer's social security contribution was abolished and to compensate for these revenue losses (about €800 million) energy taxes were increased as part of the energy tax reform – in 2011 this generated over €700 million in revenue for the government. So far both of these measures can be seen as the most extensive EFR in Finland. Altogether labour taxation was reduced and environmental taxation increased about by €2 billion.²²¹

²¹⁷ OECD (n.d.) Database on instruments used for environmental policy, Taxes, fees or charges – Revenues raised by environmentally related taxes for selected countries – Finland, Accessed 28 August 2014, http://www2.oecd.org/ecoinst/queries/QueryResult_3.aspx?Key=1e14c362-3df6-452d-a8c7a3706593e75e&QryCtx=2&QryFlag=3#

²¹⁸ OECD (n.d.) Database on instruments used for environmental policy, Taxes, fees or charges – Main characteristics of selected countries – Finland, Accessed 28 August 2014, http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=36808684-770f-4ed7-9a3b-5f000506834e&OryCtx=1&OryFlag=3

²¹⁹ OECD (n.d.) Database on instruments used for environmental policy, Taxes, fees or charges – Revenues raised by environmentally related taxes for selected countries – Finland, Accessed 28 August 2014, http://www2.oecd.org/ecoinst/queries/QueryResult_3.aspx?Key=1e14c362-3df6-452d-a8c7a3706593e75e&QryCtx=2&QryFlag=3#

²²⁰ Sairinen, R, (2012) Regulatory reform and development of environmental taxation: the case of carbon taxation an ecological tax reform in Finland in Milne, J., and Skou Andersen, M., (Eds.) (2012) Handbook of Research on Environmental Taxation, Edward Elgar, Cheltenham/Massachusetts

²²¹ Finnish Government (2010) Governments Proposal to Parliament on energy taxation to amend the legislation(page 18) <u>www.finlex.fi/fi/esitykset/he/2010/20100147.pdf</u>

According to Sairinen (2012), Finland's approach to EFR has been influenced over the years by the use of other policy instruments (such as voluntary agreements trying to reduce energy consumption), EU policy (anticipation of an EU Energy Tax), concerns regarding violation of trade agreements (tax on imported electricity) as well as party political aims (to balance income tax and energy tax).²²² This long history has enabled Finland to mainstream EFR into its broader policy-making process. Even so, there remains a level of scepticism within the State Administration towards the concept and use of EFR, for instance, the double dividend principle is disputed. In the interim report *Sustainable Development and Ecological Tax Reform* (2004) by the Ministry of Finance, the conclusion was that environmental tax reform as a major shift in tax bases is not possible in Finland. According to the report environmental taxation should be developed only as an instrument for environmental policy. After the publication of this interim report, there has not been any report or study where environmental tax reform has been evaluated as a means of fiscal consolidation and/or part of a wider tax shifting policy.

Thus, one of the main features of Finland's approach to EFR is that it has been introduced without a comprehensive overall strategy, or schedule on tax bases and timetables for rate increases. The main argument for increasing environmental tax rates has mostly been as a way to compensate losses from the reduction in labour taxes. However, the environmental steering effect of environmental taxation has been highly improved, for example, through the CO_2 component within vehicle related taxation, and energy taxes.

In 2012, the total sum of revenues from environmental taxes was $\in 5.8$ billion, of which households paid nearly $\in 2.7$ billion. Over one half of the environmental taxes paid by households, $\in 1.4$ billion, were related to energy taxes and $\in 1.2$ billion related to transport taxes (Figure 10-2).²²³ The burden of environmental taxation on households has been discussed widely in the Parliament, particularly in relation to the 2010 energy tax reform and subsequent increases in energy taxes. The opposition blamed the Government for the regressive nature of the energy taxes and the impact on poorer households as well as for abandoning social security contributions for companies and compensating these revenue losses by increasing energy taxes for households.²²⁴

²²² Ibid.

²²⁴ Personal Communication with Sarianne Tikkanen



Minister of Finance (2009) Speech of Jyrki Katainen in Big Tax Day –conference in Helsinki 23.9.2009. http://www.vm.fi/vm/fi/03_tiedotteet_ja_puheet/02_puheet/20090923Valtio/name.jsp;

²²³ Statistics Finland (2014), *Households pay 45 per cent of environmental taxes*, 11 September 20143, Accessed 19 September 2014, <u>http://tilastokeskus.fi/til/yev/2012/01/yev_2012_01_2014-09-11_tie_001_en.html</u>

Figure 10-2: Amount and Type of Environmental Taxes Paid by Different Users in 2011 (in € million)



Source: Statistics Finland (2014), Households pay 45 per cent of environmental taxes, 11 September 20143, Accessed 19 September 2014, <u>http://tilastokeskus.fi/til/yev/2012/01/yev_2012_01_2014-09-11_tie_001_en.html</u>

Over the years, the focus of EFR in Finland has shifted more towards supporting the achievement of environmental policy goals, such as plans to introduce a kilometre tax that would better serve environmental objectives than the current tax regime. The Finland We Want in 2050 report by the Finnish Sustainable Development Strategy Group sets targets to ensure that Finland will prosper and grow in the future within the carrying capacity of nature.²²⁵ This report is mentioned in the 2013 Finnish NRP in relation to the Government's aims on the green economy ²²⁶ Proposals for further ETR have also been raised in the context of discussions on the national budget and the need to reduce public spending, including *inter alia* on environmentally harmful subsidies.²²⁷

As Sairinen (2012) stated, EFR in Finland has, over the years, been influenced by other policy instruments, one can therefore argue that the Finland We Want in 2050 commitments might have a similar influence - leading towards increased use of environmental taxes to achieve policy goals. Reflecting this, the 2013 NRP states that taxation in Finland *"will move away from growth-hampering taxation of labour and entrepreneurship towards environmentally- and health-motivated taxation".*

²²⁵ The Sustainable Development Strategy Group (2014) The Finland We Want by 2050— Society's Commitment to Sustainable Development, <u>www.ymparisto.fi/download/noname/%7BB33B641F-E999-41A4-8EE8-D13635FF1110%7D/75867</u>

²²⁶ Ministry of Finance (2013) *Finland's National Programme*, 16c/2014, Spring 2014, <u>http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014_finland_en.pdf</u>

²²⁷ Finnish Association for Nature Conservation (2014) Harmful Subsidies as Barriers to Sustainable Development - The price of subsidy policy in Finland and the developing world

To date, CSRs focused on environmental taxes have not been adopted for Finland.

10.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Finland. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

Energy Taxes:

- It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels and motor fuels used for commercial and industrial purposes are equalised using the energy content on kerosene (€19.2 per GJ). In addition, due to the existing rates for kerosene used for heating being very high relative to coal and gas the rates for heating fuels are equalised using the minimum rate for coal of €3.3 per GJ.
- In the case of propellants, the revisions imply a major increase in taxes on LPG and natural gas. More importantly, however, the petrol / diesel differential, which significantly favours diesel at present, is closed as the revisions imply a significant tax increase for diesel.
- In the case of fuels used in commercial and industrial motors, there is a major increase in the rate for gas oil to bring the tax into alignment with rates on kerosene. Taxes on LPG and natural gas are also introduced / increased as a result of the alignment associated with the proposed revision to the ETD;
- On heating fuels (business and non-business), the changes imply significant uplifts in taxes on LPG, but more importantly, perhaps, for gas.
- The existing electricity tax rates are harmonised according to the highest rate, which for Finland is non-business use.
- We note, in passing, that a planned increase in the peat tax from €4.9 per MWh to €5.9 per MWh was recently cancelled. The Finnish Government recently abolished the peat land conservation programme, choosing instead to rely on voluntary approaches.²²⁸ There may be some rationale

²²⁸ Suomen Luonnonsuojeluliitto (2014) *Kokoomuksen Ympäristöpolitiikka Fossiloituu,* 16.10.2014, Accessed 17.10.2014, <u>http://www.sll.fi/ajankohtaista/tiedotteet/tiedotteet-2014/kokoomuksen-ymparistopolitiikka-fossiloituu</u>



for considering the applicable rate of tax for peat alongside those, recognising that a tax of \in 4.9 per MWh of energy content is equivalent to a rate of \in 1.36 per GJ, or between a third and a quarter of the rates for gas and coal.

Table 10-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the Good Practice section above. The proposed rates are to be reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.

Table 10-3: Existing and Suggested Rates Based upon Proposed	Revisions to the ETD
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	Units	Suggested Rates	Existing Rates
Transport Fuels			
Motor spirit (petrol)	€ per 1000 litre	674	673
Light fuel oil (diesel)	€ per 1000 litre	727	497
LPG (propellant)	€ per 1000 kg	940	0
Kerosene	€ per 1000 litre	731	731
Natural gas (prop)	€ per GJ	20	3
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	725	163
Kerosene	€ per 1000 litre	731	731
LPG	€ per 1000 kg	940	0
Natural gas	€ per GJ	20	3
Business Heating			
Gas oil	€ per 1000 litre	169	163
Heavy fuel oil	€ per 1000 kg	194	192
Kerosene	€ per 1000 litre	731	731
LPG	€ per 1000 kg	210	0
Natural gas	€ per GJ	4.43	3.18
Coal	€ per GJ	5.20	5.20
Non-Business Heating			
Gas oil	€ per 1000 litre	169	163
Heavy fuel oil	€ per 1000 kg	194	192

	Units	Suggested Rates	Existing Rates
Kerosene	€ per 1000 litre	731	731
LPG	€ per 1000 kg	210	0
Natural gas	€ per GJ	4.43	3.18
Coal	€per GJ	5.20	5.20
Electricity			
Electricity - business use	€ per MWh	19.03	7.03
Electricity - non-business use	€ per MWh	19.03	19.03

> Transport Taxes:

- Vehicles: The taxes on transport in Finland are significantly higher than average in the EU (0.93% of GDP compared to the EU-28 level of 0.50% GDP in 2012)²²⁹. In addition, taxes on transport fuels are suggested to increase as a consequence of the suggestions above. However, it is suggested that additional revenue of 0.23% of GDP could still be generated. Increasing vehicle taxation could both raise revenue, and, increasing differentiation between vehicles based upon environmental performance, thereby influencing the stock of vehicles in use in future, could have significant environmental benefits. The existing Vehicle Tax and Car Tax already integrate a CO₂ based component in their calculation. This CO₂ element could be further tightened or expanded it to cover other emissions. The revision could be phased in over the period from 2016 to 2021. It should also be noted that Finland is one of few EU Member States with no widespread system of charging HGVs for road use, though the propelling force tax is intended to implement Directive 2011/76/EC. Relative to income levels, a high proportion of HGV vehicle kilometres are made by vehicles in Euro Class 1 and below in Finland.
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. Finland currently has an Air Traffic Supervision Charge as noted in the Appendix, which applies to all passengers above 2 years old and is a general fee not considering environmental concerns. The rate of this charge was €1.2 per passenger in 2012. We suggest that a specific passenger aviation tax is introduced instead of (or as a complement to) the current Air Traffic Supervision Charge. The suggested rates for the air passenger tax are €15 per

²²⁹ Eurostat (2014) *Environmental tax revenues*, Accessed 15th October 2014, <u>http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do</u>



passenger (flights within Finland), €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). We also propose the introduction of a freight aviation tax, for which the suggested rate is €1.25 per tonne of freight. The year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted in the Good Practice section, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or the design of this tax.

Pollution and Resources Taxes:

- Aggregates: There is currently no tax on aggregates in Finland. An aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is in-line with the EU flagship initiative 'A Resource Efficient Europe'²³⁰ and related Roadmap. It is suggested that an aggregate tax with a rate set at €2.40 per tonne from 2017 could be introduced, and that thereafter, it is kept constant in real terms. The types of materials that could be covered by the tax are:
 - o Marble
 - Chalk and dolomite
 - o Slate
 - Limestone and gypsum
 - Sand and gravel
- Although marble, limestone and gypsum are not extracted in Finland, the suggested aggregates tax could be applied to domestic aggregate extraction and imports to Finland, excluding exports (a similar approach to the aggregates levy applied in the UK).²³¹ The tax could also adopt a phased approach applying to certain materials such as sand and gravel first and then expanding coverage to other materials over time. The specific range of materials suggested above reflects, in part, the nature of the data available to us in developing estimates of potential revenues.
- Waste Tax: The current waste tax in Finland is levied on waste deposited at public or private landfill sites and for which reuse and recycling is technically feasible and environmentally justifiable. The rate was €50 per tonne of waste in 2013 and it is planned to be increased to €55 in 2015. Finland's landfill rate is quite low (11% in 2012)²³² and since the tax on landfill is already planned to exceed €50 per tonne, we suggest no further increase other than indexation. On the other hand, whilst landfill rates are

²³⁰ European Commission (2011) Roadmap to a Resource Efficient Europe, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

²³¹ Söderholm, P (2011) Taxing Virgin Natural Resources: Lessons from Aggregates Taxation in Europe, Luleå University of Technology, Sweden. Submitted to Resources, Conservation and Recycling 2011

²³² Eurostat (2014) Landfill rate of waste excluding major mineral waste, Accessed on 15th October 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=t2020</u> <u>rt110&tableSelection=1</u>

low, recycling rates are not especially high. We suggest that an incineration tax is implemented at the rate of $\pounds 15$ per tonne, phased in over the period 2016 to 2019, and that rates are set so that other forms of residual waste treatment are taxed in an equivalent manner. This should help to give additional impetus to recycling, preparation for reuse and waste prevention

 Packaging: In Finland currently there is no general packaging tax, however an excise duty is levied on retail packages made of various materials for alcoholic beverages, soft drinks, water and certain other beverages (as described in the Appendix). The rate in 2014 is 51 cents/litre of packaged product. In order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials it is suggested that the current excise duty be extended/revised to a more general packaging tax. It is suggested that the following rates could be applied to all packaging placed on the market in Finland:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These are suggested rates and could be revised to reflect national circumstance. These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2017 and be kept constant in real terms.

Single-use carrier bag tax: There is no tax on plastic bags in Finland, though all food store chains currently apply a charge for plastic bags. The price for a plastic bag of the K-Group (around 900 food stores with 900 000 customers /day²³³) is €0.20, S-Group (over 900 food stores²³⁴) is €0.18 and Lidl (142 shops²³⁵) is €0.15. For biodegradable bags, however, the price is normally higher, such as €0.30 at the food stores of K-group. In Finland, one household uses about 100 bags each year. This amount does not include free bags and fruit bags. S-Group food stores alone sold nearly 144 million plastic bags in 2012²³⁶.



²³³ Kesko (2014), *Ruokakauppa,* 18.9.2014, Accessed 14.10.2014. <u>http://www.kesko.fi/fi/Kesko-yrityksena/Toimialat/Ruokakauppa/</u>

²³⁴ S-Ryhma (2014), s-Ryhman rakenne, Accessed 14.10.2014, <u>https://www.s-kanava.fi/web/s/s-ryhma/s-ryhman-rakenne</u>

²³⁵ Lidl (2014), Yritys, Accessed 14.10.2014, <u>http://www.lidl.fi/fi/yritys.htm</u>

²³⁶ YLE Uutiset (2013), *The Demise of the Finnish Plastic Bag*, 7.5.2013, Accessed 14 October 2014, <u>http://yle.fi/uutiset/the_demise_of_the_finnish_plastic_bag/6620329</u>

- A wide body of experience suggests that taxing single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.²³⁷ Consequently, it is suggested that Finland could implement a minimum national tax on single-use carrier bags at a rate of €0.12 per bag from 2016, and maintains the rate constant in real terms thereafter. The tax may have the effect of reducing the profits that food stores are currently making on selling plastic bags, instead providing an additional source of state revenue. The tax will also provide a uniform approach to the charging of single-use carrier bags (including appropriate pricing for biodegradable bags) across the country and in all shops providing such bags.
- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Finland's NOx and SOx emissions have declined by one and a half (NOx) and three quarters (SOx) since the 1990s, however the emission of particulates have remained the same and are a problem. About 60% of particle emissions originate from energy production and some 25% from transport.²³⁸

Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. Finland does not currently have a system of air pollution taxes from stationary sources in place. It is therefore suggested that an air pollution tax, especially for PM10, could be implemented in order to generate improvements in air quality as follows:

- SOx €1,000 per tonne
- o NOx €1,000 per tonne
- PM₁₀ €2,000 per tonne

Given the magnitude of the recommended tax rates, it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

• Fertilisers: Finland does not currently have a tax on nitrogen (or other) fertilisers. Between 1976 and 1994 a fertiliser tax was in place but was abolished when Finland joined the EU. Nevertheless, when the tax was in place, the primary goal of the tax was not to deal with environmental problems but to lower production levels of cereals for export and to provide

²³⁷ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

²³⁸ Finnish Environment Institute (2014), *State of the Environment 2013*, Edita, Helsinki 2014, <u>www.syke.fi/publications and www.environment.fi/soer2013</u>

funds to financially support export subsidies. The rate in 1994 was $\in 0.44$ per kg of N in the fertiliser.

In 2007, the Ministry of Environment assessed the potential introduction of a fertiliser tax and concluded that due to the complex regulatory system for farming, a fertiliser tax could have unwanted side effects and needs to be combined with other measures and supporting policies such as information tools and research and development. The study also highlighted that the tax would have to set at a relatively high level in order to achieve changes in farming practices (i.e. application of less fertilisers) and that revenues from the tax should be recycled back to farmers in order to help overcome political opposition to a high tax.²³⁹

We suggest that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of €0.2 per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019. Although this rate would be lower than the fertiliser tax rate applied in Finland in 1994, it could be considered an initial starting point for further development of the instrument.

• **Pesticides:** Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

> "...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary</u> <u>means designed to achieve these targets</u>".

Finland does not have a pesticide tax at the moment. As noted in the Appendix between 1988 and 2006 it used to levy a pesticide registration fee on the pesticide industry, but this fee was not used for environmental purposes. We therefore suggest that a pesticide tax dedicated to reduce the impact of pesticides on the environment and human health be introduced from 2017 with a transition period until 2019. The proposed tax could cover pesticides used for professional purposes, as well as pesticides used in households. The proposed rate is €10 per kg active ingredient. A rate structure similar to the one in Norway or Denmark, where the rate is banded according to the potential effects of different active ingredients, is considered to be the most effective.

²³⁹ Ympäristöministeriön (2007) Verotukseen perustuva ohjaus maatalouden ravinnepäästöjen rajoittamisessa, <u>http://www.ym.fi/download/noname/%7B55DB01AC-D2AD-4B77-B88D-DD92E8BAF71C%7D/31962</u>



Water abstraction: Finland is currently not under pressure from water abstraction.²⁴⁰ There are application and handling fees which are charged to the entity seeking to undertake water abstraction and these are determined locally. For example in the case of an application for 500 m³/day water abstraction in the Liperi municipality, the handling fee is €1,150 and the application fee is €2,300²⁴¹.

A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". Currently, although there are user charges in place in Finland (for example €1,650 per 1,000m³ for the city of Kuopio)²⁴² there are no taxes for abstraction. It is suggested that appropriate levels of taxation would be in the order of €160 per 1,000m³ for the public water supply, €100 per 1,000 m³ for manufacturing purposes and €14 per 1,000 m³ for agriculture. We have assumed that the additional revenue which such rates may generate can accrue to the central budget. Another option would be for revenues above cost recovery levels to accrue to the national budget. This would require understanding of what acceptable levels of cost recovery are (allowing for proper maintenance of the resource as appropriate), and it would also, ideally, require incentives, at the margin, to be reflected in levy structures. A transition period from 2016 to 2021 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.

• Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21st May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.²⁴³ Finland has waste water user charges, but not a waste water tax. To improve prevention of water pollution it is suggested to implement a waste water tax and adjust tax rates in-line with 'good practice'. With relative price levels in Finland this would imply, for BOD, a rate of €2.77 per kg of the pollutant. For freshwater discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. Existing exemptions should be held constant in real terms after 2019.

²⁴⁰ Eurostat (2014), Water exploitation index, 9.10.2014. Accessed 14 October 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=tsdnr3</u> <u>10&tableSelection=1</u>

²⁴¹ Aluehallintovirasto (2010), *Paatos, 37/10/2,* 18.3.2010, Accessed 14 October 2014, <u>http://www.avi.fi/documents/10191/56846/isavi_paatos_37_10_2-2010-3-18.pdf</u>

²⁴² Kuopion Vesi (2014), Maksut, <u>http://www.kuopio.fi/web/kuopion-vesi/maksut</u>, Accessed 14 October 2014.

²⁴³ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

10.2.3 Summary of Revenue Outcomes

Table 10-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Table 10-4: Potential	Additional Revenue	from Environmental	Fiscal Reform	in Finland,
million EUR (real 201	4 terms) ²⁴⁴			

Тах	2017	2020	2025		
Energy Taxes					
Transport fuels	73	286	492		
C&I / Heating	43	161	269		
Electricity	559	559	559		
Sub-total Energy, million EUR	674	1,006	1,320		
Sub-total Energy, % GDP	0.33%	0.49%	0.65%		
Transport Taxes					
Vehicle Taxes	92	370	462		
Passenger Aviation Tax	235	480	518		
Freight Aviation Tax	0.18	0.49	0.84		
Sub-total Transport, million EUR	328	850	981		
Sub-total Transport, % GDP	0.16%	0.42%	0.48%		
Pollution and Resource Taxes					
Landfill Tax - Inerts (C&D)	37	34	34		
Incineration / MBT Tax	10	16	16		
Air Pollution Tax	59	123	107		
Water Abstraction Tax	131	358	453		

 $^{^{244}}$ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C



Тах	2017	2020	2025		
Waste Water Tax	17	24	24		
Pesticides Tax	12	27	33		
Aggregates Tax	205	119	113		
Packaging Tax	24	25	28		
Single Use Bag Tax	3	1	1		
Fertiliser Tax	0.014	0.025	0.024		
Sub-total Pollution & Resource, million EUR	500	725	809		
Sub-total Pollution & Resources, % GDP	0.24%	0.35%	0.40%		
Total Environmental Taxes					
Total, million EUR	1,502	2,581	3,110		
Total Increase, % GDP	0.74%	1.26%	1.52%		

Table 10-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 10-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use Finland, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	212
Increased Cost Recovery for Water Use	1,171
Total	1,383

10.2.4 Environmental Benefits

Table 10-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.8.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €165 million of benefits are anticipated annually by 2025 in real terms.

Table 10-6: Monetised Environmental Benefits from Implementation of Suggested Taxes, million EUR (real 2014 terms)²⁴⁵

Тах Туре	2017	2020	2025
Energy Taxes	28	36	42
Transport Taxes (excluding transport fuels)	6	12	14
Pollution and Resource Taxes	23	94	109
Total, million EUR	56	142	165
Total, % GDP	0.03%	0.06%	0.06%

10.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Finland:²⁴⁶

- In 2012, environmental taxes generated revenue equivalent to 3.07% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Finland. These could generate EUR 1.5 billion in 2017, rising to EUR 3.1 billion in 2025 (both in real 2014 terms). This is equivalent to 0.74% and 1.54% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the proposed harmonisation of the tax on electricity. This accounts for EUR 0.6 billion by 2025 (real 2014 terms), equivalent to 0.22% of GDP.
- The next largest contribution to revenue comes from the suggested harmonisation of the taxes on transport fuels. This accounts for EUR 0.6 billion by 2025 (EUR 0.6 billion) (real 2014 terms), equivalent to 0.22% of GDP.
- The proposed passenger aviation tax would account for EUR 0.5 billion by 2025 (EUR 0.5 billion) (real 2014 terms), equivalent to 0.20% of GDP.
- Revenue potential from a water abstraction tax would also raise EUR 0.5 billion by 2025 (EUR 0.5 billion) (real 2014 terms), equivalent to 0.18% of GDP.
- The suggested increase in vehicle taxes could contribute EUR 0.4 billion by 2025 (real 2014 terms), equivalent to 0.16% of GDP.

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

²⁴⁵ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

²⁴⁶ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

- In addition, a range of more minor taxes could generate revenue of EUR 0.6 billion by 2025 (real 2014 terms), equivalent to 0.25% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.06% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €1.4 billion per annum could be raised in addition to the above.

11.0 Germany

11.1 Country Overview

11.1.1 Key Facts about the Economy and Tax System

- Germany experienced negative growth in 2003, with GDP decreasing by 0.4% in real terms against the previous year. Between 2004 and 2008 the country's economy experienced consistent growth, with GDP increasing annually by an average of 2% in real terms. Growth began to slow in 2008 and in 2009 Germany's GDP decreased by 5.1% in real terms. There was a fairly rapid return to growth in 2010 and 2011 which saw GDP growth comparable to pre-recession rates, this growth began to stall in 2012 and 2013, with GDP increasing by less than 1% in real terms in both years.²⁴⁷
- Germany's overall tax revenue (including social security contributions) as a percentage of GDP is just above the EU-28 average of 39.8%, at 40.4% (2012), with this share rate having held relatively stable over the past ten years.²⁴⁸
- The portion of Germany's total tax revenue coming from social security contributions is high at 41.7% (2012). The remainder is split fairly closely between direct and indirect taxes, at 30% and 28.8% respectively. Social security contributions as a percentage of the whole tax take have fallen since 2002, when they stood at 45.5%.²⁴⁹
- Environmental tax revenue amounted to 2.18% of Germany's GDP in 2012, representing a 10 year low for Germany, having fallen from 2.53% in 2002.²⁵⁰
- In 2012, the greater part of Germany's environmental tax revenue came from energy taxation, which amounted to 1.76% of GDP. In the same year, revenues from the taxation of transport (excluding fuel) amounted to 0.35% of the country's GDP and taxation of pollution and resources to 0.07% of GDP.²⁵¹
- 80.7% of Germany's environmental tax revenue came from taxes on energy in 2012. This percentage share has fallen over the past 10 years, and stood at 86.2% in 2002.²⁵²

249 Ibid.

²⁵¹ Ibid.

²⁵² Ibid.

²⁴⁷ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

²⁴⁸ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

²⁵⁰ Eurostat (2014) Environmental tax Revenues [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

11.1.2 Relative Position within the EU

In 2012, the total revenue from environmental taxes in Germany, as a proportion of the country's GDP, was below the EU-28 average of 2.4%. Energy taxes as a share of GDP were just below the EU-28 average of 1.8%, while the corresponding figure for transport (excluding fuel) taxes was markedly lower than the 0.5% average. The GDP percentage share of pollution and resource taxes was also lower than the EU-28 average 0.1% (see Figure 11-1).²⁵³



Figure 11-1: Environmental Taxes in Germany as a % of GDP vs EU-28 Levels (2012)

Considering total environmental taxation revenue as a proportion of GDP, in 2012 Germany ranked 22nd in the EU-28. Its best ranking was for the percentage share of GDP contributed by pollution and resource taxes, where it was in 13th place among Member States. Against the corresponding measures for energy and transport (excluding fuel), Germany ranked 17th and 18th respectively (see Table 11-1).²⁵⁴

²⁵³ Ibid.

²⁵⁴ Ibid.

Table 11-1: Ranking of Germany's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	22
Energy Taxes as a Share of GDP (%)	17
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	18
Pollution & Resource Taxes as a Share of GDP (%)	14

Source: based on Eurostat data

11.1.3 Existing Environmental Taxes

The structure and rates for each tax, as well as full references, are given in the Appendix. This section summarises key aspects of the main environmental taxes, and for energy, describes how the rates compare with European averages and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC):

Energy Taxes:

• In Germany there are excise duties on fuels and electricity. These taxes are shown in Table 11-2, which shows how they compare to the obligatory minimum rates in the existing ETD and the EU-28 average and median rates.^{255,256} In Germany there is no provision for indexation of tax rates.

Table 11-2: Excise Duties on Fuels and Electricity in Germany – nominal rates

Excise Duty	Unit	Rate Applied in Germany	Existing ETD Minimum	EU-28 Average	EU-28 Median	
Motor Fuels – propellar	Motor Fuels – propellant					
Unleaded Petrol	€ per 1000 litres	€654.50 ¹	€359	€519	€509	
Gas Oil (Diesel)	€ per 1000 litres	€470.40 ²	€330	€427	€405	
Kerosene	€ per 1000 litres	€654.50	€330	€440	€405	
Liquid Petroleum Gas	€ per 1000 kg	€180.32	€125	€209	€180	
Natural Gas	€ per GJ	€3.86	€2.60	€3.03	€2.66	
Motor Fuels – Industry / Commercial Use (excl. non-manufacturing business)						

²⁵⁶ Bundesministerium des Justiz, 2014, Energiesteuergesezt (EnergieStG) vom 15. Juli 2006 (BGBI. I S. 1534; 2008 I S. 660, 1007), das zuletzt durch Artikel 11 des Gesetzes vom 18. Juli 2014 (BGBI. I S. 1042) geändert worden ist.



²⁵⁵ European Commission (2013) *Taxes in Europe Database*, Accessed 13th December 2013, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

Excise Duty	Unit	Rate Applied in Germany	Existing ETD Minimum	EU-28 Average	EU-28 Median
Gas Oil (Diesel)*	€ per 1000 litres	€46.01 ^{3, 4}	€21	€221	€163
Kerosene	€ per 1000 litres	€654.50	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€180.32	€41	€126	€125
Natural Gas	€ per GJ	€3.86	€0.30	€1.76	€1.50
Heating – Business Use	e (manufacturing indus	stries)			
Gas Oil (Diesel)	€ per 1000 litres	€46.01 ⁴	€21	€221	€163
Kerosene	€ per 1000 litres	€654.50	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€25	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€45.45	€0.00	€82	€40
Natural Gas	€ per GJ	€1.14	€0.15	€1.36	€0.46
Coal and Coke	€ per GJ	€0.3 ⁶	€0.15	€1.27	€0.31
Heating – Non-Busines	s Use (and non-manuf	acturing busines	SS)		
Gas Oil (Diesel)	€ per 1000 litres	€61.35⁵	€21	€179	€125
Kerosene	€ per 1000 litres	€654.50	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€25	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€60.60	€0	€111	€42
Natural Gas	€ per GJ	€1.53	€0.3	€2.04	€0.94
Coal and Coke	€ per GJ	€0.3 ⁶	€0.3	€1.77	€0.32
Electricity					
Business Use	€ per MWh	€15.377	€0.5	€8.42	€1.03
Non-Business Use	€ per MWh	€20.50	€1.0	€14.53	€2.06

Notes:

1. This rate is for petrol with less than 10 mg sulphur per kg. Rate above this threshold is 669.80

2. This rate is for diesel with less than 10 mg sulphur per kg. Rate above this threshold is 485.70

3. \leq 255.60 for agriculture, horticulture, pisciculture and forestry according to art 15(3); \leq 61.35 for CHP with minimum 60% utilization rate (cf. note 5) with further reductions and exemptions available.

4. This rate is for diesel with less than 50 mg sulphur per kg. Rate above this threshold is 61.01

5. This rate is for diesel with less than 50 mg sulphur per kg. Rate above this threshold is 76.35

6. The tax rate as related to the net calorific value is €0.33/GJ. Coal is exempt where used for electricity production.
| Excise Duty | Unit | Rate Applied
in Germany | Existing ETD
Minimum | EU-28
Average | EU-28
Median |
|--|--------------------------|----------------------------|-------------------------|------------------|-----------------|
| 7. The effective rate is reduced about 50% due to the 'peak adjustment' (spitzenausgleich), see annex. | | | | | |
| *. TAXUD tables provide | e no single tax rate for | Germany. | | | |

- Taxes on petrol and diesel were increased gradually over the years 1999 to 2003 with Germany's Ecological Tax Reform. Since 2003 the nominal tax rates for motor fuels have not been adjusted and as a result have declined significantly in real terms, although they remain well above the EU minimum. The real terms decline is 8.5 and 11.5 cents per litre for diesel and petrol, respectively. The discrepancy between tax rates for petrol and diesel has been fairly stable at about 20 cents per litre over the past two decades, but being close to 30 % of the petrol tax, it is among the highest within the EU.
- Discrepancies in tax rates for other fuel uses are notable in that use for heating purposes is generally less taxed than for commercial stationary motors (e.g. for natural gas). All tax rates for heating purposes are below the EU averages, except for kerosene that is not widely used in Germany. Heating for business purposes is taxed at even lower rates than for households. Heavy fuel oil in particular enjoys a considerable advantage and unlike other fuels its tax rates are not differentiated according to sulphur contents. Coal is taxed, but also at a relatively modest rate.
- Table 11-2 provides nominal tax rates without the more complex system of individual reductions which are available to business and including;
 - Process specific reductions in energy tax (§51 EnergieStG);
 - Peak adjustment (Spitzenausgleich) for energy tax (§55 EnergieStG);
 - Process specific reductions in electricity tax (§9b StromStG); and
 - Peak adjustment (Spitzenausgleich) for electricity tax (§10 StromStG).
- The above are explained in more detail in Appendix A.9.0.
- Coal that is used for the generation of electricity (>2 MW) is exempt from taxation, according to EnergieStG §37.²⁵⁷ Gas oil used for electricity production (>2 MW) is taxed at a reduced rate (EnergieStG §53) of €15 per hectolitre. When the same units are also producing heat, the share of energy for that purpose will be taxed. Energy use for flue gas treatment is liable too. However, when a combined heat and power unit is highly efficient with an energy utilization rate of at least 70%, it may obtain a complete exemption from the tax.



²⁵⁷ EnergiStG is Energiesteuergesetz; the energy taxation law.

Transport Taxes (excluding transport fuels):

- The annual circulation tax for cars (Kfz-Steuer) registered after 1st July 2009 is based partly on CO₂ emissions, consisting of a base tax and a CO₂ tax. The base tax is €2 per 100 cm³ (petrol) and €9.5 per 100 cm³ (diesel). The CO₂ component is linear and set at a rate of €2 per g/km emitted above 95 g/km, whereas cars below the threshold are exempt. The OECD has observed that "the CO₂-related component accounts for a relatively low share of the tax, which, in turn, represents a minor share of the total costs of vehicle ownership and use. This suggests that the incentive provided by the new tax component remains relatively weak".²⁵⁸ At the same time there are generous arrangements for company cars and commuters, and the tax expenditures on these may well be exceeding revenues from the annual circulation tax (Kfz-Steuer).
- There is no registration tax on purchase and imports of cars in Germany. Despite having the third highest rate of car ownership within the EU, the absence of registration taxes with the low circulation tax explains why, overall, Germany has a fairly low ranking with regards to the share of transport taxation in the EU-28 (see Section 11.1.2). The average CO₂ emissions of new cars has always been one of the highest within EU and remains so to this day (see also above).
- The road user charge for heavy-goods vehicles (Lkw-Maut) on motorways (and from 2012 certain federal roads) is differentiated according to vehicle exhaust classes for vehicles above 12 tonnes. According to the OECD the tax has helped to increase the uptake of low-emission freight vehicles.²⁵⁹ The road user charge does not apply to light duty vehicles. A study by the EEA suggested that, within the range of tax liability, the largest vehicles are treated too leniently, when considering more carefully the relative burdens on infrastructure and the environment.²⁶⁰ Only the Eurovignette countries and Germany do not apply their tolls to all vehicles above 3.5 tonnes (under Directive EC/2006/38, this was meant to be the case by 2012, and it is mandatory under Directive EC/2011/76).
- A tax on aviation was introduced in 2011 with tax rates differentiated in three categories according to flight distances. The tax rates were adjusted slightly downwards the following year in anticipation of the agreed inclusion of aviation in the European Emissions Trading Scheme (ETS) and have remained €7.5 for short distance, €23.43 for mid-distance, and €42.18 for long-distance flights.

Pollution and Resource Taxes:

• The federal tax on nuclear fuels (Kernbrennstoffsteuer) has been imposed for the years 2011 to 2016 as part of a deal whereby nuclear power

²⁵⁸ OECD (2012) Environmental performance reviews: Germany, Paris.

²⁵⁹ OECD (2012) Environmental performance reviews: Germany, Paris.

²⁶⁰ Verkehrs Rundschau 21.3.2013: Wie hoch müsste die Deutsche LKW-maut sein ?

stations have had their lifetime extended. The tax base relates to the fuelrods and is weight-based with a rate of €145 per gram of plutonium or uranium. The legislative proposal justifies the tax on the grounds of the polluter-pays principle – the costs for final storage and management of nuclear waste are a federal responsibility for which a contribution is adequate for consolidation of the general budget.²⁶¹ It is classified by Eurostat as a pollution related tax and generates about €1.7 billion in annual revenues (the tax is, therefore, by far the most important pollution related tax, in terms of revenue take, on the National Tax List for Germany).

- Germany's waste water tax (Abwasserabgabe) was agreed in 1976 and phased in gradually from 1981 and onwards following legal implementation by the individual Länder by whom the tax is imposed and managed.²⁶² It is a classical emissions levy, not a user charge, and applies only for the direct discharges to surface waters from industries and sewage treatment plants, altogether about 10,000-12,000 entities. The tax base is a so called 'damage unit', which is defined as 50 kg of COD (chemical oxygen demand) or 25 kg nitrogen or 3 kg phosphorus.²⁶³ 50 kg of COD translates into about 2.5 inhabitant equivalents of organic pollution. Since 1997 the tax rate has been €35.79 per damage unit, or approximately €14 per inhabitant equivalent (not indexed with inflation). It is uniform across all German Länder. Discharges are controlled with permits, and a 50% reduction is provided to dischargers in compliance with permit requirements. The revenues from the tax are in most Länder ring-fenced for purposes related to improvements of water quality and are administrated by the Länder themselves. Despite annual revenues of €300 million it is not included on the National Tax List for Germany.²⁶⁴
- Germany's water abstraction levy (Wasserpfennig; or Entgelt für Wasserentnahmen) is a natural resource tax that applies to water works and others abstracting from aquifers or surface waters. The legal framework is provided by legislation in each of the German Länder within the framework of the Federal Water Law (Wasserhaushaltsgesetz). In the same way as for the waste water tax it is managed by the Länder, since water management according to the German constitution is an area where the Länder have the competencies. It is a volumetric tax, with tax rates that are decided by the individual Länder government and which hence differ across Germany. The Länder also administrate the tax bases differently with respect to the rates for surface waters and groundwater. There are also significant differences with regard to tax liability for cooling

²⁶⁴ Profile of the German water sector 2011; p28, Bonn <u>www.dvgw.de/fileadmin/dvgw/wasser/organisation/branchenbild2011_en.pdf</u>



²⁶¹ Deutsche Bundestag, 2010. Entwurf eines Kernbrennstoffsteuergesetzes, Drucksache 17/3054.

²⁶² http://www.economicinstruments.com/index.php/component/zine/article/166-

²⁶³ Additionally the following parameters constitute one damage unit; 2 kg organic halogens, 20 g mercury, 100 g cadmium, 500 g chromium, 500 g nickel, 500 g lead, 1000 g zinc; see RIZA (1995) Waste water charge schemes in the European Union Part I-II, Lelystad.

water and other specific uses. A level of about €0.05 per m³ seems most common, but tax rates up to €0.30 are in place (see Appendix for more details). From waterworks the tax is passed over to water consumers. where it accounts for about 5% of their water supply tariff. As levied at the point of abstraction it provides an incentive for water suppliers to reduce on leakage rates. These are, perhaps as a result, in Germany among the lowest in Europe, less than 10% and comparable to Denmark which also has an abstraction tax in place. In most Länder the revenues are ringfenced for regional compensation schemes, whereas others do not tie it to specific statutory purposes.²⁶⁵ Abstraction for irrigation purposes is exempted in several Länder or subject to reduced rates. Two Länder, Bavaria and Rhineland-Palatinate, have not yet passed a law to implement the water abstraction tax, whereas two other have repealed theirs (i.e. Hesse and Thuringia). Saxony-Anhalt introduced one from 2012. The annual revenues for Germany as a whole have ranged from €200-400 million, but they do not feature on the National Tax List for Germany.

11.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform (EFR) in Germany. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

11.2.1 Current Status of EFR

Germany introduced an ecological tax reform programme over the years 1999 to 2003, where rates of petrol and diesel taxation were increased. At the same time electricity taxation was reintroduced. It succeeded the former Kohlepfennig for electricity that had been declared unconstitutional in 1995, while increasing the tax rates.²⁶⁶ The introduction, in 2005, of the German 'Lkw-Maut', a distance-based road-pricing scheme for heavy-goods vehicles on motorways, was agreed under the same government, but was technically not part of the tax reform. In 2006 taxes were introduced on coal with the implementation of the EU's Energy Taxation Directive.

Additional steps on market-based instruments generating fiscal revenues included the 2009 restructuring of vehicle taxation on the basis, at least in part, of CO_2 emission performance, and the introduction, in 2011, of an aviation tax and a tax on nuclear fuels.

As noted by the OECD, there is no overarching policy reform framework for environmental fiscal reform in Germany.²⁶⁷ In fact, the specialized government administration is hardly suited to pursue the linkages between fiscal policies and environment/climate concerns. The Finance Ministry tends to consider taxation mainly for its revenue raising purposes

²⁶⁵ Water abstraction charges and compensation payments in Baden-Württemberg, EPI-WATER report; <u>www.feem-project.net/epiwater/docs/d32-d6-1/CS13_Buden-Wurttemberg.pdf</u>

²⁶⁶ Annex Table A.7. (by Stefan Speck) pp. 288 in M.S. Andersen and P. Ekins, eds. (2009) Carbon-energy taxation: lessons from Europe, Oxford University Press.

²⁶⁷ OECD (2012) Environmental performance reviews: Germany, Paris.

and is not occupied with the regulatory aspects, whereas the Ministry for the Environment has a well-established tradition for command-and-control instruments, an approach which the Ministry has tended to prefer over using more market-based solutions to achieve environmental objectives.

The tax rates on motor fuels have not been adjusted since 2003 and have therefore been eroded by inflation to the level which they were at prior to the ecological tax reform. Exemptions from the energy tax for specific energy-intensive processes were introduced in 2006, when the energy tax law was introduced.

A government coalition treaty establishes that Lkw-Maut, the road-pricing scheme, should be extended to other federal roads. In addition a time, but not distance, dependent charge on passenger vehicles should be introduced from 2016. The main purpose appears to be that vehicles from other countries should be charged for their use of German roads (thereby ensuring that they contribute to the wear and tear of the country's road networks). There is a pledge to offset the burden for German passenger vehicles by providing a form of relief on other taxes (the annual circulation tax) corresponding to the envisioned revenue relating to road-pricing. The rather modest level of vehicle taxation in Germany appears to limit the level of ambition for such reform.

11.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Germany. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- Energy Taxes:
 - It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€18.6 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for kerosene (€17 per GJ). Finally, due to the existing rates for kerosene used for heating being very high relative to coal and gas the rates for heating fuels are equalised using the minimum rate for natural gas of €0.41/GJ.
 - The existing electricity tax rates are harmonised according to the highest rate, which for Germany is non-business use.
 - Table 11-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the Good Practice section above. The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
 - In the case of propellants, the revisions imply a major increase in taxes on



LPG and natural gas. More importantly, however, the petrol / diesel differential, which significantly favours diesel at present, is closed as the revisions imply a 50% increase in the tax applied to diesel.

- In the case of fuels used in commercial and industrial motors, there is a major increase in the rates for gas oil, LPG to and natural gas to bring the taxes into alignment with existing rates on kerosene;
- On heating fuels (business and non-business), the changes imply significant uplifts in taxes on heavy fuel oil and gas oil, but most significantly, the tax on coal increases more than sevenfold.
- The existing electricity tax rates are harmonised according to the highest rate, which for Finland is non-business use (implying an increase for business users of around one third of current rates).

Table 11-3: Existing and New Minimum Rates Based upon Proposed Revisions to ETD

Energy Tax	Units	Suggested Rates	Existing Rates
Transport Fuels			
Motor spirit (petrol)	€ per 1000 litre	655	655
Light fuel oil (diesel)	€ per 1000 litre	706	470
LPG (propellant)	€ per 1000 kg	913	180
Kerosene	€ per 1000 litre	710	655
Natural gas (prop)	€ per GJ	20	4
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	649	46
Kerosene	€ per 1000 litre	655	655
LPG	€ per 1000 kg	841	180
Natural gas	€ per GJ	18	4
Business Heating			
Gas oil	€ per 1000 litre	67	46
Heavy fuel oil	€ per 1000 kg	78	25
Kerosene	€ per 1000 litre	655	655
LPG	€ per 1000 kg	77	45
Natural gas	€ per GJ	1.53	1.14
Coal	€ per GJ	2.30	0.30

Energy Tax	Units Suggested Rates		Existing Rates
Non-Business Heating			
Gas oil	€ per 1000 litre	67	61
Heavy fuel oil	€ per 1000 kg	78	25
Kerosene	€ per 1000 litre	655	655
LPG	€ per 1000 kg	77	61
Natural gas	€ per GJ	1.53	1.53
Coal	€per GJ	2.30	0.30
Electricity			
Electricity - business use	€ per MWh	20.50	15.37
Electricity - non-business use	€ per MWh	20.50	20.50

> Transport Taxes:

Vehicles: The taxes on transport in Germany are lower than average in the EU (0.36% of GDP compared to an average of 0.54% GDP), not least because Germany has no registration tax for passenger vehicles in place. GHG-emissions from road transport have been increasing slightly again since 2007.²⁶⁸ Emissions are not projected to decrease significantly in the business-as-usual scenario for climate policy, and the so called Energiewende scenario relies on improving vehicle standards without behavioural change.²⁶⁹ Germany has, at 136 g CO₂ per km, one of the highest average emission levels for new passenger cars in the EU-28 (exceeded only by Baltic States, Bulgaria, Hungary, Poland and Cyprus) and still above the EU target of 130 g to be achieved by 2015.²⁷⁰ Hence, it is proposed that Germany should consider increasing vehicle taxes to the level of good practice (i.e. by 0.74% of GDP). More specifically, the OECD in its review has suggested that Germany should adjust the level of circulation taxes and introduce purchase taxes, while extending the system of road tolls to include light duty vehicles and passenger cars.²⁷¹ For heavy-goods vehicles the opportunities for road-pricing under the 2011 Euro-vignette Directive

²⁷¹ OECD (2012) Environmental performance reviews: Germany, Paris, page 44.



²⁶⁸ http://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer

²⁶⁹ Umweltbundesamt, 2013, Politikszenarien für den Klimaschutz IV, p 249 http://www.umweltbundesamt.de/sites/default/files/medien/461/publikationen/4412.pdf

²⁷⁰ European Environment Agency (2012) Monitoring CO₂ emissions from new passenger cars in the EU: summary of data for 2012, Copenhagen.

also deserves more serious consideration, in particular the opportunities for a more fine-tuned approach to reflect actual damage costs associated with the air pollution generated by specific vehicle categories.²⁷²

Aviation: Germany has an aviation tax in place reflecting certain external costs of air transport including noise. It is suggested to adjust the aviation tax on air passenger flights, mainly with regard to the short distance flights, and to introduce a complementary tax on air freight. The suggested rates for the air passenger tax are €15 per passenger (flights within the country concerned), €25 per passenger (to other countries in the European Union), €50 per passenger (to other countries outside the European Union). The suggested air transport tax rate is €1.25 per tonne of freight. The suggested year of implementation is 2016.

Pollution and Resource Taxes:

- Aggregates: Extraction of minerals for use as aggregates causes harm to the environment. An aggregates tax helps to reduce the environmental burden by increasing the price of raw materials, and so stimulates the market for recyclable materials. This ultimately reduces costs for businesses, but also is in-line with the flagship initiative 'A Resource Efficient Europe.²⁷³ It is suggested that Germany implements an aggregates tax at a rate of €2.40 per tonne from 2016, and following this to keep the rate constant in real terms. The types of materials that could be covered by the tax are:
 - o Marble
 - Chalk and dolomite
 - o Slate
 - Limestone and gypsum
 - Sand and gravel

Not all of these are extracted in Germany. The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues.

 Waste – landfill tax: Germany is one of the few remaining Member States without a landfill tax. Member States bordering Germany with a landfill tax include Austria, Belgium, Czech Republic, Denmark, France, the Netherlands and Poland (Switzerland also has a landfill tax).²⁷⁴ Landfill taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive.

 $^{^{272}}$ European Environment Agency (2013) Road user charges for HGV – tables with external costs of air pollution, EEA Technical Report 1/2013, Copenhagen.

²⁷³ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

²⁷⁴ ETC/SCP (2013) Overview of the use of Landfill Taxes in Europe, April 2012, p.25, http://scp.eionet.europa.eu/publications/WP2012_1/wp/WP2012_1

Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. However, Germany has implemented a restriction on landfilling for many years, and the introduction of a tax is unlikely to deliver much further improvement (or much additional revenue). Germany has, however, significant capacity for incineration and mechanical biological treatment. It is suggested that, in order to continue to drive waste up the hierarchy, the incineration of waste is subject to a tax of \pounds 15 per tonne, with other residual waste treatments treated in an equivalent manner. This tax is modeled as being introduced in 2019. Given that Germany is already importing waste for treatment at such facilities, it is suggested that waste prepared for treatment at recovery facilities overseas are also taxed, but imports are not.

- Air pollution: It is suggested that in order to generate improvements in air quality the following tax rates are introduced:
 - NOx/VOC €1,000 per tonne
 - SOx €1,000 per tonne
 - PM_{2.5} €2,000 per tonne

Such emissions taxes would operate much the same way as the waste water tax in Germany by providing incentives to full compliance with standards for emissions of air pollution, while minimizing on the allowable default periods. With their least-cost basis they will also provide more flexibility and cost-efficiency in abatement, than further tightening of standards. At the same time they could provide relief to the feed-in tariffs for electricity from renewables, because they will increase costs for use of fossil fuels at the margin. The above rates are appropriate for a start, while alignment to the higher rates in place in certain neighbouring countries should be analysed. Given the novelty of the tax rates it is suggested that there is a transition period from 2016 to proposed levels by 2020. The rates are then held constant in real terms. Part of the revenues could accrue to national or Länder budgets.

- Water abstraction for public water supply: To improve efficiency in the usage of the water supply system it is suggested to adjust tax rates in-line with 'good practice'. With relative price levels in Germany this would imply rates of €0.60 per m³ for non-business and €0.40 per m³ for business purposes. These rates could be indicated in federal law in the same way as the waste water tax rates to avoid tax competition among the Länder. Given the magnitude of the increase in rates a transition period from 2015 to 2020 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms. Part of the revenues could accrue to national budget.
- Waste water: Germany has a tax on water pollution, but to improve prevention of water pollution and reflect better the environmental burdens it is suggested to adjust tax rates in-line with 'good practice'. With relative price levels in Germany this would imply an increase from the present level of about €0.7 to a rate of €2.7 per kg BOD/COD. The tax rates for phosphorous, nitrogen and other emission parameters should be adjusted too, while taking into account estimates of their relative external costs. A



transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to proposed levels. Existing exemptions should be reviewed and adjusted accordingly. The rates are then held constant in real terms. Part of the added revenues could accrue to national budget.

• **Pesticides:** There is currently no tax on pesticides in Germany. Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary</u> <u>means designed to achieve these targets</u>".

It is suggested that Germany implements a pesticides tax at a rate of €5 per kg active ingredient. The suggested transition period is from 2016 to 2018, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark), could go a long way to helping Germany achieve the risk indicators that are to be developed under the National Pesticide Action Plan.

 Packaging: A small number of Member States have implemented packaging taxes for packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested to apply the following good practice rates to all packaging placed on the market in Germany:

0	Paper and card	€0.07 per kg
0	Plastic	€1.40 per k
0	Wood	€0.07 per kg
0	Metallic	€1.69 per kg
0	Glass	€0.25 per kg

• Plastic bag tax: There is currently no tax on single-use plastic bags in Germany. Plastic bags cause many environmental problems when littered in the environment, especially when they end up in the marine environment. Taxing single-use plastic bags significantly influences consumers purchasing of these bags, by stimulating a switch to reusable bags. Moreover, in 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.²⁷⁵ Therefore, it is suggested that Germany implements a tax on singleuse plastic bags at a rate of $\notin 0.22$ per bag (same rate as Ireland) from 2016, and following this to keep the rate constant in real terms.

 Fertilisers: A tax on the use of nitrogen in mineral fertilisers is suggested at a rate of €0.30 per kg N from 2016. This tax rate would reflect relative price levels for Germany relevant to EU schemes under the CAP, and support the prevention of groundwater contamination, ammonia evaporation, emissions of greenhouse gases and surface water eutrophication.

11.2.3 Summary of Revenue Outcomes

Table 11-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025		
Energy Taxes					
Transport fuels	1,128	4,417	7,586		
C&I / Heating	231	884	1,497		
Electricity	1,693	1,693	1,693		
Sub-total Energy, million EUR	3,052	6,994	10,777		
Sub-total Energy, % GDP	0.11%	0.24%	0.37%		
Transport Taxes (excluding transport fuels)					
Vehicle Taxes	4,274	17,101	21,403		
Passenger Aviation Tax	2,387	4,390	3,969		
Freight Aviation Tax	2.21	3.75	2.86		

Table 11-4: Potential Additional Revenue from Environmental Fiscal Reform in Germany, million EUR (real 2014 terms)²⁷⁶

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C



²⁷⁵ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

²⁷⁶ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

Тах	2017	2020	2025	
Sub-total Transport, million EUR	6,663	21,495	25,375	
Sub-total Transport, % GDP	0.23%	0.74%	0.88%	
Pollution and Resource Taxes				
Landfill Tax - Inerts (C&D)	6	5	5	
Incineration / MBT Tax	196	273	269	
Air Pollution Tax	376	793	714	
Water Abstraction Tax	801	1,799	1,632	
Waste Water Tax	266	371	371	
Pesticides Tax	253	494	516	
Aggregates Tax	1,507	932	979	
Packaging Tax	530	533	591	
Single Use Bag Tax	627	133	147	
Fertiliser Tax	0.230	0.423	0.400	
Sub-total Pollution & Resource, million EUR	4,562	5,332	5,224	
Sub-total Pollution & Resources, % GDP	0.16%	0.18%	0.18%	
Total Potential for Environmental Fiscal Reform				
Total, million EUR	14,278	33,821	41,375	
Total Increase, % GDP	0.49%	1.17%	1.43%	

Table 11-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 11-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Germany, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	1,346
Increased Cost Recovery for Water Use	0
Total	1,346

11.2.4 Environmental Benefits

Table 11-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.9.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €3,487 million of benefits are anticipated annually by 2025 in real terms.

Table 11-6: Monetised Environmental Benefits from	m Implementation of Suggested Taxes
in Germany, million EUR (real 2014 terms) ²⁷⁷	

Тах Туре	2017	2020	2025
Energy Taxes	113	309	484
Transport Taxes (excluding transport fuels)	393	784	784
Pollution and Resource Taxes	481	1,895	2,220
Total, million EUR	988	2,989	3,487
Total, % GDP	0.03%	0.09%	0.10%

11.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Germany:²⁷⁸

- In 2012, environmental taxes generated revenue equivalent to 2.18% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Germany. These could generate EUR 14.3 billion in 2017, rising to EUR 41.4 billion in 2025 (both in real 2014 terms). This is equivalent to 0.49% and 1.43% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the suggested increase in vehicle taxes. This accounts for EUR 21.4 billion by 2025 (real 2014 terms), equivalent to 0.61% of GDP.

²⁷⁷ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

²⁷⁸ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

- The next largest contribution to revenue comes from the suggested harmonisation of transport fuels with the rates set out in the proposed ETD. This accounts for EUR 7.6 billion by 2025 (real 2014 terms), equivalent to 0.21% of GDP.
- The Passenger Aviation Tax would account for EUR 4.0 billion by 2025 (EUR 4.0 billion) (real 2014 terms), equivalent to 0.11% of GDP.
- Revenue potential from the suggested changes to electricity taxes would raise EUR 1.7 billion by 2025 (real 2014 terms), equivalent to 0.05% of GDP.
- A water abstraction tax has also been suggested. This would contribute EUR 1.6 billion by 2025 (real 2014 terms), equivalent to 0.05% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 5.1 billion by 2025 (real 2014 terms), equivalent to 0.14% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 3.5 billion by 2025 (real 2014 terms), equivalent to 0.10% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €1.3 billion per annum could be raised in addition to the above.

12.0 Greece

12.1 Country Overview

12.1.1 Key Facts about the Economy and Tax System

- Greece experienced strong economic growth prior to the financial downturn. Between 2003 and 2007 the country's GDP increased by an average of 4.3% per annum in real terms. However, Greece was badly affected by the economic downturn which started in 2008 and from which the country has still not recovered. Greece experiencing negative growth in every year since 2008. On average, for the period 2008 to 2013 Greece's GDP has decreased by 4.4% per annum in real terms.²⁷⁹
- Greece's overall tax revenue (including social contributions) as a percentage of GDP is below the EU-28 average of 39.8%, at 36.6% (2012). This has recently risen, however, since dropping from 35.7% in 2002 to a low of 32.8% in 2009.²⁸⁰
- In 2012, total tax revenue in Greece was made up of 27.9% direct taxes, 34.7% indirect taxes, and 37.4% social contributions. Since 2002, the contribution made by direct taxes has risen, and that made by indirect taxes and social contributions has fallen in both cases.²⁸¹
- In 2012, environmental taxes amounted to 2.85% of Greece's GDP, the highest proportion in 10 years. In 2002 environmental taxes amounted to 2.3% of GDP, and hit its lowest level in 2008 when revenues from these taxes were equivalent to 1.95% of GDP.²⁸²
- The highest proportion of revenues from environmental taxes in 2012 came from energy taxes, which, at the time, amounted to 2.17% of Greece's GDP. The remainder came from taxation on transport (excluding fuel), which was equivalent to 0.68% of GDP. According to Eurostat, Greece does not generate any revenue from taxes placed on pollution and resources.²⁸³
- The taxation of energy provided 76.1% of Greece's total environmental tax revenue for 2012. This percentage has risen over the past 10 years from 60% in 2002.²⁸⁴

²⁸¹ Ibid.

²⁸³ Ibid.

284 Ibid.

²⁷⁹ Eurostat (2014) Real GDP Growth Rate - Volume, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

²⁸⁰ Eurostat (2013) Main National Accounts Tax Aggregates [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

²⁸² Eurostat (2014) Environmental tax Revenues [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

12.1.2 Relative Position within the EU

In 2012, revenue from environmental taxes as a proportion of GDP was notably higher for Greece than the EU-28 average of 2.4%. The share of revenue from the taxation of energy was higher than the average of 1.8% of GDP, and the share of revenue from the taxation of transport (excluding fuel) was higher than the average of 0.5% GDP. However, Greece is not recorded as receiving any revenue from taxes on pollution or resource, and so is below the corresponding EU-28 average of 0.1% GDP by this measure (see Figure 12-1).²⁸⁵



Figure 12-1: Environmental Taxes in Greece as a % of GDP vs EU-28 Levels (2012)

In 2012, taking revenue from environmental taxation as a share of GDP, Greece ranked 8th in the EU-28. It also ranked 8th in relation to energy taxes, and ranked 10th for the amount of revenue generated from transport taxes (excluding fuel) as a proportion of GDP. Lacking any revenue from pollution and resource taxes, Greece ranked joint 27th with Cyprus (see Table 12-1).²⁸⁶

²⁸⁵ Ibid.

²⁸⁶ Ibid.

Table 12-1: Ranking of Greece's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	8
Energy Taxes as a Share of GDP (%)	8
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	10
Pollution & Resource Taxes as a Share of GDP (%)	=27

Source: based on Eurostat data

12.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.10.0 (see separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{287,288}

- > Energy Taxes:
 - The Greek excise duties on fuels and electricity are shown in Table 12-2 alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Table 12-2: Standard Rates of Excise Duties on Fuels and Electricity in Greece

Excise Duty	Unit	Rate Applied in Greece	Existing ETD Minimum	EU-28 Average	EU-28 Median
Transport Fuels					
Leaded Petrol	€ per 1000 litres	€681	€421	€585	€583
Unleaded Petrol	€ per 1000 litres	€670	€359	€519	€509
Gas Oil (Diesel)	€ per 1000 litres	€330	€330	€427	€405
Kerosene	€ per 1000 litres	€330	€330	€440	€405

²⁸⁷ Eurostat (2014) Euro/ECU Exchange Rates – Annual Data [ert_bil_eur_a], Accessed 5th August 2014, <u>http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ert_bil_eur_a&lang=en</u>

²⁸⁸ Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014, <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD</u> <u>P_C</u>

Excise Duty	Unit	Rate Applied in Greece	Existing ETD Minimum	EU-28 Average	EU-28 Median
Liquid Petroleum Gas	€ per 1000 kg	€330	€125	€209	€180
Natural Gas	€ per GJ	-	€2.60	€3.03	€2.66
Motor Fuels – Industry /	Commercial Use				
Gas Oil (Diesel) ¹	€ per 1000 litres	€330	€21	€221	€163
Kerosene	€ per 1000 litres	€330	€21	€283	€330
Liquid Petroleum Gas ⁴	€ per 1000 kg	€120	€41	€126	€125
Natural Gas	€ per GJ	€1.50	€0.30	€1.76	€1.50
Heating - Business Use	1				
Gas Oil (Diesel) ²	€ per 1000 litres	€330	€21	€221	€163
Kerosene	€ per 1000 litres	€330	€0	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€38	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€60	€0	€82	€40
Natural Gas	€ per GJ	€1.50	€0.15	€1.36	€0.46
Coal and Coke ⁵	€ per GJ	€0.30	€0.15	€1.27	€0.31
Heating – Non-Business	Use				
Gas Oil (Diesel) ²	€ per 1000 litres	€330	€21	€179	€125
Kerosene	€ per 1000 litres	€330	€0	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€38	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€60	€0	€111	€42
Natural Gas	€ per GJ	€1.50	€0.30	€2.04	€0.94
Coal and Coke ⁵	€ per GJ	€0.30	€0.30	€1.77	€0.32
Electricity					
Business Use ⁶	€ per MWh	€2.50 - €5.00	€0.50	€8.42	€1.03
Non-Business Use ⁶	€ per MWh	€2.20 - €5.00	€1.00	€14.53	€2.06
Notes:					

1. Industrial use of gas oil in production activities is eligible for a refund of €125 per 1,000 litres, and a refund of €264 per 1,000 litres is applied for gas oil used for agricultural purposes.

2. Following equalisation of the excise on gas oil for heating, with that used as propellant to €330 per 1,000 litres of fuel, a system of tax refunds which vary in accordance with income and

Excise Duty	Unit	Rate Applied in Greece	Existing ETD Minimum	EU-28 Average	EU-28 Median
 geographical region was introduced for households and a standard refund for farmers. 3. Bio-diesel is taxed at the same rate as gas oil. 4. A special rate of €0.29 is applied for LPG used in agriculture. 5. When used for electricity production, mineralogical and metallurgical processes and for chemica reductions, an exemption on the excise duty on coal and coke is applied. 					rs. for chemical
The lower rates a of solar, wind, w electricity used i	for electricity apply to ave, tidal or geothern n agriculture is also	o high voltage, the mal origin is not su exempt.	higher rates to bject to excise	other voltages duties. Further	s. Electricity rmore,

Sources: European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/ra tes/excise_duties-part_ii_energy_products_en.pdf; and European Commission (2014) Taxes in Europe Database, Accessed 14 August 2014, http://ec.europa.eu/taxation_customs/tedb/taxSearch.html

- All of Greece's excise duty rates are above the EU ETD minimum. Additionally, many rates are above the EU average, notably gas oil and kerosene rates, though not when used as a propellant, and petrol rates. Some rates are also below the EU average, particularly most natural gas rates and rates for electricity.
- Additional rates, outlined in Appendix A.10.0 apply to other energy products, including aircraft petrol, aromatic hydrocarbons and other light oils.
- Several uses of energy products are exempt from excise duties. These include energy products used by aircraft (except private leisure flights), sea transport vessels or vessels fishing within EU waters and diesel oil, kerosene, white spirit and other light oils used as raw material for production purposes.²⁸⁹
- Revenue from all excise duties on mineral oil products in 2012 (the latest year for which figures are available): €3.97 billion (equivalent to 2.06% of GDP).²⁹⁰
- Special Levy for the Reduction of GHGs ('Ειδικό Τέλος Μείωσης Εκπομπών Αερίων Ρύπων' (ΕΤΜΕΑΡ)):
 - This is a source of financing for the renewable energy special account which supports the installation of renewable energy

²⁹⁰ European Commission (2014) Taxes in Europe Database, Accessed 14 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>



²⁸⁹ European Commission (2014) Taxes in Europe Database, Accessed 14 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

systems.²⁹¹ It is a levy charged on actual usage of electricity and is added to customer bills each month.

- In December 2013, the Greek government decided to increase the levy by 97% on average, however this decision was revised in spring 2014 and the imposed increase on 1 April 2014 was restricted to an average of 32%.^{292 293} The levy varies depending on the type of customer after the increase on 1 April 2014, the average rate is of the levy is €19.73 / MWh, with domestic customers paying €26.30 / MWh.²⁹⁴
- Revenue: in 2012 (the latest year for which figures are available):
 €178 million (equivalent to 0.09% of GDP).²⁹⁵
- Special Duty 0.5%: ²⁹⁶
 - As with the previous levy, this is collected on all electricity bills. The rate for all types of electricity users is 0.5%. The basis of the calculation is the cost of the actual electricity usage plus the value of the excise duty (but excluding the value of the Special Levy for the Reduction of GHGs). Revenue: unknown.

> Transport Taxes (excluding transport fuels):

- There are three types of transport taxes in Greece, excluding excise duties on transport fuels. These are a registration duty, a circulation duty and an additional annual 'luxury tax' imposed on large vehicles.
- Motor vehicle registration duty (Τέλος ταξινόμησης σχημάτων):
 - This is a one-off registration duty paid as a set percentage of the total wholesale price of the vehicle plus any insurance and transport costs. The percentage is determined by the engine size and the emissions standard of the vehicle and ranges from 5% to

²⁹¹ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Country Report: Greece, Report for European Commission - DG Clima, January 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/gr_2014_en.pdf</u>

²⁹² Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Monthly Progress Update: 01 February - 30 February (Issue 11/2014), Report for European Commission - DG Clima, March 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/progress_201402_en.pdf</u>

²⁹³ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Monthly Progress Update: 01 April - 30 April (Issue 13/2014), Report for European Commission - DG Clima, May 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/progress_201404_en.pdf</u>

²⁹⁴ Ibid.

²⁹⁵ Eurostat (2014) Revenue Data by Individual Tax (National Tax List), accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

²⁹⁶ Public Power Corporation S.A.-Hellas (no date) Special Duty 5‰ (L. 2093/92), accessed 8 September 2014, <u>https://www.dei.gr/en/eidiko-telos-5-eidtel-5-n-209392</u>

350% of the aforementioned price for passenger cars, with smaller vehicles and better emissions classes paying a lower rate. For second-hand vehicles, the rates are reduced by a set percentage, determined by the type, age and mileage of the vehicle.²⁹⁷

- All electric vehicles and hybrid vehicles which comply with the European directives on emissions standards are exempt from the duty. Additionally, vehicles used as ambulances, by people with disabilities and by certain faith-based organisations are also exempt.
- Details of certain rates are included within Appendix A.10.0. Full details of all rates are available on the TAX-UD database.²⁹⁸
- Revenue in 2012 (the latest year for which figures are available):
 €100 million (equivalent to 0.05% of GDP).
- Circulation duty on motor vehicles (Τέλη κυκλοφορίας):²⁹⁹
 - This is an annual duty paid on vehicles (including buses and lorries) and motorcycles. The bases for the level of tax are the following:
 - Engine size for private cars registered up to 31 October 2010;
 - CO₂ emissions for private cars registered after 1 November 2010;
 - Engine size for motorcycles;
 - Gross weight for lorries; and
 - Number of passenger seats for buses.
 - For private cars registered up to 31 October 2010, rates range from €22 per year to €1,320 per year and for cars registered after 1 November 2010, rates range from €0.90 per g/km CO₂ for emissions greater than 100 g/km CO₂ to €3.40 per g/km CO₂ for the most polluting vehicles.
 - All rates for private and public use vehicles are presented in Appendix A.10.0.
 - Exemptions related to emissions levels include hybrid vehicles with engine sizes up to 1,929 cc, electric vehicles registered up through

²⁹⁹ European Commission (2014) Taxes in Europe Database, Accessed 14 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>



²⁹⁷ European Commission (2014) Taxes in Europe Database, Accessed 14 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

²⁹⁸ European Commission (2014) Taxes in Europe Database – Motor Vehicles Tax: Car Registration Tax, Accessed 14 August 2014,

http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=216/1388754775&taxType=Other+indire ct+tax

31 October 2010 and private vehicles registered after 31 October 2010 with CO $_2$ emissions below 100 g/km.

- The duty in its present form has been in place since 2011. Prior to this, the duty was based on the vehicle's engine capacity alone.³⁰⁰
- Revenue in 2012 (the latest year for which figures are available):
 €1.21 billion (equivalent to 0.63% of GDP).³⁰¹
- Tax on Luxurious Living (Φόρο Πολυτελούς Διαβίωσης):
 - The 'luxury tax' is imposed annually on owners of swimming pools, aircraft and vehicles with engines larger than 1,929 cc.³⁰² The tax was initially imposed for one year in 2011 before being implemented as an annual tax in 2013.³⁰³ The rate is flat-rate, based on the engine size and the age of the vehicle and ranges from just under €300 to over €5,000 per year. Details of rates are included in Appendix A.10.0.³⁰⁴
 - Vehicles with engines smaller than 1,929 cc as well as vehicles more than 10 years old are exempt from the tax. ³⁰⁵
 - The revenue generated by this tax is unknown but in 2013, the tax was expected to generate between €100 million and €130 million (0.05% to 0.07% of GDP). ³⁰⁶
- Air passenger tax ('spatosimo'):³⁰⁷
 - This tax has been in place since 1992 and is charged on all passengers flying into or out of a Greek airport. Revenues are used to modernise Greek airports. There are two rates depending on the origin of the flight: €12 per passenger to and from another EU airport; €24 per passenger to and from a non-EU airport.

³⁰⁵ Ibid.

³⁰⁰ Ministry of Environment, Energy and Climate Change (Hellenic Republic) (2010) Fifth National Communication to the United Nations Framework Convention on Climate Change, January 2010, <u>http://unfccc.int/resource/docs/natc/grc_nc5.pdf</u>, p. 127

³⁰¹ Eurostat (2014) Revenue Data by Individual Tax (National Tax List), accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

³⁰² Greek Reporter (2014) Rich Greeks Face Luxury Tax, accessed 28 August 2014, <u>http://greece.greekreporter.com/2013/09/13/rich-greeks-face-luxury-tax/</u>

³⁰³ Ibid.

³⁰⁴ TO BHMA (Tovima) (2013) Έρχονται τα σημειώματα του φόρου πολυτελείας για IX άνω των 1.929 κ.εκ., accessed 28 August 2014, <u>http://www.tovima.gr/finance/article/?aid=542754</u>

³⁰⁶ TO BHMA (Tovima) (2013) Έρχονται τα σημειώματα του φόρου πολυτελείας για IX άνω των 1.929 κ.εκ., accessed 28 August 2014, <u>http://www.tovima.gr/finance/article/?aid=542754</u>

³⁰⁷ GTP Headlines (2014) Greece's 'Spatosimo' Air Passenger Tax to be Revised, accessed 31 August 2014, <u>http://news.gtp.gr/2014/04/29/greeces-spatosimo-air-passenger-tax-revised/</u>

- Proposals have been tabled to reduce the tax from October 2014.
 The revenue from the tax is unknown.
- In addition, although not taxes, there are road tolls in place in many parts of Greece. These are levied for motorways and some tunnels and bridges. Per stretch of road or bridge, they range from €2 to €3 for several stretches of motorways to €13.20 for the Rio-Antirio Bridge.^{308,309}

Pollution and Resources:

- Pollution and resource taxes in Greece are extremely limited in scope. The only tax that has been identified through this research is the recently imposed landfill tax:
- Landfill Tax:
 - A landfill tax was included within the new framework Law 4042/2012 on waste management which transposes the Waste Framework Directive 2008/98/EC and the Directive 2008/99/EC and was due to be implemented as of 1 January 2014.
 - The landfill tax rate for 2014 is €35 per tonne, with planned increases of €5 per tonne per year to €60 per tonne by 2019.
 - The tax is paid by organisations or companies disposing municipal and construction and demolition waste, though the tax rate is not dependent on the type of waste.
 - The revenue is unknown as the tax has only been in force since January 2014.

12.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Greece. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

12.2.1 Current Status of EFR

As outlined in Section 12.1.1, the Greek economy has been under severe strain since August 2009, with a large budget deficit which was estimated at €30.9 billion (13.4% of GDP) at the end of 2009.³¹⁰ In the spring of 2010, the Government sought aid from the EU and the International Monetary Fund, who covered the financial deficits of the budget

api/f/binaryChannel/minfin/datastore/6d/39/63/6d3963ba1158e373e4aaefb30e34379e91473b45/a pplication/pdf/BULLETIN_7_2014.pdf



³⁰⁸ Rhino Car Hire (2013) Greek Toll Roads - A Guide to Toll Roads in Greece, accessed 8 September 2014, <u>http://www.rhinocarhire.com/Car-Hire-Blog/November-2013/Greek-Toll-Roads.aspx</u>

³⁰⁹ The AA (no date) European Tolls: Search Results for Greece, accessed 8 September 2014, <u>http://www.theaa.com/allaboutcars/overseas/european_tolls_results.jsp?country=Greece</u>

³¹⁰ Ministry of Finance (Hellenic Republic) (2010) State Budget Execution Bulletin: December 2010, December 2010, <u>http://www.minfin.gr/content-</u>

on the basis of agreements, providing for extensive restructuring of public finances and other structural reforms.

As a result, public finances recovered and the most recent figures (for the months of January to July 2014) show a budget deficit of only ≤ 1.7 billion, equivalent to only 0.9% of estimated GDP.³¹¹ However, the 5 year long recession has had a severe socio-economic impact on the people of Greece. Most recent figures indicate that ≤ 68 billion is owed to the state,³¹² and that almost 2.5 million people are currently unable to repay their debts to the state.³¹³ Furthermore, it is noted that, although Greece has comparatively high rates of taxation in relation to other EU member states, the revenue is not correspondingly high owing to an inefficient collection system and a culture of tax evasion.³¹⁴ Indeed, the recent improvement in the budget deficit reported above is largely the outcome of a re-organisation of the tax collection services.

The Greek government considers that the need to restrain public spending puts serious limitations on introducing new environmental regulations and measures, for example, in the realm of improving waste management in Greece.³¹⁵

Many changes have been made to the taxation system in recent years, both in order to shift taxes away from labour and onto consumption, including using environmental taxation to a greater degree, and to increase revenue outcomes by improving and streamlining tax collection systems. Additionally, new taxes have been introduced, including a solidarity tax on income, a new luxury tax on private owners of large cars, yachts, aircraft and swimming pools, and, most recently, a new property tax ('ENΦIA') which will be applied from 1 July 2014 to 31 December 2014 on all private landlords and landowners. This is based on the type and size of the property and land owned. With the introduction of this tax, it will be the first time that farmers will have to pay property tax.³¹⁶

When looking at the status of (and potential for) environmental fiscal reform in Greece, there are thus many factors that must considered. First of all, many changes have already been implemented in the last few years: these include many increases in excise duties on energy products, with excise duties on electricity and natural gas introduced in 2011 and the equalisation of heating oil and diesel tax rates. The resulting increase in

³¹¹ Ministry of Finance (Hellenic Republic) (2014) State Budget Execution Monthly Bulletin: July 2014, August 2014, <u>http://www.minfin.gr/content-</u>

api/f/binaryChannel/minfin/datastore/6d/39/63/6d3963ba1158e373e4aaefb30e34379e91473b45/a pplication/pdf/BULLETIN_7_2014.pdf

³¹² Η ΚΑΘΗΜΕΡΙΝΗ (Kathimerini) (2014) Στα 7,2 δισ. ευρώ τα νέα ληξιπρόθεσμα χρέη προς την εφορία στο 7μηνο, accessed 8 September 2014, <u>http://www.kathimerini.gr/781208/article/oikonomia/ellhnikh-oikonomia/sta-72-dis-eyrw-ta-nea-lh3ipro8esma-xreh-pros-thn-eforia-sto-7mhno</u>

³¹³ Η Αυγή Online (Avgi Online) (2014) Φοροαπόγνωση για 2.428.233 πολίτες, accessed 8 September 2014, <u>http://www.avgi.gr/article/3802711/foroapognosi-gia-2-428-233-polites</u>

³¹⁴ The Times of Change (Greece) Greece Ranks 8th in Taxes Among EU 28 Countries, accessed 31 August 2014, <u>http://www.thetoc.gr/eng/economy/article/greece-ranks-8th-in-taxes-among-eu-28-countries</u>

³¹⁵ Ministry of Environment, Energy and Climate Change (Greece) (2013) Comments of the Ministry of Environment, Energy and Climate Change on the Waste Management Roadmap for Greece proposed by DG ENV, March 2013, <u>http://ec.europa.eu/environment/waste/framework/pdf/GR_Comments_Roadmap.pdf</u>

³¹⁶ See <u>http://www.enfia.gr/calc.aspx</u>

heating oil tax (450%) has led both to a sharp decline in demand for heating oil, and a switch to other fuels (such as waste wood, pellets, etc) to heat homes, contributing to increases in air pollution.³¹⁷ However, in the realm of energy taxation, some measures are also in place to reduce the tax burden on some consumers, with tax refunds being allocated to low-income households and to farmers for fuel for agricultural machinery. Refunds to farmers alone totalled €53 million in May 2014. A second instalment is expected in October 2014.³¹⁸

Regarding vehicle taxes, proposals have been made to change the circulation tax in order to reduce the tax burden from 2015 onwards. This could include removing the luxury tax on large vehicles. There is also interest in changing the tax base of the circulation tax from the vehicle's cubic capacity to the distance travelled, the so-called 'Dutch model'. Finally, vehicles with emissions-ratings lower than 100 g CO₂/km currently pay no circulation tax; new proposals for the circulation tax are considering lowering this limit to 80 or 90 g CO₂/km.³¹⁹ It is estimated that 250,000 vehicles have been taken off the road in recent years due to high circulation taxes and insurance costs; a revised circulation tax could result in the Greek government receiving €15 million in additional tax revenue in 2015 from those cars being put back on the road. ³²⁰

Finally, it is worth noting some recent changes or proposals relating to a number of smaller environmental taxes. For example, reports suggest that the air passenger tax may be reduced from October 2014, in order to boost tourism in Greece.³²¹ Secondly, a landfill tax was introduced for the first time in Greece from January 2014. Finally, in relation to single use plastic bags, a pilot was run in Athens in 2008 to try and reduce their impact on the environment. It is not known whether this pilot included a charge for plastic bags, but with proposed amendments to the Packaging Waste Directive requiring a 80% reduction in the number of plastic bags consumed by 2019, a single use plastic bag tax may be easier and less controversial to implement than other new environmental taxes. ³²²

As mentioned above, Greece receives financial support from the European Central Bank and the International Monetary Fund through the Economic Adjustment Programme. There are terms and conditions associated with this support programme and so as not to

http://www.kathimerini.gr/777722/article/epikairothta/perivallon/freno-sth-xrhsh-plastikwn-sakoylwnapo-ton-septemvrio



³¹⁷ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Country Report: Greece, Report for European Commission - DG Clima, January 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/gr_2014_en.pdf</u>, p.10

³¹⁸ Agrotyposgr (2014) Από Οκτώβριο η 2η δόση για την επιστροφή φόρου πετρελαίου στους αγρότες, accessed 8 September 2014, <u>http://www.agrotypos.gr/index.asp?mod=articles&id=87417</u>

³¹⁹ Newsbomb (2014) Τέλη κυκλοφορίας με το... χιλιόμετρο, accessed 8 September 2014, <u>http://www.newsbomb.gr/chrhma/story/399876/teli-kykloforias-me-to-hiliometro</u>

³²⁰ Ημερησία (Imerisia) (2014) ΙΧ: Προς κατάργηση ο Φόρος Πολυτελείας, accessed 8 September 2014, <u>http://www.imerisia.gr/article.asp?catid=27199&subid=2&pubid=113258012</u>

³²¹ GTP Headlines (2014) Greece's 'Spatosimo' Air Passenger Tax to be Revised, accessed 31 August 2014, <u>http://news.gtp.gr/2014/04/29/greeces-spatosimo-air-passenger-tax-revised/</u>

³²² Η ΚΑΘΗΜΕΡΙΝΗ (Kathimerini) (2014) Φρένο στη χρήση πλαστικών σακουλών από τον Σεπτέμβριο, του Γιάννη Παλαιολόγου | Kathimerini, accessed 1 September 2014,

duplicate these, no country specific recommendations are thus applied to Greece as part of the European Semester programme.

12.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Greece. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- > Energy Taxes:
 - It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€19.1 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€7.9 per GJ). Finally, due to the existing rates for gas oil and kerosene used for heating being very high relative to coal and gas the rates for heating fuels are equalised using the minimum rate for natural gas of €0.38 per GJ.
 - Table 12-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the 'good practice' on energy taxes (Section 5.1). The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
 - In the case of propellants, the revisions imply a major increase in taxes on LPG and natural gas. More importantly, however, the petrol / diesel differential, which significantly favours diesel at present, is closed as the revisions imply that the tax applied to diesel is more than doubled, redressing the enormous imbalance in taxes between diesel and petrol, and a similar change for kerosene.
 - In the case of fuels used in commercial and industrial motors, there is a major increase in the rates for LPG and natural gas to bring the taxes into alignment with existing rates on gas oil.
 - On heating fuels (business and non-business), the changes imply significant uplifts in taxes on heavy fuel oil and LPG, and significantly, the tax on coal increases more than sevenfold.
 - The existing electricity tax rates are harmonised according to the highest rate, which for Greece is business use, but the change is relatively small.

Energy Tax	Units	Suggested Rates	Existing Rates	
Transport Fuels				
Motor spirit (petrol)	€ per 1000 litre	670	670	
Light fuel oil (diesel)	€ per 1000 litre	723	330	
LPG (propellant)	€ per 1000 kg	934	330	
Kerosene	€ per 1000 litre	727	330	
Natural gas (prop)	€ per GJ	20	0	
Industry and Commercial Motors				
Gas oil	€ per 1000 litre	330	330	
Kerosene	€ per 1000 litre	332	330	
LPG	€ per 1000 kg	422	120	
Natural gas	€ per GJ	9	2	
Business Heating	•			
Gas oil	€ per 1000 litre	330	330	
Heavy fuel oil	€ per 1000 kg	77	38	
Kerosene	€ per 1000 litre	330	330	
LPG	€ per 1000 kg	75	60	
Natural gas	€ per GJ	1.50	1.50	
Coal	€ per GJ	2.27	0.30	
Non-Business Heating				
Gas oil	€ per 1000 litre	330	330	
Heavy fuel oil	€ per 1000 kg	77	38	
Kerosene	€ per 1000 litre	330	330	
LPG	€ per 1000 kg	75	60	
Natural gas	€ per GJ	1.50	1.50	
Coal	€per GJ	2.27	0.30	
Electricity				

Table 12-3: Existing and Suggested Rates Based upon Proposed Revisions to the ETD



Energy Tax	Units	Suggested Rates	Existing Rates
Electricity - business use	€ per MWh	3.75	3.75
Electricity - non-business use	€ per MWh	3.75	3.60

> Transport Taxes (excluding fuel):

- Vehicles: The taxes on transport in Greece are slightly higher than average in the EU (0.68% of GDP compared to the EU-28 level of 0.50% GDP). However, it is suggested taxes on transport should be increased further by 0.04% of GDP to bring the country in line with the 'good practice' rates outlined in Section 5.2.1 above. Increasing vehicle taxation could further increase revenue raised, and also, increase differentiation between vehicles based upon environmental performance, thereby influencing the stock of vehicles in use in future. If one was seeking to align with the proposals from the Commission of 2005, it could be suggested that the main increase could relate to the circulation tax (Τέλη κυκλοφορίας). This is already differentiated according to CO₂ emissions for newer vehicles, and could be further amended to reflect the emissions performance of vehicles. However, given ongoing concerns (mentioned above) regarding the level of circulation taxes, an alternative might be to consider application of taxes on HGVs. Although some tolls appear to be in place, these appear to be relatively low.³²³ and there is scope for their expansion. as well as for the application of externality based taxes in line with Directive 2011/76/EC. As noted above, some of these types of tax appear to be already under discussion within Greece. The increase is phased in over the period from 2016 to 2021.
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. An air passenger tax was implemented in Greece in 1992.³²⁴ Current tax rates are €12 per passenger for flights between 100 km and 750 km, and €24 per passenger for flights above 750 km. It is recommended to increase these rates to €15 per passenger (flights within Greece), €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). The suggested air transport tax rate is €1.25 per tonne of freight. The year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted the Good Practice section, the way in which the picture unfolds concerning the

³²³ See Ricardo-AEA (2014) *Evaluation of the Implementation and Effects of EU Infrastructure Charging Policy since* 1995, Final Report to DG MOVE, January 2014 (Figure 2.3).

³²⁴ Personal communication with Yannis Palaiokrassas

proposals from ICAO might influence future levels and / or design of this tax.

Pollution and Resource Taxes:

- Aggregates: There is currently no tax on aggregates in Greece on a national level. An aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is in-line with the flagship initiative 'A Resource Efficient Europe'.³²⁵ It is suggested that regional rates set by the levy on landscape protection and nature conservation are set at €2.40 per tonne from 2017, and that thereafter, they are kept constant in real terms. The types of materials that could be covered by the tax are:
 - o Marble;
 - Chalk and dolomite;
 - o Slate;
 - Limestone and gypsum; and
 - Sand and gravel.

The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues.

- Waste: The recent introduction of a landfill tax in Greece should support the development of waste management. Assuming this does rise to €60 per tonne by 2019 as planned, we would suggest that this should stimulate significant change in waste management within the country. In order to ensure that the main incentive is to move waste management towards the upper tiers of the hierarchy, we would suggest that – notwithstanding the limited availability of such treatment in Greece at present – a tax on incineration is also introduced. We suggest that a rate of €15 per tonne is appropriate, and that equivalent taxes should apply to other means of treating residual waste. This should be phased in to the level of €15 per tonne over the same period as the landfill tax increases are planned. We suggest these taxes should be indexed to an appropriate measure of inflation.
- Packaging: A small number of Member States have implemented packaging taxes for all packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. Greece is not one of these. It is suggested that the following rates could be applied to all packaging placed on the market in Greece:
 - Aluminium €197 per tonne
 - Plastic €64 per tonne

³²⁵ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>



0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2017 and be kept constant in real terms.

- Single-use carrier bag tax: There is currently no tax on single-use carrier bags in Greece. Of these bags, plastic bags in particular cause many environmental problems when littered in the environment, especially when they are transported to, or littered in the riverine, or marine, environment. Moreover in countries with high level of tourism such as Greece, littered plastic bags can deter visitors. A wide body of experience suggests that taxing single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.³²⁶ Consequently, it is suggested that Greece implements a tax on single-use carrier bags at a rate of €0.09 per bag from 2017, and maintains the rate constant in real terms thereafter.
- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. Data is not currently available on the exposure of the urban population in Greece to selected air pollutants such as PM₁₀, ozone or nitrogen oxide on Airbase (EEA).³²⁷ According to Greece's air pollution factsheet (2013), however, an average of 20.9% of the population was exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg per m³) for over 35 days per year in 2010.³²⁸ For ozone, the percentage of the total population exposed to ozone concentrations above the *"target value for the 26th highest daily maximum eight-hour average"* was 37.9% in 2010 down from 59.4% in

³²⁶ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

³²⁷ Eurostat (2014) Resource Efficiency Scoreboard: EU Urban Population Exposed to PM10 Concentrations Exceeding the Daily Limit Value %, Accessed 21st January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=0&pcode=t2020_rn200&</u> <u>language=en</u>

³²⁸ European Environment Agency (2013) *Air pollution fact sheet 2013 - Greece*, October 2013, <u>file:///C:/Users/christina.tsiarta/Downloads/Greece.pdf</u>

2009.³²⁹ Historically, Greece's major cities such as Athens and Thessaloniki have always had traffic congestion and air pollution issues, leading the government to impose restrictions on car circulation through an odd/even system corresponding to cars' license plates, with exceptions for electric, hybrid and other 'green' cars.³³⁰ Greece does not currently have a system of air pollution taxes in place. It is suggested that an air pollution tax could be implemented in order to generate improvements in air quality as follows:

- o SO_X €1,000 per tonne
- o NO_X €1,000 per tonne
- o PM₁₀ €2,000 per tonne

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

• Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that *"Member States shall take account* of the principle of recovery of the costs of water services, including environmental and resource costs". No data was available for Greece on its water exploitation index (WEI) for fresh surface water and groundwater abstraction.³³¹ According to the water exploitation index report of the European Environment Agency (2010),³³² however, Greece's water exploitation index for 2010 was about 13%. This indicates a balanced rate of abstraction of both fresh surface water and groundwater compared to the resources available in Greece, and a low water stress (about 32% of Europe's population experience low water stress).

The warning threshold which distinguishes a non-stressed water region from a stressed one is a WEI of 20%, with a WEI of over 40% indicating severe water stress that can lead to water crises. It is also worth noting that countries with the highest agricultural water use also have the highest water consumption indexes, such as Greece, where agricultural water use predominates.³³³ Greece's consumption index is about -8% and its exploitation index is about +12%, with the average water consumption index in Europe being 3%.^{334,335}



³²⁹ European Environment Agency (2013) *Air pollution fact sheet 2013 - Greece*, October 2013, <u>www.eea.europa.eu/themes/air/air-pollution-country-fact-sheets/greece-air-pollutant-emissions-country-factsheet</u>

³³⁰ Living in Greece (2010) Athens Ring, <u>http://livingingreece.gr/2010/09/06/athens-ring/</u>

³³¹ Eurostat (2014) Water Exploitation Index,

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=0&language=en&pcode=tsdnr310

³³² Marcuello, C., and Lallana, C. (2003) Indicator Fact Sheet - Water Exploitation Index (WQ01c)

³³³ Water consumption index is the total consumption divided by the long term freshwater resources of a country. This index highlights those regions where higher consumptive uses are predominant.

³³⁴ Marcuello, C., and Lallana, C. (2003) Indicator Fact Sheet - Water Exploitation Index (WQ01c)

Currently there are no taxes for water abstraction in Greece. It is suggested that the levels of taxation that could be applied could be of the order €230 per 1,000m³ for the public water supply, €140 per 1,000 m³ for manufacturing purposes and €19 per 1,000 m³ for agriculture. We have assumed that the additional revenue which such rates may generate can accrue to the central budget. A transition period from 2016 to 2021 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.

- Waste water: Council Directive 91/271/EEC concerning urban waste water treatment was adopted on 21st May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.³³⁶ Greece does not have a waste water tax but municipalities include in their rates the full cost of water supply and waste water services. Furthermore, industry, tourist establishments, and other entities are obliged by law to build and operate their own treatment systems, and are charged heavy fines if they do not comply. To further improve prevention of water pollution it is suggested that a waste water tax is implemented in-line with 'good practice' rates (see Section 5.3.6). With relative price levels in Greece this would imply, for BOD, a rate of €1.92 per kg of the pollutant. For fresh-water discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. Existing exemptions should be reviewed and adjusted accordingly. It is suggested that rates should be held constant in real terms once they reach the 2019 levels.
- **Pesticides:** Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> designed to achieve these targets".

Greece's Action Plan aims to provide training on the sustainable use of pesticides in order to minimise use and in order to shift to alternative

³³⁵ For the purpose of this assessment it has been assumed that 80 % of total water abstracted for agriculture, 20 % for urban use, 20 % for industry and 5 % for energy production is consumed and not returned to the water bodies from where it was abstracted (+/- 5-10%). Variation depends on the sector and other factors e.g. the actual water consumption in agriculture depends on climatic conditions, crop composition and irrigation techniques.

³³⁶ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

pesticide management methods.³³⁷ Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €20 per kg active ingredient. The suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark), would be a concrete measure that would contribute towards the aims of the Action Plan.

 Fertilisers: Greece does not currently implement a tax on nitrogen (or other) fertilisers. It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of 0.4 € per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

12.2.3 Summary of Revenue Outcomes

Table 12-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025	
Energy Taxes				
Transport fuels	138	541	928	
C&I / Heating	16	65	113	
Electricity	2	2	2	
Sub-total Energy, million EUR	157	608	1,044	
Sub-total Energy, % GDP	0.08%	0.32%	0.55%	

Table 12-4: Potential Additional Revenue from Environmental Fiscal Reform in Greece million EUR (real 2014 terms)³³⁸

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C



³³⁷ Ministry of Rural Development and Food, Hellenic Republic (2013) Greece National Action Plan on Sustainable Use of Pesticides (Plant Protection Products), July 2013,

http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/docs/nap_greece_en.pdf

³³⁸ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current *Prices* [nama_gdp_c], Accessed 5th August 2014,

Тах	2017	2020	2025	
Transport Taxes				
Vehicle Taxes	17	66	83	
Passenger Aviation Tax	215	429	442	
Freight Aviation Tax	0.03	0.06	0.04	
Sub-total Transport, million EUR	231	495	525	
Sub-total Transport, % GDP	0.12%	0.26%	0.28%	
Pollution and Resource Taxes				
Landfill Tax - Inerts (C&D)	2	2	2	
Incineration / MBT Tax	12	17	18	
Air Pollution Tax	146	291	243	
Water Abstraction Tax	206	550	695	
Waste Water Tax	28	39	39	
Pesticides Tax	111	210	210	
Aggregates Tax	38	19	13	
Packaging Tax	38	37	37	
Single Use Bag Tax	269	57	63	
Fertiliser Tax	0.026	0.043	0.034	
Sub-total Pollution & Resource, million EUR	851	1,222	1,320	
Sub-total Pollution & Resources, % GDP	0.45%	0.65%	0.70%	
Total Environmental Taxes				
Total, million EUR	1,239	2,326	2,889	
Total Increase, % GDP	0.66%	1.23%	1.53%	

Table 12-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 12-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Greece, million EUR (real 2014 terms)

Revenue Type Revenue Per Annum, million EUR

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	290
Increased Cost Recovery for Water Use	1,420
Total	1,710

12.2.4 Environmental Benefits

Table 12-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.10.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €891 million of benefits are anticipated annually by 2025 in real terms.

Table 12-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Greece, million EUR (real 2014 terms)³³⁹

Тах Туре	2017	2020	2025
Energy Taxes	7	26	42
Transport Taxes (excluding transport fuels)	5	9	10
Pollution and Resource Taxes	203	756	839
Total, million EUR	214	791	891
Total, % GDP	0.11%	0.41%	0.45%

12.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Greece: $^{\rm 340}$

In 2012, environmental taxes generated revenue equivalent to 2.85% of GDP. The headline figures suggest that there is considerable potential for additional

³³⁹ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

³⁴⁰ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

revenue from environmental taxes in Greece. These could generate EUR 1.2 billion in 2017, rising to EUR 2.9 billion in 2025 (both in real 2014 terms). This is equivalent to 0.66% and 1.53% of GDP in 2017 and 2025 respectively.

- The largest single contribution to revenue comes from the suggest changes to transport fuels (i.e. their harmonisation with the proposed ETD rates). These changes could generate EUR 0.9 billion of revenue by 2025 (real 2014 terms), equivalent to 0.47% of GDP.
- The next largest contribution to revenue comes from the proposed water abstraction tax. This accounts for EUR 0.7 billion by 2025 (real 2014 terms), equivalent to 0.35% of GDP.
- The passenger aviation tax would account for EUR 0.4 billion by 2025 (real 2014 terms), equivalent to 0.22% of GDP.
- Revenue potential from the suggested air pollution tax would raise a further EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.12% of GDP.
- A pesticides tax is also suggested. This would contribute EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.11% of GDP.
- In addition, a range of more minor taxes could generate revenue of EUR 0.4 billion by 2025 (real 2014 terms), equivalent to 0.19% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.9 billion by 2025 (real 2014 terms), equivalent to 0.45% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €1.7 billion per annum could be raised in addition to the above.
13.0 Ireland

13.1 Country Overview

13.1.1 Key Facts about the Economy and Tax System

- Ireland experienced considerable economic growth between 2003 and 2007, with real terms GDP increasing by an average of 4.9% per annum over the period. Ireland was hard hit by the recession, with the country's GDP falling by 6.4% in real terms in 2009. 2011 and 2012 saw a tentative return to growth, although the economy again fell into recession in 2013, when GDP fell back by 0.3% in real terms on the previous year.³⁴¹
- Ireland's overall tax revenue (including social contributions) as a percentage of GDP is significantly below the EU-28 average of 39.8%, at 30.2% (2012). It has risen over the past 10 years from 29.7% in 2002, but has dropped from a high of 33.4% in 2006.³⁴²
- 43.3% of Ireland's total tax income comes from direct taxation and 37.2% from indirect taxation, with social contributions making up the smallest share of 19.5% (2012). The contribution of direct taxation has been rising since 2002, while that of indirect taxation has been falling. The percentage share of social contributions rose in the period to 2009 but then began to fall, and is now close to the 2002 level.³⁴³
- In 2012, revenues from environmental taxes amounted to 2.49% of GDP. This percentage share is higher than it was 10 years ago (the level was 2.36% of GDP in 2002), but is currently lower than in most years within this period. Expressed in these terms, environmental tax revenues peaked in 2010, when revenues were equivalent to 2.58% of GDP.³⁴⁴
- In 2012, the majority of revenues from environmental taxes came from energy taxes, which amounted to 1.32% of GDP. Revenues from transport taxes (excluding fuel) amounted to 0.9% of GDP, with pollution and resources taxes raising revenues equivalent to 0.27% of GDP in 2012.³⁴⁵
- Energy taxes accounted for just over half (53%) of Ireland's total environmental tax revenues in 2012, down slightly from 2002 when these taxes contributed

345 Ibid.



³⁴¹ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

³⁴² Eurostat (2013) Main National Accounts Tax Aggregates [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T AX_AG

³⁴³ Ibid.

³⁴⁴ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

54.2%. This percentage has fluctuated over the past 10 years – it was at its lowest level in 2007 (46.9%) and at its highest level in 2009 (59.1%).³⁴⁶

13.1.2 Relative Position within the EU

The revenue derived from environmental taxes in Ireland, expressed as a percentage share of the country's GDP, was just above the EU-28 average of 2.4% in 2012. Revenues from energy taxes, as a proportion of GDP, were below the EU-28 average of 1.8%, but the percentage share derived from transport (excluding fuel) taxes was above the European average of 0.5% GDP. The share from pollution and resource taxes was almost three times the EU-28 average of 0.1% of GDP (see Figure 13-1).³⁴⁷



Figure 13-1: Environmental Taxes in Ireland as a % of GDP vs EU-28 Levels (2012)

In terms of the percentage share of GDP coming from environmental taxation, Ireland sits around middle ranking among the Member States, ranking 15th in the EU-28 in 2012. The revenue derived from energy taxes in Ireland, expressed as a proportion of GDP, was among the lowest in the EU-28 in 2012, with Ireland ranking 26th in this regard. Ireland ranked higher in terms of transport (excluding fuel) taxes and pollution and resource taxes, placed in 5th and 4th place, respectively (see Table 13-1).³⁴⁸

³⁴⁶ Ibid.

³⁴⁷ Ibid.

³⁴⁸ Ibid.

Table 13-1: Ranking of Ireland's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	15
Energy Taxes as a Share of GDP (%)	26
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	5
Pollution & Resource Taxes as a Share of GDP (%)	4

Source: based on Eurostat data

13.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.11.0. This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon GDP in current prices from Eurostat.^{349,350}

> Energy Taxes:

 Ireland has excise duties on fuels and electricity. These taxes are shown in Table 13-2, which shows how they compare to the recommended minimum rates in the existing ETD and the EU-28 average and median rates.³⁵¹

Excise Duty	Unit	Rate Applied in Ireland	Existing ETD Minimum	EU-28 Average	EU-28 Median
Motor Fuels - propellant	t				
Unleaded Petrol	€ per 1000 litres	€587.71 ¹	€359	€519	€509
Gas Oil (Diesel)	€ per 1000 litres	€479.02	€330	€427	€405

Table 13-2: Excise Duties on Fuels and Electricity in Ireland

³⁵¹ European Commission (2013) *Taxes in Europe Database*, Accessed 13th December 2013, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>



³⁴⁹ Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugi</u> <u>n=1</u>

³⁵⁰ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

Excise Duty	Unit	Rate Applied in Ireland	Existing ETD Minimum	EU-28 Average	EU-28 Median
Kerosene	€ per 1000 litres	€479.02	€330	€440	€405
Liquid Petroleum Gas	€ per 1000 kg	€176.33	€125	€209	€180
Natural Gas	€ per GJ	€0 ²	€2.60	€3.03	€2.66
Motor Fuels – Industry,	/ Commercial Use		·		
Gas Oil (Diesel)	€ per 1000 litres	€102.28	€21	€221	€163
Kerosene	€ per 1000 litres	€50.73	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€60.07	€41	€126	€125
Natural Gas	€ per GJ	€1.03	€0.30	€1.76	€1.50
Heating – Business Use)		·,		
Gas Oil (Diesel)	€ per 1000 litres	€102.28	€21	€221	€163
Kerosene	€ per 1000 litres	€50.73	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€77.68	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€60.07	€0.00	€82	€40
Natural Gas	€ per GJ	€1.03	€0.15	€1.36	€0.46
Coal and Coke	€ per GJ	€1.89	€0.15	€1.27	€0.31
Heating – Non-Busines	s Use		·		
Gas Oil (Diesel)	€ per 1000 litres	€102.28	€21	€179	€125
Kerosene	€ per 1000 litres	€50.73	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€77.68	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€60.07	€0	€111	€42
Natural Gas	€ per GJ	€1.03	€0.3	€2.04	€0.94
Coal and Coke	€ per GJ	€1.89	€0.3	€1.77	€0.32
Electricity					
Business Use	€ per MWh	€0.5	€0.5	€8.42	€1.03
Non-Business Use	€ per MWh	€1.0	€1.0	€14.53	€2.06
Notes:	•	·			

1. Including CO2 charge of 4.5 cents/liter (€20 per ton CO2) for non-ETS emitters.

2. Gas not in use as propellant in Ireland.

- Taxes on petrol and diesel were increased in the years after 2002 when oil prices declined. The petrol tax was further increased in response to the outbreak of the financial crisis in October 2008 and the diesel tax was also increased soon afterwards. As a result, both tax rates are presently higher than existing ETD minima, and higher than the increases proposed for the revision of the ETD. Nevertheless, the differential between petrol and diesel taxes persists and is about 10 cents per litre, only slightly less than the difference that existed in the 1990's. While the petrol tax is close to the rate in the United Kingdom, the lower diesel tax in Ireland is believed to cause tank tourism from Northern Ireland. It is not clear whether the associated revenue stream is sufficient to offset the loss in revenue from the long-term decline in the number of petrol vehicles.
- Since 2008, taxes have been introduced for various heating fuels that were previously exempt, and for electricity. Tax rates are admirably consistent for the various heating fuels. For electricity Ireland adheres closely to present ETD minimum rates and the differentiation between business and non-business use (prior to 2008 there was no taxation of electricity).
- A CO₂ tax was introduced in 2009 at a rate of €15 per tonne CO₂, which, in 2012, was increased to €20 per tonne CO₂.³⁵² Besides motor fuels, it also applies to natural gas, LPG, and kerosene used in non-ETS installations. A reduced rate for solid fuels was phased out by May 2014. Whilst electricity is not affected, CHP units meeting high energy efficiency standards can obtain partial relief.³⁵³

Transport Taxes (excluding transport fuels):

- There is a vehicle registration tax (VRT) on the purchase and importation of private cars. Since 2008, the registration taxes have been based on CO₂ emissions, with an ad-valorem rate from 14% to 36% of market price.³⁵⁴ Their introduction has been associated with a marked drop in average CO₂ emissions for new cars, from 164 g CO₂ per km in 2007 to 125 g CO₂ per km in 2012. Revenues have declined from €1,400 million in 2007 to €384 million in 2012, largely as a result of the economic downturn which saw new vehicle registrations fall by 60%. For commercial vehicles there is a flat-rate VRT, unrelated to emissions, which is currently set at €200 per vehicle.³⁵⁵ Exempted categories of vehicles include those used in transport of road construction machinery.
- Ireland's circulation tax (Cáin Mhótair; or Motor Tax) for private vehicles has an element that is based on the CO₂ emissions of the vehicle. Vehicles

³⁵² www.greenheat.ie/index.php?contentid=carbon-tax&sid=information

³⁵³ http://frontlineenergy.ie/carbon-tax-increase-on-solid-fuels/

³⁵⁴ www.economicinstruments.com/index.php/climate-change/article/34-

³⁵⁵ http://vrt.ie/vrtDetail.php?page=20

registered before the emission-based Motor Tax was introduced in 2008 are still taxed according to engine capacity. Imported vehicles registered prior to 2008 are also taxed under the old scheme. For heavy duty vehicles, the Motor Tax is weight-based and rates have not been increased since the 2008 reform.³⁵⁶ Annual Motor Tax revenues have been stable at about €1 billion since 2008, but declining in real terms.

 According to Eurostat's national tax list, the air travel tax in place in Ireland from 2009 generated annual revenues of about €100 million. The tax rate was €2.5 per passenger and €10 for journeys longer than 300 km. The tax was abolished in April 2014 following a large decline in passenger numbers (from 30 to 23 million annually), though this was thought mainly due to the economic crisis.

Pollution and resources:

- Landfilling of waste in Ireland has been subject to a landfill tax since 2002. A tax rate of €75 per tonne applies to waste disposed of at all landfill facilities (authorised and unauthorised). A number of exemptions apply, including for non-hazardous construction and demolition waste, excavation spoil, stabilised waste arising from the composting of the biodegradable fraction of municipal waste, and waste from street cleaning. Revenue from the landfill tax in 2012 was €50.8 million.³⁵⁷
- A plastic bag levy was introduced in Ireland in March 2002.³⁵⁸ A charge of €0.22 per plastic bag applies. Exemptions apply to plastic bags containing certain food products, and to plastic bags designed for re-use. The tax raised €14.2 million in revenue in 2012.³⁵⁹

13.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Ireland. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue

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www.environ.ie/en/LocalGovernment/MotorTax/MotorTaxRates/MotorTaxRatesbasedonC02Emissions/

³⁵⁷ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=857/1388754801&taxType=Other+indirect+tax</u>

³⁵⁸ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=861/1388754801&taxType=Other+indire_ct+tax</u>

³⁵⁹ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=814/1388754940&taxType=Other+indirect+tax</u>

potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

13.2.1 Current Status of EFR

The role of environmentally related fiscal measures in government budgets has been strengthened over the last five years. In line with the National Climate Change Strategy 2007-12, the rates for calculating the VRT and the motor tax were increased and revised in 2008 to reflect CO_2 emissions, and have since been linked to a new mandatory labelling system.

A Government-appointed *Commission on Taxation* reviewed, in 2009, the structure and efficiency of the Irish taxation system, including fiscal measures to protect the environment. The Commission recommended that a tax on the CO₂ content of energy products for non-ETS sectors be introduced (excluding agriculture) and that efforts be made to strengthen local government financing through property taxes and waste and water charges. The report stated that these environmental fiscal measures were important tools for pursuing Ireland's green economy goals. The CO₂ tax was subsequently introduced and has gradually been extended, whilst property taxes are also slowly being phased in.

In October 2010, the administration's *National Recovery Plan 2010-2014* addressed water charging as a means to secure revenues for local authorities and to target water shortages. As part of the subsequent EC-ECB-IMF Programme of Assistance to Ireland, agreed in November 2010, the government committed itself to the introduction of water charges. Ireland was, at the time, the only OECD country without water charging. Introduction of water charging has recently been agreed and legislation came into effect on October 1st 2014, with the first water bills to be issued in 2015.³⁶⁰ The expected revenues for the first two years are expected to amount to about €2 billion.³⁶¹

13.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Ireland. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

Energy Taxes:

• Energy taxes are harmonised based upon the highest energy content of all of the different fuels used for each purpose (propellants, heating etc).

³⁶¹ www.irishtimes.com/news/consumer/family-with-two-children-faces-278-annual-water-bill-1.1883784



 $^{^{360}}$ www.irishtimes.com/news/consumer/q-a-explaining-the-details-of-the-water-charges-1.1884200?page=1

Transport fuels are equalised using the energy content on petrol (\pounds 12.7 per GJ). Motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (\pounds 9.85 per GJ). Finally, due to the existing rates for gas oil used for heating being very close to the new minimum rates proposed for ETD, this proposal is applied to other heating fuels with the consistent approach implied (\pounds 0.15 per GJ and CO₂ at \pounds 20 per ton). No changes are proposed for electricity.

- Table 13-3 shows the minimum tax rates proposed for the amendment of ETD (using ETD units) for the different fuels by use; figures are in bold where it is suggested that revisions follow for Ireland. The main implications are higher tax rates for stationary motors in business and for the use of natural gas in all sectors.
- In the case of propellants, the revisions imply a major increase in taxes on light fuel oil (diesel), LPG, kerosene, and natural gas. More importantly, however, the petrol / diesel differential, which significantly favours diesel at present, is closed as the revisions imply that the tax applied to diesel is substantially increased, redressing the imbalance in taxes between diesel and petrol, and a similar change for kerosene and LPG.
- In the case of fuels used in commercial and industrial motors, there is a major increase in the rates for kerosene and LPG to bring the taxes into alignment with existing rates on gas oil.
- On heating fuels (business and non-business), the changes imply significant uplifts in taxes on heavy fuel oil, kerosene, LPG, natural gas and coal.
- The existing electricity tax rates are harmonised according to the highest rate, which for Ireland is non-business use, but the change is relatively small.

Energy Tax	Units	Suggested Rates	Existing Rates
Transport Fuels			
Motor spirit (petrol)	€ per 1000 litre	588	588
Light fuel oil (diesel)	€ per 1000 litre	634	479
LPG (propellant)	€ per 1000 kg	819	176
Kerosene	€ per 1000 litre	638	479
Natural gas (prop)	€ per GJ	18	0
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	102	102
Kerosene	€ per 1000 litre	102	51

Table 13-3: Existing and New Rates Based upon Proposed Revisions to ETD

Energy Tax	Units	Suggested Rates	Existing Rates
LPG	€ per 1000 kg	124	60
Natural gas	€ per GJ	3	1
Business Heating	·		
Gas oil	€ per 1000 litre	102	102
Heavy fuel oil	€ per 1000 kg	119	78
Kerosene	€ per 1000 litre	102	51
LPG	€ per 1000 kg	124	60
Natural gas	€ per GJ	2.55	1.03
Coal	€ per GJ	3.32	1.89
Non-Business Heating			
Gas oil	€ per 1000 litre	102	102
Heavy fuel oil	€ per 1000 kg	119	78
Kerosene	€ per 1000 litre	102	51
LPG	€ per 1000 kg	124	60
Natural gas	€ per GJ	2.55	1.03
Coal	€per GJ	3.32	1.89
Electricity			
Electricity - business use	€ per MWh	1.00	0.50
Electricity - non-business use	€ per MWh	1.00	1.00

> Transport Taxes (excluding transport fuels):

• Vehicles: The taxes on transport in Ireland are higher than average in the EU (0.91% of GDP compared to an average of 0.54% GDP). However, an increase of 0.35% of GDP would still be required to meet the good practice benchmark. Emissions from the transport sector have increased considerably since 2000, due to a 40% increase in the number of private vehicles and a doubling of goods traffic on the roads since the turn of the century. The number of vehicles on the road is projected to increase as the country's economy continues to recover. Ireland has, with its change to a

CO₂ emissions-related tax base, achieved an impressive reduction in average emission levels for new passenger cars (with its level comparable to France).³⁶² However, the rebate for CO₂ efficient vehicles is too generous and should be aligned as a minimum with the CO₂ tax rate for motor fuels. OECD, in its environmental performance review,³⁶³ proposed that Ireland should consider expanding the emissions-related tax base to include commercial vehicles, which would be in line with the Commission's 2005 proposal on passenger related taxes.³⁶⁴ For heavy-goods vehicles the opportunities for road-pricing under the 2011 Euro-vignette Directive deserve serious consideration.³⁶⁵ There is no uniform approach to taxing HGVs, and the extent to which HGVs are taxed in relation to emissions appears to be limited.

The discrepancy in motor fuel tax rates for petrol and diesel have changed the composition of the vehicle fleet, and eroded revenues from the higher taxed petrol. An annual surtax on diesel vehicles - as in Denmark - could offset the advantage to some extent and help to close the revenue gap, though if the energy taxes are changed in line with what has been suggested, this would not – over the longer-term – be necessary (as the vehicle stock would be expected to change accordingly).

Aviation: It is suggested that an aviation tax on air passenger flights and on air freight to reflect external costs other than carbon. The suggested rates for the air passenger tax for are €15 per passenger for flights within the country concerned, €25 per passenger for flights within the European Union, and €50 per passenger for flights to destinations outside the European Union. The suggested air transport tax rate is €1.25 per tonne of freight. The suggested year of implementation is 2015.

Pollution and Resource Taxes:

• Aggregates: Extraction of minerals for use as aggregates causes harm to the environment. An aggregates tax helps to reduce the environmental burden by increasing the price of raw materials, and so stimulates the market for recyclable materials. This ultimately reduces costs for businesses, but also is in-line with the flagship initiative 'A Resource Efficient Europe.³⁶⁶ It is suggested that Ireland implements an aggregates tax at a rate of €2.40 per tonne from 2016, and following this to keep the

³⁶² European Environment Agency (2012) Monitoring CO₂ emissions from new passenger cars in the EU: summary of data for 2012, Copenhagen.

³⁶³ OECD (2010) *Environmental Performance Reviews: Ireland* 2010, May 2010, <u>http://www.oecd.org/env/country-reviews/environmentalperformancereviewsireland2010.htm</u>, p. 54

³⁶⁴ European Commission (2005) Proposal for a Council directive on passenger car related taxes COM(2005)261 final.

³⁶⁵ European Environment Agency (2013) Road user charges for HGV – tables with external costs of air pollution, EEA Technical Report 1/2013, Copenhagen.

³⁶⁶ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

rate constant in real terms. The types of materials that could be covered by the tax are:

- o Marble
- o Chalk and dolomite
- o Slate
- Limestone and gypsum
- Sand and gravel

Not all of these are extracted in Ireland. The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues.

• Air pollution: It is suggested that in order to generate improvements in air quality the following tax rates are introduced:

0	NO _X /VOC	€1,000 per tonne
0	SO _X	€1,000 per tonne
0	PM _{2.5}	€2,000 per tonne

Given the magnitude of the change in tax rates it is suggested that there is a transition period from 2015 to maximum levels by 2020. The rates are then held constant in real terms. Part of the revenues could accrue to national budget.

- Water abstraction for public water supply: To improve efficiency in the usage of the water supply system, in particular the high leakage rates, it is suggested to introduce a water abstraction tax in-line with the good practice rates (see Section 5.3.5). With relative price levels in Ireland this would imply rates of €0.60 per m³ for non-business and €0.40 per m³ for business purposes. Given the magnitude of the increase in rates a transition period from 2015 to 2020 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.
- Waste water: Ireland has no levy on direct discharges of water pollution from industry and treatment plants. To help reduce water pollution, improve compliance and reflect better the environmental burdens, it is suggested to introduce tax rates in-line with 'good practice'. With relative price levels in Ireland this would imply a rate of €3.02 per kg BOD. For fresh-water discharges also phosphorus should be charged, while for coastal discharges a charge on nitrogen could be relevant. A transition period from 2016 to 2018 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms. Part of the revenues could accrue to national budget.
- **Pesticides:** There is currently no tax on pesticides in Ireland. Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:



"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary</u> <u>means designed to achieve these targets</u>".

Ireland's National Action Plan for the Sustainable Use of Pesticides does not set clear objectives for reducing the amount of pesticides used within the country (objectives are more heavily focused on storage, packaging, traceably and safe application).³⁶⁷ Given that the OECD has noted an increase in the use of pesticides in Ireland, it t is suggested that a pesticides tax at a rate of €5 per kg active ingredient be introduced.³⁶⁸ The suggested transition period is from 2016 to 2018, and following this the rate is kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark), could be linked to the risk indicators to be developed under the National Pesticide Action Plan.

 Packaging: A small number of Member States have implemented packaging taxes for packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested to apply the following good practice rates to all packaging placed on the market in Ireland:

0	Paper and card	€0.07 per kg
0	Plastic	€1.40 per kg
0	Wood	€0.07 per kg
0	Metallic	€1.69 per kg
0	Glass	€0.25 per kg

• Fertilisers: A tax on the use of nitrogen in mineral fertilisers is suggested at a rate of 0.25 €/kg N from 2016. This tax rate would reflect relative price levels for Ireland relevant to EU schemes under the CAP, and support the prevention of groundwater contamination, ammonia evaporation, emissions of greenhouse gases and surface water eutrophication.

13.2.3 Summary of Revenue Outcomes

Table 13-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/national_action_plans_en.htm

³⁶⁷ Irish Department of Agriculture, Food and the Marine (2013) *National Action Plan for the Sustainable* Use of Pesticides,

³⁶⁸ OECD (2010) *Environmental Performance Reviews: Ireland 2010*, May 2010, <u>http://www.oecd.org/env/country-reviews/environmentalperformancereviewsireland2010.htm</u>

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Table 13-4: Potential Additional Revenue from Environmental Fiscal Reform in Ireland, million EUR (real 2014 terms)³⁶⁹

Тах	2017	2020	2025
Energy Taxes			
Transport fuels	48	190	330
C&I / Heating	20	77	134
Electricity	6	6	6
Sub-total Energy, million EUR	73	273	470
Sub-total Energy, % GDP	0.04%	0.16%	0.27%
Transport Taxes			
Vehicle Taxes	123	494	618
Passenger Aviation Tax	335	654	659
Freight Aviation Tax	0.08	0.16	0.18
Sub-total Transport, million EUR	459	1,147	1,277
Sub-total Transport, % GDP	0.26%	0.66%	0.73%
Pollution and Resource Taxes			
Landfill Tax - Inerts (C&D)	0.02	0.02	0.02
Incineration / MBT Tax	15	27	29
Air Pollution Tax	11	18	12
Water Abstraction Tax	38	88	85
Waste Water Tax	15	21	21
Pesticides Tax	28	60	73
Aggregates Tax	30	15	11

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C



³⁶⁹ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

Тах	2017	2020	2025
Packaging Tax	31	30	31
Fertiliser Tax	0.036	0.064	0.058
Sub-total Pollution & Resource, million EUR	168	260	264
Sub-total Pollution & Resources, % GDP	0.10%	0.15%	0.15%
Total Environmental Taxes			
Total, million EUR	701	1,680	2,010
Total Increase, % GDP	0.40%	0.96%	1.15%

Table 13-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 13-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Ireland, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	87
Increased Cost Recovery for Water Use	1,368
Total	1,455

13.2.4 Environmental Benefits

Table 13-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.11.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €96 million of benefits are anticipated annually by 2025 in real terms.

Table 13-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Ireland, million EUR (real 2014 terms)³⁷⁰

Тах Туре	2017	2020	2025
Energy Taxes	3	10	17
Transport Taxes (excluding transport fuels)	12	24	25
Pollution and Resource Taxes	16	58	54
Total, million EUR	31	92	96
Total, % GDP	0.02%	0.05%	0.05%

13.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Ireland:³⁷¹

- In 2012, environmental taxes generated revenue equivalent to 2.49% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Ireland. These could generate EUR 0.7 billion in 2017, rising to EUR 2.0 billion in 2025 (both in real 2014 terms). This is equivalent to 0.40% and 1.15% of GDP in 2017 and 2025 respectively.
- The largest single contribution to revenue comes from the suggest reintroduction of the passenger aviation tax. This accounts for EUR 0.7 billion by 2025 (real 2014 terms), equivalent to 0.33% of GDP.
- The next largest contribution to revenue comes from a the suggested increase in vehicle taxes. This accounts for EUR 0.6 billion by 2025 (real 2014 terms), equivalent to 0.31% of GDP.
- The suggested harmonisation of the excise duties on transport fuels with those in the proposed ETD would help to generate EUR 0.3 billion in additional revenue by 2025 (real 2014 terms), equivalent to 0.17% of GDP.
- Revenue potential from the suggested increase in taxes on business heating fuels would raise EUR 0.1 billion by 2025 (real 2014 terms), equivalent to 0.07% of GDP.

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

³⁷⁰ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

³⁷¹ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

- A water abstraction tax has also been suggested. This tax would contribute EUR 0.1 billion by 2025 (real 2014 terms), equivalent to 0.04% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.09% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.1 billion by 2025 (real 2014 terms), equivalent to 0.05% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €1.5 billion per annum could be raised in addition to the above.

14.0 Latvia

14.1 Country Overview

14.1.1 Key Facts about the Economy and Tax System

- For the period 2003 to 2007, when Europe as a whole enjoyed year on year economic growth, Latvia achieved the single highest yearly growth rate in the EU-28 when in 2006 GDP increased by 11% in real terms on the previous year. For the whole period 2003 to 2007, Latvia's GDP increased very rapidly by an average of 9.5% per annum in real terms. However, Latvia was not immune to the effects of recession, and experienced negative growth from 2008 to 2010, suffering the greatest decrease in GDP out of any EU-28 nation during the trough year of 2009, when GDP decreased by 17.7% in real terms on the previous year. Latvia's post-recession recovery, however, has been among the strongest in the EU-28, with Latvia averaging a 4.9% increase in GDP per annum in real terms for the years 2011 to 2013.³⁷²
- Latvia's overall tax revenue (including social contributions) as a percentage of GDP is low for the EU-28, at 28.1% (2012). This share rate had previously peaked in 2006 at 30.8%, from which it fell to a low of 27% in 2009.³⁷³
- Indirect taxation makes the greatest contribution to Latvia's total tax revenue, at 41.9% (2012). Social contributions account for 30.7%, and direct taxes for 27.4%. All tax revenue streams have fluctuated over the last 10 years, with the final effect that the share of indirect taxation has risen by 1.4%, whilst the share of social contributions has fallen by 2.5%, and the share of direct taxation has remained unchanged.³⁷⁴
- In 2012, revenue from environmental taxes amounted to 2.42% of Latvia's GDP, which is very close to the EU-28 average of 2.4%. Overall environmental tax revenues as a share of GDP have risen over the past 10 years, from 2.32% of GDP in 2002 to a high of 2.68% in 2005.³⁷⁵
- In 2012, the greatest proportion of revenue from environmental taxation came from taxation of energy, amounting to 1.91% of Latvia's GDP in this year. The next largest contribution—though significantly smaller—came from transport (excluding

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

³⁷⁵ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>



³⁷² Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

³⁷³ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

³⁷⁴ Ibid.

fuel) taxation which amounted to 0.42% of GDP, whilst the smallest contribution came from taxation of pollution and resource at 0.08% of the country's GDP.³⁷⁶

Taxes placed on energy made up 78.9% of the revenue derived from environmental taxes in 2012. Although this percentage is higher than it was 10 years ago, it was above 80% for the period between 2004 and 2010, and was at its highest in 2009 at 88%.³⁷⁷

14.1.2 Relative Position within the EU

In 2012, expressed as a percentage share of Latvia's GDP, revenue from environmental taxes was marginally above the EU-28 average of 2.4%. The contribution of energy taxes, as a share of GDP, was above the average of 1.8%, whereas that of transport (excluding fuel) taxes was below the average of 0.5%. The GDP percentage share contribution of taxes on pollution and resource was also below the EU-28 average of 0.1% (see Figure 14-1).³⁷⁸



Figure 14-1: Environmental Taxes in Latvia as a % of GDP vs EU-28 Levels (2012)

In 2012, Latvia ranked 18th in the EU-28 for environmental tax revenue expressed as a percentage of its overall GDP. Taking individual tax streams as GDP shares, it ranked 13th for both energy taxes and pollution and resource taxes, and 15th for transport (excluding fuel) taxes (see Table 14-1).³⁷⁹

³⁷⁶ Ibid.

377 Ibid.

³⁷⁸ Ibid.

³⁷⁹ Ibid.

Table 14-1: Ranking of Latvia's Position in EU-28, 2012

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	18
Energy Taxes as a Share of GDP (%)	13
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	15
Pollution & Resource Taxes as a Share of GDP (%)	13

Source: based on Eurostat data

14.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.12.0 (see separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{380,381}

- > Energy Taxes:
 - The Latvian excise duties on fuels and electricity are shown in Table 14-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates.
 - All Latvia excise duty rates are above the minimum set out in the Energy Taxation Directive; however, almost all of them are also below the EU-28 average, putting Latvia towards the lower end of Member States in terms of energy taxation. In fact, only LPG used for industrial and commercial purposes is taxed at a higher rate in Latvia than the EU-28 average.
 - Several exemptions also apply: fuels that are 100% biofuels are exempt from excise duties as is gas oil used for certain agricultural purposes.³⁸²
 - Additionally, any fuel used for the following purposes is exempt from excise duties: aircraft, except those used for private recreation and entertainment; ships, except those used for private recreation and entertainment; generation of energy or in CHP plants; and chemical treatment processes.

³⁸² European Commission (2014) *Taxes in Europe Database*, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>



³⁸⁰ Eurostat (2014) *Euro/ECU Exchange Rates – Annual Data* [ert_bil_eur_a], Accessed 5th August 2014, <u>http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ert_bil_eur_a&lang=en</u>

³⁸¹ Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014, <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD</u> P_C

The revenue in 2012 (the latest year for which figures are available) was LVL 281 million (€403 million, equivalent to 1.81% of GDP).³⁸³

Excise Duty	Unit	Rate Applied in Latvia	Existing ETD Minimum	EU-28 Average	EU-28 Median	
Transport Fuels						
Leaded Petrol ¹	€ per 1000 litres	€455.32	€421	€585	€583	
Unleaded Petrol ²	€ per 1000 litres	€123.36 - €411.21	€359	€519	€509	
Gas Oil (Diesel) ³	€ per 1000 litres	€233.35 - €332.95	€330	€427	€405	
Kerosene	€ per 1000 litres	€332.95	€330	€440	€405	
Liquid Petroleum Gas	€ per 1000 kg	€161	€125	€209	€180	
Natural Gas	€ per GJ	€2.67	€2.60	€3.03	€2.66	
Motor Fuels – Industry / Commercial Use						
Gas Oil (Diesel) ⁴	€ per 1000 litres	€21.34 - €56.91	€21	€221	€163	
Kerosene ⁴	€ per 1000 litres	€21.34 - €56.91	€21	€283	€330	
Liquid Petroleum Gas	€ per 1000 kg	€161	€41	€126	€125	
Natural Gas	€ per GJ	€0.46	€0.30	€1.76	€1.50	
Heating – Business Use						
Gas Oil (Diesel) ⁴	€ per 1000 litres	€21.34 - €56.91	€21	€221	€163	
Kerosene ⁴	€ per 1000 litres	€21.34 - €56.91	€0.00	€270	€330	
Heavy Fuel Oil	€ per 1000 kg	€15.65	€15	€70	€25	
Liquid Petroleum Gas	€ per 1000 kg	-	€0.00	€82	€40	
Natural Gas	€ per GJ	€0.46	€0.15	€1.36	€0.46	
Coal and Coke	€ per GJ	€0.30	€0.15	€1.27	€0.31	
Heating – Non-Business Use						
Gas Oil (Diesel) ⁴	€ per 1000 litres	€21.34 - €56.91	€21	€179	€125	

Table 14-2: Standard Rates of Excise Duties on Fuels and Electricity in Latvia

³⁸³ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

Excise Duty	Unit	Rate Applied in Latvia	Existing ETD Minimum	EU-28 Average	EU-28 Median
Kerosene ⁴	€ per 1000 litres	€21.34 - €56.91	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€15.65	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	-	€0.00	€111	€42
Natural Gas	€ per GJ	€0.46	€0.30	€2.04	€0.94
Coal and Coke	€ per GJ	€0.30	€0.30	€1.77	€0.32
Electricity					
Business Use	€ per MWh	€1.01	€0.50	€8.42	€1.03
Non-Business Use	€ per MWh	€1.01	€1.00	€14.53	€2.06

Notes:

1. Leaded petrol is no longer sold in Latvia.

2. The lower rate is for petrol with 70% - 85% biofuel content.

3. The lower rate is for gas oil with at least 30% biofuel of rape seed origin.

4. The lower rate is for gas oil and kerosene with at least 5% biofuel of rape seed origin.

Sources: European Commission - Taxation and Customs Union (2014) Excise Duty Tables: Part II - Energy Products and Electricity, July 2014,

<u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/r</u> <u>ates/excise_duties-part_ii_energy_products_en.pdf</u>

- A further energy tax is the Subsidised Electricity Tax:^{384,385}
 - This tax is charged on the income obtained by electricity companies from subsidised electricity generation (from renewable energy or through combined heat and power [CHP] units). Income from this tax is due to be used for a new Electricity Customer Support Fund, which is intended to mitigate rising electricity costs caused by the renewable energy 'Compulsory Procurement Component' which has been added to electricity bills since 2013.
 - Rates are charged based on the fuel used in the production of electricity: Fossil fuels used in CHP units: 15% of income; Renewable energy sources: 10% of income; and Fossil fuelled Combined Heat and Power with capacity (up to 4MW) and

³⁸⁵ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Country Report: Latvia, Report for European Commission - DG Clima, January 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/lv_2014_en.pdf</u>, pp. 13-14



³⁸⁴ European Commission (2014) *Taxes in Europe Database*, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

renewable energy fuelled Combined Heat and Power (all scales), where heat is delivered to district heating networks: 5% of income.

- This tax is time-limited and applies to income earned in 2014-2017. The revenue is unknown as the tax has only been collected since 1 January 2014.
- Transport Taxes (excluding transport fuels):
 - Car Registration Tax ('Car and Motorcycle Tax'):³⁸⁶
 - Latvia imposes a registration tax on vehicles, known until 2004 as an excise duty on vehicles, which is paid prior to them being registered in Latvia.
 - Exemptions apply to several types of vehicle, including vehicles more than 25 years old, electric vehicles and vehicles for certain uses, such as ambulances, caravans and hearse.
 - As of 1st January 2010, for vehicles first registered in Latvia or abroad prior to 1st January 2009, rates are determined based on the age and/or the engine size of the vehicle, with rates ranging from €107 to €854. Vehicles registered after 1st January 2009 are charged according to their CO₂ emissions, between €0.43 and €7.11 per g/km CO₂.
 - Motorcycles registered prior to 1st January 2009 pay 25% of the rate for passenger cars. Motorcycles registered after 1st January 2009 are charged according to their engine size (€0.14 per cc).
 - The revenue in 2012 (the latest year for which figures are available) was LVL 6.26 million (€8.98 million, equivalent to 0.04% of GDP).
 - Motor Vehicles Tax ('Vehicle Use/Operating Tax'):³⁸⁸
 - This is a circulation tax (paid annually) on all vehicles, except tractors, trailers or semi-trailers with a gross vehicle weight of less than 3.5 tonnes, trams, trolleybuses, off-road vehicles, snowmobiles and mopeds.
 - Exemptions apply for emergency vehicles, diplomatic or consular vehicles, and vehicles used by people with disabilities. Deductions also apply for farmers and people with three or more children (80% deduction on one vehicle).

³⁸⁶ European Commission (2014) *Taxes in Europe Database*, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

³⁸⁷ Eurostat (2014) Revenue Data by Individual Tax (National Tax List), accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

³⁸⁸ European Commission (2014) *Taxes in Europe Database*, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

- Motorcycles, motorised tricycles and quad bikes registered after 1st January 2005 are charged according to their engine capacity, with rates ranging from €17 to €68 per annum.³⁸⁹ Motorcycles, motorised tricycles and quad bikes registered prior to 1st January 2005 are charged a flat-rate of €36 per annum.³⁹⁰
- All passenger cars are taxed according to their gross vehicle weight. Additionally, those registered after 1st January 2005 are also taxed according to engine capacity and engine power, with larger vehicles charged a higher rate. Buses and lorries are taxed on their weight only. These rates are outlined in Appendix A.12.0 and for passenger cars range from around €30 per annum to upwards of €650 per annum.
- Revenue in 2012 (the latest year for which figures are available): LVL 47.7 million (€68.4 million, equivalent to 0.31% of GDP).³⁹¹
- Company Car Tax:³⁹²
 - This is a circulation tax (paid monthly), which is charged on vehicles which are used both as company and personal vehicles and which have 9 seats or fewer. The tax has been collected since 1st January 2011 and is based on the engine size and the car registration date.
 - Vehicles registered before 1st January 2005 pay €43 per month.
 - Vehicles registered after 1st January 2005 pay between €27 and €57 per month, depending on their engine capacity.
 - Exemptions include emergency vehicles, taxis and certain other vehicles.
 - Revenue in 2012 was (the latest year for which figures are available): LVL 11.7 million (€16.9 million, equivalent to 0.08% of GDP).³⁹³
- As part of the Natural Resources Tax, there is also a flat-rate charge of €40 per vehicle at the time of registration in Latvia.³⁹⁴ See Appendix A.12.0 for more details of the Natural Resources Tax.

³⁸⁹ Vehicle Operating Tax, accessed 5 September 2014,

http://www.fm.gov.lv/en/s/taxes/vehicle_operating_tax/43722-vehicle-operating-tax

³⁹⁰ Ibid.

³⁹¹ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

³⁹² European Commission (2014) *Taxes in Europe Database*, Accessed 3 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

³⁹³ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

³⁹⁴ Valsts leņēmumu Dienests (State Revenue Service) (2014) *Natural Resources Tax*, accessed 5 September 2014, <u>https://www.vid.gov.lv/default.aspx?tabid=8&id=6681&hl=2</u>

- There is currently no air passenger or freight tax, but a 'passenger departure duty' was in place until the end of the 2004.³⁹⁵ The rate of the duty is unknown and revenue in 2004 (the latest year the tax was in existence) was LVL 3.59 million (€5.40 million, equivalent to 0.024% of GDP).³⁹⁶
- In addition to the taxes above, a road toll system (Euro Vignette) has been in place in Latvia on many stretches of main state roads since 1st July 2014. Rates depend on the type and size of the vehicle used and the vehicle's emissions rating (Euro class). Daily rates range from €8 to €11 per vehicle, while annual rates range between €400 and €925 per vehicle.³⁹⁷

Pollution and Resource Taxes:

- In Latvia, one all-encompassing Natural Resources Tax includes taxation on most of the types of activities covered by individual taxes in many other Member States. This includes an aggregates tax, water abstraction tax, landfill tax, water pollution tax, tax on various goods that are harmful to the environment, tax on materials used for packaging, tax on radioactive materials, air pollution tax (including CO₂), tax on the use of coal, coke and lignite and, finally, a tax on the pumping of natural gas or greenhouse gases into geological structures.^{398,399} For the sake of comparison with other EU member states in this report, the Natural Resources Tax is here described under headings related to the environmental aspects that the tax aims to target.
- In 2012, the total Revenue for Natural Resources Tax was €17.5 million, equivalent to 0.078% of GDP. Revenue figures for each sub-category of the Natural Resources tax are provided in Table 14-3.

Natural Resources Tax type	Tax revenue, thousand EUR
Pollution and Resource tax	13,607
Environmentally harmful products	145

Table 14-3: Revenue from Natural Resources Tax (2012)

³⁹⁵ Valsts Valodas Centrs (State Language Centre) (2010) *Transport Development Guidelines 2007-2013* (Informative Part) (English Translation), March 2010,

http://www.vvc.gov.lv/export/sites/default/docs/LRTA/Citi/Transport_Development_Guidelines_x2007-2013x.doc#, p.11

³⁹⁶ Eurostat (2014) *Revenue Data by Individual Tax (National Tax List)*, accessed 4 August 2014, <u>http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm</u>

³⁹⁷ Rates and information about the Vignette are available in English: <u>https://www.lvvignette.eu/#middle:lng=en</u>

³⁹⁸ European Commission (2014) *Taxes in Europe Database*, Accessed 3 September, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

³⁹⁹ Valsts leņēmumu Dienests (State Revenue Service) (2014) Natural Resources Tax, accessed 5 September 2014, <u>https://www.vid.gov.lv/default.aspx?tabid=8&id=6681&hl=2</u>

Natural Resources Tax type	Tax revenue, thousand EUR
Packaging	1,148
Use of radioactive substances	0.26
Incineration of Hazardous waste and extraction of natural minerals	320
Single use disposable tableware and accessories	55.9
Registration of vehicles upon registeration in LV for the first time	1,302
Penalty payments for breach of legal limit values	211
Coal, coke and lignite	677
Total	17,464

- Waste Disposal Tax (Landfill Tax):
 - A tax on waste disposal (landfill tax) has been imposed in Latvia since 1991 and has been amended twice, both in 1996 and 2006, though rates have been increased multiple times since its introduction, most recently in January 2014.^{400,401} The rate depends on the type of waste disposed and is charged on a per tonne basis.
 - Municipal waste: €12.00 per tonne (increased in several increments from €1.07 per tonne in 2007); construction & demolition (C&D) waste: €21.34 per tonne; asbestos: €35.57 per tonne; hazardous waste: €35.57 per tonne; and industrial waste: €21.34 per tonne
- Water Abstraction Tax:
 - Extraction of water is taxed depending on the type and quality of water extracted. Consumers who use more than 10 m³ of water in any 24-hour period must pay the tax. Rates are set according to the 'polluter pays' principles and the principle that water management costs and any damage caused must be covered.⁴⁰²
 - Additionally, anyone wishing to abstract water must have a permit. The fee for issuing a water permit was €79 in 2011. If no permit is issued, the water abstraction tax rates are ten times the rates shown below.⁴⁰³
 - The rate for surface water abstraction was increased between 2007 and 2010; rates for other types and uses of water have

403 Ibid, pp. 12-13



⁴⁰⁰ European Topic Centre on Sustainable Consumption and Production (2012) Overview of the Use of Landfill Taxes in Europe, Report for European Environment Agency, April 2012, <u>http://scp.eionet.europa.eu/publications/WP2012_1/wp/WP2012_1</u>, p. 55

⁴⁰¹ European Commission (2014) Commission Staff Working Document: Assessment of the 2014 National Reform Programme and Stability Programme for Latvia, June 2014, <u>http://ec.europa.eu/europe2020/pdf/csr2014/swd2014_latvia_en.pdf</u>, p. 26

⁴⁰² IEEP (2013) Steps to Greening Country Report: Latvia, Report for the European Commission, p. 12

remained steady since 2007. As an example, the rate for surface water is €0.009 per m³ while high-value ground water which is sold on is charged at €1.42 per m³.

- Aggregates Tax:
 - The extraction of natural materials is taxed on a per weight or volume basis. Rates are different for each material. For example, soil is charged at €0.43 per m³, sand is charged at €0.21 per m³, while freshwater limestone is charged at €0.14 per m³. Further details on these rates can be found in Appendix A.12.0.
- Air Pollution Tax:
 - Any emission of air pollutants (including CO₂) which is outside of transferred allowances is taxed. A number of these rates are due to be further increased in 2015, having increased steadily since 2007. Some example rates are provided below, with full details available in Appendix A.12.0.⁴⁰⁴
 - CO₂ from stationary technological installations (except those covered by exemptions outlined in the Law on Pollution⁴⁰⁵): 2014 rate: €2.85 per tonne; 2015 rate: €3.50 per tonne; PM₁₀ (not containing heavy metals): 2014 rate: €51.22 per tonne; 2015 rate: €75.00 per tonne; carbon monoxide: rate (not changing in 2015): €7.83 per tonne; sulphur dioxide, nitrogen oxides, VOCs and other hydrocarbons: rate (not changing in 2015): €85.37 per tonne; and heavy metals and compounds thereof: rate (not changing in 2015): €1,138.30 per tonne
- Water Pollution Tax:
 - A tax is levied on pollution discharged into water ways. The level of the tax is set according to how hazardous the material is and is paid per tonne of material released. Example rates are:
 - Non-hazardous substances: €5.50 per tonne;
 - suspended (non-hazardous) substances: €14 per tonne;
 - moderately-hazardous substances: €43 per tonne;
 - hazardous substances: €11,383 per tonne;
 - especially hazardous substances: €71,144 per tonne; and
 - phosphorus (total content): €270 per tonne
 - Packaging Tax (and tax on disposable tableware and accessories):

⁴⁰⁴ IEEP (2013) Steps to Greening Country Report: Latvia, Report for the European Commission, p. 30

⁴⁰⁵ This includes energy generation from renewable energy and peat. [Source: IEEP (2013) Steps to Greening Country Report: Latvia, Report for the European Commission, p.10]

- The sale of materials used for packaging as well as the use of disposal tableware is taxed on a per kg basis. This also includes plastic bags. Example rates are provided below, with full details available in Appendix A.12.0.
 - Glass-source materials: €0.44 per kg;
 - plastic-source materials, except 'bioplastic' and oxydegradable plastic source materials: €1.22 per kg;
 - metal-source materials: €1.10 per kg;
 - Wood-, paper-, cardboard- and other natural fibre- and bioplastic-source materials: €0.24 per kg;
 - plastic bag (weight per bag is less than 0.003 kg): €3.70 per kg; and
 - plastic bag (weight per bag is more than 0.003 kg): €1.14 per kg.
- It should be noted, however, that the packaging tax is not widely paid, and generates a very small amount of revenue. This is because those who would otherwise pay the tax are exempt if they are part of an authorised compliance scheme. As such, the tax acts to push producers into the compliance schemes. Note that the same applies in respect of WEEE and good harmful to the environment (see below);
- Tax on goods harmful to the environment:
 - The sale of goods harmful to the environment is taxed, either according to the weight of material or per item. Example rates are provided below, with full details available in Appendix A.12.0.
 - Lubricating oils: €0.17 per kg; electric batteries and galvanic sources of electricity: €0.74 to €17.03 per kg, depending on the type of battery; ozone depleting substances: €2.22 per kg of ozone depletion potential; and tyres: €0.33 per kg.
 - The use of radioactive substances (resulting in radioactive waste) is also taxed. The rate ranges from €711 per m³ of waste for the first radionuclide group from a closed radiation source to €14,229 per m³ of waste for the seventh radionuclide group from an ionising radiation source.
 - Vehicles are also taxed under the Natural Resources Tax, in addition to being subject to registration taxes. This is paid by the person who imports or sells the vehicles in Latvia. The rate is €40 per vehicle.
- Additional tax on the sale of coal, coke and lignite. The rates are:
 - Coal, coke and lignite with known thermal input: €0.30 per GJ; and
 - Coal, coke and lignite without known thermal input: €8.54 per tonne.
- Tax on the pumping of natural gas and greenhouse gases into geological



structures:

- The tax depends on the particular gas pumped: natural gas:
 €0.0143 per m³; methane: €0.0143 per m³; carbon dioxide: €0.07 per m³; other greenhouse gases: €0.14 per m³.
- It has been reported that advertisement paper was due to be taxed under the Natural Resources Tax from August 2013 at a rate of €1.28 per kg, but this does not appear to be the case and has not yet come into force.⁴⁰⁶
- In addition to the Natural Resources Tax, Latvia was recently considered a mandatory deposit refund system for beverage containers, to be enforced from 1st January 2015.⁴⁰⁷ The legal framework needed to implement this has not been adopted and the idea has now been put on hold.⁴⁰⁸

14.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Latvia. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

14.2.1 Current Status of EFR

Latvia has a wide suite of environmental taxes in place. This includes a Natural Resources Tax which covers a number of environmental aspects – the first incarnation of the tax was introduced in 1992 and it is regularly revised to remain up-to-date. For example, landfill tax rates (covered by the Natural Resources Tax) increased sharply between 2010 and 2013, particularly for construction and demolition waste.⁴⁰⁹ Certain other taxes have also increased recently, including a progressive increase in the taxation rate on PM_{10} released into the air. However, taxation on other air pollutants, such as NO_2 have not increased in recent years.⁴¹⁰

Following recommendations from the 2013 European Semester programme, excise duty rates on natural gas and other gaseous hydrocarbons were increased and a new road toll system was implemented from 1st July 2014. This shows a degree of interest and willingness to shift taxation towards environmental taxes, though rates of many taxes, including excise duties on energy products and the landfill tax are far below those of many other EU Member States and commentary suggests that the taxes, despite their

⁴¹⁰ IEEP (2013) Steps to Greening Country Report: Latvia, Report for the European Commission, p.5

⁴⁰⁶ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Country Report: Latvia, Report for European Commission - DG Clima, January 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/lv_2014_en.pdf</u>, p.12

⁴⁰⁷ Ecologic Institute, and eclareon (2014) Assessment of Climate Change Policies in the Context of the European Semester - Country Report: Latvia, Report for European Commission - DG Clima, January 2014, <u>http://ec.europa.eu/clima/policies/g-gas/progress/docs/lv_2014_en.pdf</u>, p.15

⁴⁰⁸ Personal communication with Silvija Aile of DG Environment at the European Commission, 3rd October 2013.

⁴⁰⁹ IEEP (2013) Steps to Greening Country Report: Latvia, Report for the European Commission, p.4

increased rates, are still insufficient to drive widespread behaviour change and that *"environmental indicators continue to pose significant challenges"*.⁴¹¹

Latvia, however, appears to consider that such rate increases amount to meeting the recommendation to reduce taxation of low-income earners by shifting taxation to areas such as excise duties and/or environmental taxes.⁴¹² It thus appears that the Latvian government currently considers itself as having done what is required in respect of environmental fiscal reform.

As in 2013, one of the country specific recommendations made as part of the 2014 European Semester encourages Latvia to continue its efforts to shift taxation towards environmental aspects:

Recommendation 1: [...] Pursue efforts to further reduce the tax burden on lowincome earners in the context of a shift towards more growth-friendly property and environmental taxes and by improving tax compliance and collection.⁴¹³

The reforms described below are aimed at identifying a number of areas where environmental taxes could be used to raise additional revenues and offset taxes on low income earners. Such taxes would also help to achieve environmental goals by providing clear price signals to ensure that environmental objectives are achieved and maintained over time.

14.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Latvia. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- Energy Taxes:
 - It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol

http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014_latvia_en.pdf, p. 9

⁴¹¹ See pp. 12-13 and footnote 14 in European Commission (2014) Commission Staff Working Document: Assessment of the 2014 National Reform Programme and Stability Programme for Latvia, June 2014, <u>http://ec.europa.eu/europe2020/pdf/csr2014/swd2014_latvia_en.pdf</u>

⁴¹² Government of Latvia (2014) National Reform Programme of Latvia for the Implementation of the 'Europe 2020' Strategy: Progress Report, April 2014,

⁴¹³ Council of the European Union (2014) *Council Recommendation on the National Reform Programme* 2014 of Latvia and Delivering a Council Opinion on the Stability Programme of Latvia, 2014, July 2014, ec.europa.eu/europe2020/pdf/csr2014/csr2014_council_latvia_en.pdf

(€11.2 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for LPG (€2.2 per GJ). Finally, the rates for heating fuels are equalised using the minimum rate for kerosene of €0.17 per GJ.

- The existing electricity taxes are harmonised and above the ETD minimum of €0.15 per GJ so no change is suggested.
- Table 14-4 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the Good Practice section above. The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
- In the case of propellants, the revisions imply a major increase in taxes on LPG and natural gas. More importantly, however, the petrol / diesel differential, which significantly favours diesel at present, is closed as the revisions imply that the tax applied to diesel is increased by roughly a third of its current level, redressing the enormous imbalance in taxes between diesel and petrol. A similar change is implied for kerosene.
- In the case of fuels used in commercial and industrial motors, there is a major increase in the rates for gas oil, kerosene and natural gas to bring the taxes into alignment with existing rates on LPG;
- On heating fuels (business and non-business), the changes imply significant uplifts in taxes on heavy fuel oil and LPG, and significantly, the taxes on coal and natural gas increase by 180% and almost 600%, respectively.
- The existing electricity tax rates are unchanged.

Table 14-4: Existing and Suggested Rates Based upon Proposed Revisions to the ETD

Energy Tax	Units	Suggested Rates	Existing Rates		
Transport Fuels					
Motor spirit (petrol)	€ per 1000 litre	411	411		
Light fuel oil (diesel)	€ per 1000 litre	445	333		
LPG (propellant)	€ per 1000 kg	571	161		
Kerosene	€ per 1000 litre	447	333		
Natural gas (prop)	€ per GJ	12	3		
Industry and Commercial Motors					
Gas oil	€ per 1000 litre	131	57		
Kerosene	€ per 1000 litre	130	57		
LPG	€ per 1000 kg	161	161		

Energy Tax	Units	Suggested Rates	Existing Rates		
Natural gas	€ per GJ	3	0		
Business Heating					
Gas oil	€ per 1000 litre	58	57		
Heavy fuel oil	€ per 1000 kg	68	16		
Kerosene	€ per 1000 litre	57	57		
LPG	€ per 1000 kg	66	0		
Natural gas	€ per GJ	1.29	0.46		
Coal	€ per GJ	2.06	0.30		
Non-Business Heating					
Gas oil	€ per 1000 litre	58	57		
Heavy fuel oil	€ per 1000 kg	68	16		
Kerosene	€ per 1000 litre	57	57		
LPG	€ per 1000 kg	66	0		
Natural gas	€ per GJ	1.29	0.46		
Coal	€per GJ	2.06	0.30		
Electricity					
Electricity - business use	€ per MWh	1.01	1.01		
Electricity - non-business use	€ per MWh	1.01	1.01		

> Transport Taxes:

• Vehicles: The taxes on transport in Latvia are slightly lower than average in the EU (0.42% of GDP compared to the EU-28 level of 0.50% GDP). There is, however, scope to increase vehicle taxation and it is suggested here that vehicle taxes be raised by an amount equivalent to 0.07% of GDP. This would both raise revenue, and also, increasing differentiation between vehicles based upon environmental performance, thereby influencing the stock of vehicles in use in future. In line with the proposals from the Commission of 2005, we suggest that the main increase could

relate to the circulation tax.⁴¹⁴ The increase is phased in over the period from 2016 to 2021. There is also scope to introduce a more widespread system of charging for road use by HGVs.

Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. The introduction of a tax on passenger flights and air freight is recommended in Latvia. The suggested rates for the air passenger tax for are €15 per passenger (flights within the country concerned), €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). The suggested air transport tax rate is €1.25 per tonne of freight. The year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted the Good Practice section, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax.

Pollution and Resource Taxes:

- Aggregates: An aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is in-line with the flagship initiative 'A Resource Efficient Europe'.⁴¹⁵ The extraction of aggregates is currently taxed on a per weight or volume basis in Latvia. Examples of current tax rates are €0.43 per m³ for sand, and 0.28 per m³ for limestone. It is recommended that tax rates are increased to €2.40 per tonne of material extracted from 2017, and that thereafter, they are kept constant in real terms. While the current tax covers most major extractable materials, further analysis will be required to assess whether any additional materials should be covered by the aggregates tax.
- Waste landfill tax: Landfill taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive. Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. Landfill taxes also provide support to the application of the waste hierarchy. In 2012, the rate of waste landfilled (directly or indirectly) in Latvia was 40%, excluding major mineral wastes, dredging spoils and contaminated soils.⁴¹⁶ This rate is much lower than in 2010 (when it was 72%), yet there is significant potential to lower it further. While a landfill tax is in place in Latvia, the rate is relatively low: €12 per tonne for the disposal of municipal waste. A study on landfill tax was conducted for the

⁴¹⁴ European Commission (2005) *Proposal for a Council Directive on Passenger Car Related Taxes*, 5th July 2005, <u>http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0261:FIN:en:PDF</u>

⁴¹⁵ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

⁴¹⁶ Eurostat (2014) Landfill Rate of Waste Excluding Major Mineral Wastes, Accessed 14th October 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=t2020</u> <u>rt110&tableSelection=1</u>

Latvian Ministry of the Environment last year.⁴¹⁷ The study proposed an increase in the tax by €3 per tonne per year starting in 2015, reaching €30 per tonne for municipal waste and €40 per tonne for construction waste in 2020. It also proposed to increase the tax on hazardous waste by 3% annually, reaching €42.47 per tonne in 2020. We suggest that the rate for non-hazardous landfill is raised to a minimum of €50 per tonne by 2020. An early announcement of this tax and its escalation over a number of years would help drive the change in the waste management sector needed to meet EU targets in 2020 and beyond. We suggest this tax should be indexed to an appropriate measure of inflation.

- Waste incineration / MBT tax: In order to ensure that wastes are not simply shifted from landfill to incineration, it is suggested that an incineration tax is introduced, up to €15 per tonne over the same period as the landfill tax is increased (i.e. up to 2020). An equivalent rate is also proposed for MBT facilities. We would recommend that the tax is applied on materials being prepared for export for incineration also so as to avoid a simple movement of waste to incinerators in countries without such a tax in place (or which may exempt imported wastes from the tax). These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe.⁴¹⁸
- Single-use carrier bag tax: Plastic bags cause many environmental problems when littered in the environment, especially when they are transported to, or littered in the riverine, or marine, environment. Moreover in countries with high level of tourism littered plastic bags can deter visitors. A wide body of experience suggests that taxing single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.⁴¹⁹ Latvia currently has a tax on plastic bags; however, the tax rate is specified by weight, rather than on a per bag basis. In most circumstances, the effective tax rate is less than €0.01 per bag. It is recommended that Latvia switches to a specific tax rate per bag and extends the tax to cover all single-use carrier bags. Furthermore, the tax rate could be increased to €0.10 per bag from 2016, and kept constant in real terms thereafter.
- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are

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http://www.varam.gov.lv/in_site/tools/download.php?file=files/text/publikacijas/petijumi/vide/Atkritumi//poligonu_likmes_novertejums_Final.pdf

⁴¹⁸ European Commission (2011) *Roadmap to a Resource Efficient Europe*, 20th September 2011, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN</u>

⁴¹⁹ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. Latvia already has a system of air pollution taxes in place, covering CO₂, PM₁₀, CO, SOx, NOx, VOCs, ammonia and heavy metals. It is suggested that a number of increases in specific tax rates should be implemented in order to generate improvements in air quality as follows:

- o SOx €1,000 per tonne
- o NOx €1,000 per tonne
- PM10 €2,000 per tonne

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

- Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". Water abstraction charges are currently in place in Latvia, and the current pricing structure is based on the type and quality of water. It is suggested that the tax rate calculation should also depend on the usage type (e.g. agriculture, drinking water etc.). An increase in tax rates is also recommended: appropriate levels of taxation would be of the order €130 per 1,000m³ for the public water supply, €80 per 1,000 m³ for manufacturing purposes and €11 per 1,000 m³ for agriculture. We have assumed that the additional revenue which such rates may generate can accrue to the central budget. A transition period from 2016 to 2021 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.
- Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21st May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.⁴²⁰ Latvia already has a tax on water pollution, with higher tax rates for more hazardous substance. To improve prevention of water pollution it is suggested to adjust tax rates inline with 'good practice'. With relative price levels in Latvia this would imply, for BOD, a rate of €2.14 per kg of the pollutant. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. It is suggested that rates should be held constant in real terms once they reach the 2019 levels.

⁴²⁰ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

• **Pesticides:** Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

> "...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> <u>designed to achieve these targets</u>".

While Latvia currently uses smaller volumes of pesticides than more developed Member States the use of these substances still poses risks to human and environmental health.⁴²¹ The current pesticide management plan for Latvia does not specifically mention taxes on pesticides; however, the introduction of such taxes may help to achieve the wider objectives of the plan which explicitly encourage alternatives to be used prior to resorting to the use of pesticides.⁴²²

There is a trend towards banding taxes to reflect the level of hazard associated with them, and we would suggest such an approach is suitable in Latvia, with special provisions being made to meet specific national circumstances (e.g. the control of particular invasive species). Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €2.50 per kg active ingredient. The suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark) would be a concrete measure that would contribute towards the aims of the Action Plan.

• Fertilisers: The use of fertilisers is steadily growing in Latvia. From 2000 to 2013, fertilizer use increased from 37 thousand tonnes to 122 thousand tonnes.⁴²³ Despite the rapid increase, fertilise use remains at a very low level relative to other Member States, with approximately 0.036 tonnes of nitrogen being applied per hector of active agricultural land. On December 23rd 2014 the Cabinet of Ministers Regulations No.834 was published, providing Regulations on the Protection of Water and Soil against Pollution Caused by Nitrates from Agricultural Sources. These regulations set out

http://data.csb.gov.lv/pxweb/en/lauks/lauks_ikgad_01Lauks_visp/?rxid=a79839fe-11ba-4ecd-8cc3-4035692c5fc8



⁴²¹ FAOSTAT (2013) *Pesticides Use in Selected Country*, Accessed 20th October 2014, <u>http://faostat3.fao.org/browse/R/RP/E</u>

⁴²² Latvijas Republikas Oficiālais Izdevums (2013) Par Rīcības Plānu Augu Aizsardzības Līdzekļu Ilgtspējīgai Izmantošanai 2013–2015.gadam,

http://ec.europa.eu/food/plant/pesticides/sustainable_use_pesticides/docs/nap_latvia_lv.pdf

⁴²³ Central Statistical Bureau of Latvia (2013) *Public Database, General Agricultural Indicators,* Accessed 20th October 2014,

the requirements for protecting water and soil against pollution caused by nitrates from agricultural activity, with more stringent requirements being laid down for nitrate vulnerable zones. The Cabinet of Minister Regulations No. 278, published on 3rd June 2014, also require that fertilisers be applied in accordance with a crop fertilisation plan. There are thus regulatory controls covering the application of fertilisers in Latvia. The introduction of a tax on nitrogen (or other) fertilisers could contribute towards the broader objectives of these regulations by driving efficiencies in the use of these products It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of $0.05 \notin$ per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

14.2.3 Summary of Revenue Outcomes

Table 14-5 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025	
Energy Taxes				
Transport fuels	13	52	89	
C&I / Heating	17	66	116	
Electricity	0	0	0	
Sub-total Energy, million EUR	30	118	205	
Sub-total Energy, % GDP	0.12%	0.46%	0.79%	
Transport Taxes				
Vehicle Taxes	4	15	19	
Passenger Aviation Tax	102	227	277	

Table 14-5: Potential Additional Revenue from Environmental Fiscal Reform in Latvia, million EUR (real 2014 terms)⁴²⁴

⁴²⁴ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C
Тах	2017	2020	2025		
Freight Aviation Tax	0.02	0.05	0.06		
Sub-total Transport, million EUR	106	242	296		
Sub-total Transport, % GDP	0.41%	0.93%	1.14%		
Pollution and Resource Taxes					
Landfill Tax - Non-haz General	6	12	14		
Incineration / MBT Tax	1	2	2		
Air Pollution Tax	12	32	42		
Water Abstraction Tax	11	25	24		
Waste Water Tax	8	11	11		
Pesticides Tax	3	6	9		
Aggregates Tax	42	25	26		
Packaging Tax	6	6	6		
Single Use Bag Tax	26	5	6		
Fertiliser Tax	0.002	0.005	0.007		
Sub-total Pollution & Resource, million EUR	114	125	141		
Sub-total Pollution & Resources, % GDP	0.44%	0.48%	0.54%		
Total Environmental Taxes					
Total, million EUR	250	485	642		
Total Increase, % GDP	0.96%	1.87%	2.47%		

Table 14-6 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 14-6: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Latvia, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	70
Increased Cost Recovery for Water Use	65
Total	135



14.2.4 Environmental Benefits

Table 14-7 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.12.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €268 million of benefits are anticipated annually by 2025 in real terms.

Table 14-7: Monetised Environmental Benefits from Implementation of Suggested Taxes in Latvia, million EUR (real 2014 terms)⁴²⁵

Тах Туре	2017	2020	2025
Energy Taxes	1.2	4.8	8.2
Transport Taxes (excluding transport fuels)	1.6	3.4	4.0
Pollution and Resource Taxes	28	139	256
Total, million EUR	31	147	268
Total, % GDP	0.11%	0.50%	0.81%

14.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Latvia:⁴²⁶

- In 2012, environmental taxes generated revenue equivalent to 2.42% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Latvia. These could generate EUR 0.2 billion in 2017, rising to EUR 0.6 billion in 2025 (EUR 0.6 billion) (both in real 2014 terms). This is equivalent to 0.96% and 2.47% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the proposed passenger aviation tax. This accounts for EUR 0.3 billion by 2025 (real 2014 terms), equivalent to 0.84% of GDP.

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

 $^{^{425}}$ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

 $^{^{426}}$ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

- The next largest contribution to revenue comes from the suggested reforms to the taxes on fuels for business heating. The taxes account for EUR 0.1 billion by 2025 (real 2014 terms), equivalent to 0.35% of GDP.
- The suggested harmonisation of the taxes on transport fuels would account for EUR 0.1 billion by 2025 (real 2014 terms), equivalent to 0.27% of GDP.
- Revenue potential from the proposed air pollution tax would would raise EUR 0.042 billion by 2025 (real 2014 terms), equivalent to 0.13% of GDP.
- A tax on aggregates has also been suggested. This would contribute EUR 0.026 billion by 2025 (real 2014 terms), equivalent to 0.08% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 0.09 billion by 2025 (real 2014 terms), equivalent to 0.28% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.3 billion by 2025 (real 2014 terms), equivalent to 0.81% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €135 million per annum could be raised in addition to the above.



15.0 Malta

15.1 Country Overview

15.1.1 Key Facts about the Economy and Tax System

- Over the period 2003–2013, Malta experienced its largest drop in GDP in 2009, which saw a 2.8% reduction in GDP in real terms from the previous year. This was also the most difficult year of the recession for the EU-28 as a whole. Immediately after 2009, however, Malta enjoyed its largest increase in GDP over the whole period, with GDP increasing by 4.3% in real terms in 2010. On average, Malta's annual rates of increase in GDP for the pre-recession years 2003–2007 (2.1% in real terms) and post-recession years 2010–2013 (2.4% in real terms) were not dissimilar.⁴²⁷
- Malta's overall tax revenue (including social contributions) as a percentage of GDP was 34.8% in 2012. This share declined from a high of 35.3% in 2007, but has risen overall in the past 10 years from 31.4% in 2002.⁴²⁸
- Direct taxation and indirect taxation make similar contributions to Malta's total tax income, at 40.1% and 38.7% respectively (2012). Social contributions account for a smaller share at 21. 3%, with this amount having decreased steadily over the past 10 years.⁴²⁹
- In 2012, revenues from environmental taxes accounted for 2.98% of GDP. This percentage share is somewhat low for Malta compared to previous levels, and represents only the second time in the past 10 years that it has fallen below 3%.⁴³⁰
- In 2012, energy taxes represented the largest share of environmental taxes in Malta accounting for 1.58% of GDP. This was followed by transport taxes (excluding fuel) which accounted for 1.27% of GDP, while pollution and resource taxes accounted for a smaller contribution of 0.13% of GDP.⁴³¹

431 Ibid.

⁴²⁷ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁴²⁸ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

⁴²⁹ Figures based on feedback from EU Secreteriat, Ministry for Sustainable Development, the Environment and Climate Change, 18th December 2014

⁴³⁰ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

Energy taxes contributed 53% of Malta's overall revenue from environmental taxation in 2012. This percentage has risen significantly over the past 10 years from 39.8% in 2002.⁴³²

15.1.2 Relative Position within the EU

In 2012, the share of environmental taxes as a percentage of Malta's GDP was above the EU-28 average of 2.4%. While energy taxes as a percentage of GDP were lower than the EU-28 average of 1.8%, transport taxes (excluding fuel) as a percentage of GDP were significantly higher than the EU-28 average of 0.5%. Pollution and resource taxes as a share of GDP were also slightly higher than the EU-28 average of 0.1% (see Figure 15-1).⁴³³



Figure 15-1: Environmental Taxes in Malta as a % of GDP vs EU-28 Levels (2012)

Expressed as a proportion of GDP, Malta ranked 7th among the EU-28 in 2012 in terms of revenue derived from environmental taxes. Malta ranked low, in 22nd place, for the percentage share of GDP from energy taxes, but was in 2nd place in terms of percentage share of GDP from transport taxes (excluding fuel) (see Table 15-1).⁴³⁴

432 Ibid.

433 Ibid.

434 Ibid.



Table 15-1: Ranking of Malta's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	7
Energy Taxes as a Share of GDP (%)	22
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	2
Pollution & Resource Taxes as a Share of GDP (%)	10

Source: based on Eurostat data

15.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.13.0 (see separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{435,436}

- > Energy Taxes:
 - Maltese excise duties on fuels and electricity are shown in Table 15-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Table 15-2: Standard Rates of Excise Duties on Fuels and Electricity in Malta

Excise Duty	Unit	Rate Applied in Malta	Existing ETD Minimum	EU-28 Average	EU-28 Median
Transport Fuels					
Leaded Petrol ¹	€ per 1000 litres	€628.18	€421	€585	€583
Unleaded Petrol	€ per 1000 litres	€509.38	€359	€519	€509
Gas Oil (Diesel)	€ per 1000 litres	€422.40	€330	€427	€405

⁴³⁵ Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugi</u> <u>n=1</u>

⁴³⁶ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

Excise Duty	Unit	Rate Applied in Malta	Existing ETD Minimum	EU-28 Average	EU-28 Median
Kerosene	€ per 1000 litres	€422.40	€330	€440	€405
Liquid Petroleum Gas ²	€ per 1000 kg	Not used at present	€125	€209	€180
Natural Gas	€ per GJ	Not used at present	€2.60	€3.03	€2.66
Motor Fuels – Industry ,	/ Commercial Use				
Gas Oil (Diesel)	€ per 1000 litres	€422.40	€21	€221	€163
Kerosene	€ per 1000 litres	€422.40	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€125.00	€41	€126	€125
Natural Gas	€ per GJ	€2.60	€0.30	€1.76	€1.50
Heating – Business Use)				
Gas Oil (Diesel)	€ per 1000 litres	€422.40	€21	€221	€163
Kerosene	€ per 1000 litres	€422.40	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€34.00	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€38.94	€0.00	€82	€40
Natural Gas	€ per GJ	€0.84	€0.15	€1.36	€0.46
Coal and Coke	€ per GJ	€0.30	€0.15	€1.27	€0.31
Heating – Non-Busines	s Use				
Gas Oil (Diesel)	€ per 1000 litres	€182.09	€21	€179	€125
Kerosene	€ per 1000 litres	€382.40	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€34.00	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€38.94	€0.00	€111	€42
Natural Gas	€ per GJ	€0.84	€0.30	€2.04	€0.94
Coal and Coke	€ per GJ	€0.30	€0.30	€1.77	€0.32
Electricity		·			
Business Use	€ per MWh	€1,50	€0.50	€8.42	€1.03
Non-Business Use	€ per MWh	€1,50	€1.00	€14.53	€2.06



cise Duty	Unit	Rate Applied in Malta	Existing ETD Minimum	EU-28 Average	EU-28 Median	
 Leaded petrol has not been sold in Malta since 1 January 2003. LRP (Lead Replacement Petrol) was available between January 2003 and December 2010. 						
2. Although indicated as not currently used as propellant in the DG TAXUD table, in January 2014 the government put in place a programme to promote the up-take of LPG-fuelled cars.						
	ccise Duty Leaded petrol I was available b Although indica the governmen	Leaded petrol has not been sold in was available between January 20 Although indicated as not currently the government put in place a prog	Acise DutyUnitRate Applied in MaltaLeaded petrol has not been sold in Malta since 1 January 2 was available between January 2003 and December 2010 Although indicated as not currently used as propellant in the the government put in place a programme to promote the	traces DutyUnitRate Applied in MaltaExisting ETD MinimumLeaded petrol has not been sold in Malta since 1 January 2003. LRP (Lead was available between January 2003 and December 2010.LRP (Lead Lead Although indicated as not currently used as propellant in the DG TAXUD to the government put in place a programme to promote the up-take of LPG	cise DutyUnitRate Applied in MaltaExisting ETD MinimumEU-28 AverageLeaded petrol has not been sold in Malta since 1 January 2003. LRP (Lead Replacement was available between January 2003 and December 2010. Although indicated as not currently used as propellant in the DG TAXUD table, in January 	

Sources: DG TAXUD (2014) Excise Duty Tables (Part II – Energy products and Electricity), Situation as at 1 July 2014,

<u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/r</u> <u>ates/excise_duties-part_ii_energy_products_en.pdf</u>; and The Malta Independent (2010), *LRP Fuel being phased out*, Accessed 14th August 2014, <u>http://www.independent.com.mt/articles/2010-10-07/news/Irp-fuel-being-phased-out-281258/</u>

- With the exception of LPG and natural gas all of the excise duties on transport fuels are above the minimum set by the existing ETD. However, excise duties applied on all transport fuels in Malta are below the EU-28 average (with the exception of leaded petrol).
- Excise duties on motor fuels (for industry/commercial use) are in line or above the EU-28 median. LPG used for heating purposes by industry is also taxed below both the EU-28 average and EU-28 median while excise duties applied on heavy fuel oil is below the EU-28 average. Natural gas and coal/coke used for business heating is taxed above the threshold set by the ETD but below the EU-28 average.
- Fuels used for heating purposes by households, mainly natural gas and coal/coke products, are taxed at rates close to the EU-28 median. However, with the exception of kerosene, rates remain below the EU-28 average.
- Electricity used by households and businesses is taxed above the minimum rates set by the ETD and are close to the EU-28 median; however, rates are well below the EU-28 average.
- As described under *The Bunkering (Fuel) Tax Act* (Chapter 381 of the Laws of Malta), the government applies different tax rates for bunkering of ships outside territorial waters.⁴³⁷ Further details can be found in Appendix A.13.0.
- Exemptions from excise duties are applied to fuels used for: electricity generation; international aircrafts travelling outside the EU; inshore fishing; fuelling and provision of fishing, industrial, commercial and rescue vessels; and private and pleasure sea craft with direct voyages outside the EU.

⁴³⁷ Government of Malta (2014), Bunkering (Fuels) Tax Act (Chapter 381), Accessed 11th August 2014, <u>http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8848</u>

- A reduced rate is applied on gas oil/diesel and LPG used for heating purposes. A reduced rate is also applied on gas oil/diesel used for bunkering operations, dredging operations, harbour cruises, inland navigation, sea farming activities, and navigation for commercial purposes.
- Consumption tariffs for electricity are also applied (see Appendix A.13.0 for more details).
- A reduced VAT rate (5%) is applied on the supply of electricity.
- In 2012, the annual total tax revenues from energy taxes in Malta amounted to €108 million. These taxes accounted for 1.58% of Maltese GDP and were equivalent to 4.70% of total tax revenues.⁴³⁸

> Transport Taxes (excluding transport fuels):

- Motor Vehicle Registration Tax: (Taxxa tar-Registrazzjoni fuq il-Vetturi):⁴³⁹
 - The tax was introduced with the approval of the *Motor Vehicle Registration and Licensing Act* (Chapter 368) and came into force in January 1994.
 - The value of the tax is calculated according to engine power, EURO emission standards, particulate matter (for diesel engines only) and CO₂ emissions. As such, it seeks to target key aspects of air pollution from vehicles.^{440,441}
 - Since 2011, registration taxes for commercial vehicles with emission standards lower than EURO 3 were increased to encourage the purchase of newer and less polluting vehicles. In January 2012, this was extended to non-commercial vehicles.⁴⁴² Thus a higher tax is applied on vehicles with EURO 1-3 emission standards compared to those with higher EURO standards. This measure was enacted to rejuvenate the aging vehicle fleet in the

%205th%20November%202013).pdf_20131108070800.pdf

⁴⁴² IEEP et al. (2013), Steps towards greening in the EU: Monitoring Member States' achievements in selected environmental policy areas; EU summary report, Final Report - July 2013, <u>http://ec.europa.eu/environment/enveco/resource_efficiency/pdf/Greening.pdf</u>



⁴³⁸ European Commission (2014), Taxes in Europe Database, Accessed 11th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=870/1391413804&taxType=Energy+prod</u> <u>ucts+and+electricity</u>

⁴³⁹ European Commission (2014), Taxes in Europe Database, Accessed 4th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=16/1357119635&taxType=Other+indirect</u> <u>+tax</u>

⁴⁴⁰ Transport Malta (November 2013). POL 02 - REGISTERING & LICENSING OF NEW & USED MOTOR VEHICLES, Accessed 4th August 2014, <u>http://www.transport.gov.mt/admin/uploads/media-library/files/POL%2002%20-</u> <u>%20Registration%20and%20Licensing%20of%20Vehicles%20(Version%2026%20-</u>

⁴⁴¹ Governement of Malta (2014), Act No. XII of 2014 (An Act to implement measures for the financial year 2014 and other administrative measures), Accessed 7th August 2014, http://justiceservices.gov.mt/DownloadDocument.aspx?app=lp&itemid=26033&l=1

country, a measure reinforced by the introduction of a scrappage scheme. $^{\rm 443}$

- Electric cars and hybrid goods carrying vehicles (with a maximum mass up to 12 tonnes) are exempt from the registration tax. A car which emits less CO₂ and with a lower engine size pays a lower tax rate. For further information see Appendix A.13.0.
- In 2013, revenues from this tax amounted to €35.55 million, representing 0.52% of Maltese GDP and 1.54% of total tax revenue.^{444,445}
- Circulation Licence Fee: (Licenzja ta' Cirkolazzjoni):446
 - Since 1950, all vehicles registered with the Authority for Transport in Malta are subject to an annual circulation licence fee.
 - The fee varies according to the age of the car, cubic capacity of the engine, fuel type and CO₂ emissions.⁴⁴⁷ It is paid by owners of passenger cars, quad bikes and motorcycles.
 - For private petrol vehicles, the fee ranges between €100 for a new petrol-powered vehicle with CO₂ emissions of 0-100g per km to €1,110 for a vehicle aged 14 years old or more and emitting over 250g/km CO₂. For private diesel vehicles, the fee ranges between €100 for a new car with CO₂ emissions of 0-100g per km and with particulate matter up to 0.005g/km, to €1,210 for an old vehicle older than 14 years which emits more than 250g CO₂ per km and with particulate matter exceeding 0.035g/km.⁴⁴⁸

⁴⁴³ Ministry for Finance - Government Grant on the Purchase of Environment-friendly vehicles, http://live.transport.gov.mt/admin/uploads/media-library/files/Scrappage%20scheme.pdf

⁴⁴⁴ European Commission (2014) Taxes in Europe Database, Accessed 4th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=1901/1388754867&taxType=Other+indir</u> <u>ect+tax</u>

⁴⁴⁵ Data provided by the Ministry of Treasury differs slightly from the figures given by the Eurostat. According to the latest Financial report released, the 'Motor Vehicle Registration Tax' yielded €37.025.558 in 2012 and €32.003.369 in 2013. Please refer to Government of Malta (2014), Financial Report 2013, Floriana:The Treasury, p. 6.

⁴⁴⁶ European Commission (2014) Taxes in Europe Database, Accessed 12th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=425/1388754867&taxType=Other+indirect+tax</u>

⁴⁴⁷ Transport Malta (1st January 2014), POL 33 – Annual circulation licence fees, <u>http://www.transport.gov.mt/admin/uploads/media-library/files/POL%2033.pdf</u>, Accessed 7th August 2014

⁴⁴⁸ Government of Malta (2014), Motor Vehicle Registration Act (Chapter 368), Accessed 5th August 2014, <u>http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8837</u>

- Vehicles for disabled persons, vehicles owned by the Maltese State or vehicles which belong to diplomatic staff are exempt from the fee.⁴⁴⁹
- The fee applies to electric and hybrid electric motor vehicles.⁴⁵⁰
- In 2012, revenues from the fee amounted to €48.59 million, representing 0.71% of Maltese GDP and 2.11 % of total tax revenue.^{451,452}
- Vessel registration and annual fee for small ships:
 - According to the Small Ship Regulations (Subsidiary Legislation 499.52),⁴⁵³ vessels under twenty-four metres of length are required to pay a once-off registration fee and an annual fee.⁴⁵⁴
 - The fee varies accordingly to the total engine horse power (HP) installed on the boat see Appendix A.13.0 for further details. Small ships with engines are also subject to a registration tax of €50. Small ships with no engine are not subject to the registration tax and are also exempt from the annual renewal fee. Fishing boats registered with the Department responsible for Fisheries are exempt from the tax.
 - Information on revenues from this tax could not be found.
- Pollution and Resource Taxes:
 - Aggregates:
 - Malta has an annual operating license fee of €699 for the quarrying and sale of soft stone or hard stone derivatives (this is a one off fee paid annually by registered facilities). The fee is regulated through subsidiary legislation 128.01 of the *Police*

⁴⁵⁴ OECD/EEA (2013) OECD/EEA Database on Instruments used for Environmental Policy and Natural Resources Management, Accessed 13th August 2014, <u>www2.oecd.org/ecoinst/queries/index.htm</u>



⁴⁴⁹ European Commission (2014) Taxes in Europe Database, Accessed 4th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=425/1388754867&taxType=Other+indirect+tax</u>

⁴⁵⁰ Transport Malta (1st January 2014), POL 33 – Annual circulation licence fees, Accessed 7th August 2014 <u>http://www.transport.gov.mt/admin/uploads/media-library/files/POL%2033.pdf</u>

⁴⁵¹ European Commission (2014) Taxes in Europe Database, Accessed 4th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxSearch.html</u>

⁴⁵² In this case data provided by Eurostat is in line with the figures the figures given by the Ministry of Treasury. According to the latest Financial report released, the 'Annual Circulation Licence Fee' yielded €48.588.334 in 2012 and €49.866.874 in 2013. Please refer to Government of Malta (2014), Financial Report 2013, Floriana:The Treasury, p. 6.

⁴⁵³ Government of Malta (2014),Small Ships Regulations (Subsidiary Legislation 499.52), Accessed 13rd August 2014, <u>http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11374&l=1</u>

Licenses Regulations.⁴⁵⁵ There is, however, no environmental tax in place regarding aggregates.

- MSW and C&D gate fees:
 - There is currently no landfill tax in Malta; however, fees charged for 0 landfilling, biological treatment, and for recycling / recovery of dry recyclables at public facilities are effectively prescribed in legislation. These are not taxes, and they appear to be below rates that would prevail with full cost recovery
 - The cost of collection and management of dry recyclables is 0 covered through the Eco-contribution scheme (see below).
- Cement tax:
 - Following approval of Act N. IV of 2011, Malta introduced an excise tax on Portland cement, excluding white cement (grey Portland cement).456 Initially set at €9 per 1000kg, the tax increased over the years and in March 2014 it was €27.00 per 1000kg (grey Portland cement remains exempt).457
 - In 2012, revenues from the tax amounted to €3.20 million and to 0 €4.11 million in 2013 (respectively, 0.045% and 0.057% of Maltese GDP).458
- ECO-contribution scheme (Att dwar I-Eko-Kontribuzzjoni):
 - The Eco-contribution scheme is paid on a guarterly basis by producers of selected products (listed in the First Schedule of the ECO Contribution Act - Chapter 473 of the Laws of Malta) based on the number of products present on the market. Different rates are applied to different products - detailed in Appendix A.13.0.
 - Under the eco-contribution scheme, a charge of €0.14 is applied on 0 plastic bags with some exceptions as elaborated in Appendix A.13.0. The measure was introduced as a way to discourage the use of plastic bags⁴⁵⁹ and reportedly contributed to a decrease of 5 million plastic bags in the first five months of 2005 as well as

⁴⁵⁷ Government of Malta (2014), An act to implement Budget measures for the financial year 2014 and other administrative measures, Accessed 8th August 2014, http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lp&itemid=25742&l=1

⁴⁵⁵ Government of Malta (2013), Police Licences Regulations – Subsidiary Legislation 128.01, Accessed 13th August 2014, http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=9422

⁴⁵⁶ Government of Malta (2011), Act No. IV of 2011 entitled the Budget Measures Implementation Act, 2011, Accessed 9th August 2014, http://www.doiarchived.gov.mt/en/parliamentacts/2011/Act%20IV%20of%202011.pdf

⁴⁵⁸ Government of Malta (2014), *Financial Report 2013*, Floriana:The Treasury, p. 6.

⁴⁵⁹ The Times of Malta (2009), Eco tax on plastic bags from March, Accessed 13rd October 2014, http://www.timesofmalta.com/articles/view/20090129/local/eco-tax-on-plastic-bags-from-march-1.242668

improved traceability and monitoring of the production of plastic bags in the country.⁴⁶⁰

- Producers who "take-back" waste products on which they have already paid an eco-contribution could have their future ecocontribution payments reduced totally or partially, according to the value of the eco-contribution paid on recovered waste products.⁴⁶¹
- Annual revenues from the scheme in 2012 were equivalent to €6.9 million, which represented 0.10% of Maltese GDP and was equivalent to 0.29% of total tax revenue.⁴⁶²
- Groundwater abstraction:
 - Regulations on the registration and use of groundwater resources have been in place since 1948.⁴⁶³ Today, groundwater abstraction is broadly metered.
 - Water used for agricultural purposes is exempt from water abstraction fees⁴⁶⁴ and the cost of water is limited to the private on-farm costs.⁴⁶⁵ Moreover a "flat" volumetric tariff of €0.093 per m³ is in place for the supply of non-potable water to both agricultural and industrial consumers.
 - Further information on abstraction fees could not be found.
- Water tariffs:
 - Differentiated annual water tariffs are applied for residential or domestic consumers and for industrial and commercial users.
 - Charges for households increased between 2008 and 2010; however, in 2014 (following approval of LN 109 of 2014) water fees for households decreased from €1.47 to €1.40 (for annual consumption between 0 and 33 m³) and from €5.41 to €5.14 (for annual consumption above 33 m³). These charges are based on a

⁴⁶⁴ European Commission (2012) The role of water pricing and water allocation in agriculture in delivering sustainable water use in Europe – FINAL REPORT, February 2012, http://ec.europa.eu/environment/water/quantity/pdf/agriculture_report.pdf

⁴⁶⁵ European Commission (2012) The role of water pricing and water allocation in agriculture in delivering sustainable water use in Europe – FINAL REPORT, February 2012, <u>http://ec.europa.eu/environment/water/quantity/pdf/agriculture_report.pdf</u>



⁴⁶⁰ Lyons, L., (2013) Dynamix policy mix evaluation – Reducing plastic bag use in the UK and Ireland, <u>http://dynamix-project.eu/sites/default/files/Plastic%20bags_Ireland%20and%20UK.pdf</u>

⁴⁶¹ Government of Malta (2014) Eco-Contribution Act (Chap. 473), Accessed 8th August 2014, <u>http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8939&l=1</u>

⁴⁶² Data provided by the Ministry of Treasury differs slightly from the figures given by the Eurostat. According to the latest financial report released, the 'Eco-contribution' yielded €6,908,470 in 2012 and €6,457,162 in 2013. Please refer to Government of Malta (2014) Financial Report 2013, Floriana:The Treasury, p. 7.

⁴⁶³ Government of Malta (2014) Subsidiary Legislation 423.03 – Water Supply Regulations, Accessed 11th August 2014, <u>http://mra.org.mt/wp-content/uploads/2014/03/5480/Water-Supply-Regulations.pdf</u>

methodology to reflect cost recovery, but after taking into account government subventions, and other factors.

Wastewater management costs are also covered by water tariffs.⁴⁶⁶

15.2 Illustrative Potential of EFR

In this section we first give a brief synopsis of the current status of Environmental Fiscal Reform in Malta. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

The proposed changes to taxation are part of the cross-country common approach (within this study) of applying "good practice" with environmental taxation (taken as a "best in the class type approach") to each country. This allows comparable results. Some countries may wish to go further than the tax rates noted here – as today's "best in the class" can become "tomorrow's middle of the class" – and some countries may have other mechanisms for dealing with the environmental challenges and raising revenues and/or face insurmountable obstacles for fiscal reform for various reasons. The proposals for reform should be seen in that light – countries could go further or less far in the coming years depending on country circumstance. Nevertheless, it is useful to illustrate the potential for using taxation for addressing challenges and raising revenue to help map out the potential for fiscal reform.

15.2.1 Current Status of EFR

The government has sought to encourage the development of greener energy sources in recent years. This has been driven by concerns of Malta's reliance on fossil fuels for electricity production. Malta is fully dependent on imported fossil fuels for electricity generation with almost all of the country's gross electricity consumption derived from two conventional thermal power plants in Delimara and in Marsa which currently run on heavy fuel oil and gas oil.⁴⁶⁷ In 2012, only 2.7% of electricity was from renewable energy sources (hydro, wind, solar, geothermal and biomass).⁴⁶⁸ The government is seeking to encourage further development of renewables, for example a system of feed-in tariffs for solar photovoltaic systems was introduced in 2010 for residential and non-residential sectors (*Feed-In Tariffs Regulations*, LN 422/2010).⁴⁶⁹

⁴⁶⁸ Eurostat (2014),Share of Energy from Renewable Sources (% of gross electricity consumption) [[nrg_ind_335a], Accessed 09/01/2015,

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_ind_335a&lang=en

⁴⁶⁶ Malta Resource Authority (2014) Decision on Proposed Water Tariffs March 2014 – Summary of Review Process and Conclusions, Accessed 18th August 2014, <u>http://mra.org.mt/wp-</u>content/uploads/2014/03/5480/Minister-MECW-Approval-of-new-tariffs-for-supply-of-water-27.03.14.pdf

⁴⁶⁷ Malta Resource Authority (2014) *Malta's Biennal Report on Policies and Measures and Projected Greenhouse Gas Emissions 2013, Report prepared by the Climate Change and Policy Unit, Report 3/2013, <u>http://mra.org.mt/wp-content/uploads/2013/07/Malta-PAMs-Report-2013-V1.5.pdf</u>*

⁴⁶⁹ Malta Resource Authority (2014), *Malta's Biennal Report on Policies and Measures and Projected Greenhouse Gas Emissions 2013*, Report prepared by the Climate Change and Policy Unit, Report 3/2013, <u>http://mra.org.mt/wp-content/uploads/2013/07/Malta-PAMs-Report-2013-V1.5.pdf</u>

In relation to transport, the government has adopted some positive changes to environmental taxes to encourage behaviour change. For example, since 2011 a higher registration tax has been applied on commercial vehicles with EURO 1-3 emission standards compared to those with higher EURO standards to encourage the purchase of newer, less polluting vehicles and rejuvenate the ageing vehicle fleet in the country, particularly in the context of a scrappage scheme.⁴⁷⁰

In the pre-budget document for 2014 released in August 2013, the government stressed the importance of fiscal consolidation and focused on ensuring macro-economic stability. In relation to environmental taxation, the government pledged to improve the competitiveness of the economy by lowering electricity and water tariffs for households and businesses.⁴⁷¹ Both tariffs were subsequently lowered in 2014 (see Appendix A.13.0), with part of the rationale for the reduction in water tariffs being the anticipated reduction in electricity tariffs.⁴⁷² The latter will be extended to businesses in 2015.

The Government has also stressed its intent to further improve fiscal transparency and re-adjust public finances in the latest pre-budget document.⁴⁷³ Once again, importance was given to energy and to the shift from fossil fuels toward renewable energy production (such as PV and Wind).⁴⁷⁴

In 2011, the Government introduced a tax on cement, to address the environmental externalities of the construction sector. The tax, which initially was set at €9 per tonne of cement was increased to reach €27 per tonne in March 2014.^{475,476} Moreover, the *Waste Management Plan for the Maltese Islands* for 2014 to 2020, proposed the introduction of lower tax rates for first time buyers purchasing old properties, a new

http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_s tructures/country_tables/mt.pdf

⁴⁷¹ Government of Malta (2014), *Pre-budget Document* 2014, Accessed 21st August 2014, <u>https://mfin.gov.mt/en/The-Budget/Documents/The_Budget_2014/Pre_Budget_2014.pdf</u>

⁴⁷² Malta Resource Authority (2014), *Regulated Tariffs – Electricity* 2014, Accessed 10th September 2014, <u>http://mra.org.mt/news/regulated-tariff-electricity-2014/</u>

⁴⁷³ Times of Malta (2014), *Priorities in 2015 pre-Budget overview*, Accessed 9th September 2014, <u>http://www.timesofmalta.com/articles/view/20140909/editorial/Priorities-in-2015-pre-Budget-overview.534968?utm_source=rss&utm_medium=rss&utm_campaign=priorities-in-2015-pre-budget-overview</u>

⁴⁷⁵ European Commission (2014), Taxation Trends in the European Union: Malta, Accessed 21st August 2014,

http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_s tructures/country_tables/mt.pdf

⁴⁷⁶ Government of Malta (2014), An act to implement Budget measures for the financial year 2014 and other administrative measures, Accessed 8th August 2014, <u>http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lp&itemid=25742&l=1</u>



⁴⁷⁰ European Commission (2014), Taxation Trends in the European Union: Malta, Accessed 21st August 2014,

⁴⁷⁴ Government of Malta (2014), Pre-budget Document 2015, Accessed 9th September 2014, http://mfin.gov.mt/en/Library/Documents/PRE%20BUDGET%202015/PRE_BUDGET_2015_FIN.pdf

system of charges for waste management services and revisions to the Eco-contribution scheme.⁴⁷⁷

At a more general level, in 2005-2007 the Malta Environment and Planning Authority (MEPA) and the Ministry of Finance undertook a project on 'Building capacity to introduce the Polluter Pays principle through economic instruments to implement the EU Environmental Acquis'. The project concluded that the legislative framework for the use of economic instruments was largely in place and that there were a number of environmentally relevant instruments in place in Malta; however these operated to varying degrees of success, generally lacking in enforcement and a coherent strategic approach. The project recommended the introduction of new instruments to respond to Malta's key priority needs (in relation to stone, land, waste, water, energy and transport) and also resulted in the development of training programmes and a checklist for the design of new instruments.⁴⁷⁸ In particular, the project proposed to introduce a tradable permit scheme for stone extraction, an increase in development permit fees, effluent discharge fees and waste disposal fees, higher landfill charges and higher water prices, including effluent charges, the introduction of higher environmental permit fees and fish farm licence fees. The introduction of better incentives for energy was also discussed. Regarding transportation, the project proposed to tax higher emission vehicles, increase annual motor vehicle licence tax, increase annual marine vessel fees and congestion charges.

More recently, Malta's National Environmental Policy (NEP) programme adopted in 2012 refers to the use economic instruments and underlined the need to formulate an action plan for the development of market-based instruments in the environmental field by 2013.^{479,480} The programme also mentioned the need to align economic instruments with national environmental policies as part of an overall strategy; to formulate economic instruments on the basis of detailed studies with particular attention to impacts on vulnerable groups; to include positive incentives and rewards and for sunset mechanisms to be put in place. The envisaged Action Plan for environmental economic instruments is to be integrated into the annual budget process, complemented by consultation and communication and a staged approach to environmental taxation adopted. Key policy areas mentioned include air quality, climate change, stone, land and built heritage, and waste. Thus, more efforts in relation to EFR could be taken forward in the coming years under this envisaged Action Plan.

http://msdec.gov.mt/en/Document%20Repository/Waste%20Management%20Plan%202014%20-%202020%20-%20Final%20Document.pdf

⁴⁷⁷ Maltese ministry for Sustainable Development, the Environment and Climate Change (2014), WASTE MANAGEMENT PLAN FOR THE MALTESE ISLANDS: A Resource Management approach 2014 - 2020, Final document, January 2014, p. 104,

⁴⁷⁸ Ernst & Young, Cordina and IEEP (2007) Environmental Economic Instruments - A Current State Assessment, Malta Environment and Planning Authority, 2007

⁴⁷⁹ Minister of Tourism and Sustainable Development Unit (2012), *National Environmental policy*, Final report, February 2011, <u>https://secure2.gov.mt/tsdu/file.aspx?f=7342</u>

⁴⁸⁰ Minister of Tourism and Sustainable Development Unit (2011), *National Environmental Policy* (Scenarios Paper), Final report, September 2011, <u>https://secure2.gov.mt/tsdu/file.aspx?f=5886</u>

The European Commission made the following country specific recommendation (CSR) as part of the 2014 European Semester:⁴⁸¹

Recommendation 4: "[...] Diversify the energy mix in the economy, including by increasing the share of energy produced from renewable sources."

The CSR also highlights transport and energy as sectors with growing potential, notes the untapped potential for locally-produced renewable sources and the importance of investments in energy infrastructure.

The shift towards environmental taxes described below can support implementation of these recommendations as well assist with achieving broader environmental objectives.

15.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustment of existing taxes and/or the introduction of new environmental taxes in Malta. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- > Energy Taxes:
 - It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€14.2 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€10.6 per GJ). Finally, due to the existing rates for gas oil and kerosene used for heating being very high relative to other fuels, proposed rates are equalised using the minimum ETD rate of €0.15 per GJ. However, non-business rates for gas oil and kerosene used as a heating fuel are harmonised with business rates.
 - The existing electricity taxes are harmonised and above the ETD minimum of €0.15 per GJ so no change is suggested.
 - Table 15-3 shows the differentials in tax rates (using ETD units) for the various fuels by use.⁴⁸² For a description of how the proposed rates are

⁴⁸² It should be noted that subsequent to the modelling being undertaken for this project the Maltese government announced that some energy taxes would be increased. For more details see Maltase Ministry of Finance (2014) *Budget Document 2015*, November 2014, <u>https://mfin.gov.mt/en/The-Budget/Documents/The_Budget_2015/Budget_Doc_2015.pdf</u>. The updated rates are presented as a footnote in Table 15-3.



⁴⁸¹ Council of the European Union (2014) COUNCIL RECOMMENDATION on the National Reform Programme 2014 of Malta and delivering a Council opinion on the Stability Programme of Malta, 2014, 16 June 2014, <u>http://register.consilium.europa.eu/doc/srv?I=EN&f=ST%2010797%202014%20INIT</u>

derived see the Good Practice section above. The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below 0.15 EUR per GJ or not.

- In the case of propellants, the revisions imply a major increase in taxes on LPG and natural gas. More importantly, however, the petrol / diesel differential, which favours diesel at present, is closed as the revisions imply that the tax applied to diesel is increased by 30% of its current level, redressing the imbalance in tax rates between diesel and petrol. A similar change is implied for kerosene.
- In the case of fuels used in commercial and industrial motors, there is a major increase in the rates for natural gas and LPG;
- On heating fuels, the current rates for business use are higher than those for non-business use. As a result, the rates for non-business use are harmonised upwards to reflect the business use rates.
- For business heating fuels, the changes imply more or less a doubling in the tax rates for heavy fuel oil and LPG. Rates for gas and coal are increased by 51% and 580%, respectively.
- For non-business heating fuels, the changes are the same for all fuels other than gas oil and kerosene, for which the rates of tax for non-business use are currently lower than for business use. These rates are increased by 230% and 10%, respectively.
- The existing electricity tax rates are unchanged.

Table 15-3: Existing and Suggested Rates Based upon Proposed Revisions to the ETD

Energy Tax	Units	Suggested Rates	Existing Rates
Transport Fuels			
Motor spirit (petrol)	€ per 1000 litre	509	509
Light fuel oil (diesel)	€ per 1000 litre	550	422
LPG (propellant)	€ per 1000 kg	709	0
Kerosene	€ per 1000 litre	553	422
Natural gas (prop)	€ per GJ	15	0
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	422	422
Kerosene	€ per 1000 litre	425	422
LPG	€ per 1000 kg	543	125
Natural gas	€ per GJ	12	3
Business Heating			

Energy Tax	Units	Suggested Rates	Existing Rates
Gas oil	€ per 1000 litre	422	422
Heavy fuel oil	€ per 1000 kg	68	34
Kerosene	€ per 1000 litre	422	422
LPG	€ per 1000 kg	65	39
Natural gas	€ per GJ	1.27	0.84
Coal	€ per GJ	2.04	0.30
Non-Business Heating			
Gas oil	€ per 1000 litre	422	128
Heavy fuel oil	€ per 1000 kg	68	34
Kerosene	€ per 1000 litre	422	382
LPG	€ per 1000 kg	65	39
Natural gas	€ per GJ	1.27	0.84
Coal	€per GJ	2.04	0.30
Electricity			
Electricity - business use	€ per MWh	1.50	1.50
Electricity - non-business use	€ per MWh	1.50	1.50

Note: it should be noted that subsequent to the modelling being undertaken for this work the Maltese government announced that some energy taxes would be increased (see Maltase Ministry of Finance (2014) Budget Document 2015, November 2014, <u>https://mfin.gov.mt/en/The-Budget/Documents/The_Budget_2015/Budget_Doc_2015.pdf</u>). The following changes were announced in the budget:

- Unleaded fuel from €509 to €519 € per 1000 litres
- Diesel/gas oil from €422 to €442 € per 1000 litres
- Kerosene from €422 to €442 € per 1000 litres
- Heavy fuel oil from €34 to €36 € per 1000 litres
- The tax on gas oil used for non-business heating was increased from €128 to €182 per 1000 litres
- The tax on kerosene used for non-business heating was increased from €382 to €422 per 1000 litres
 - The current scenario of energy production in Malta is characterized by uncertainty (mainly due to the expected decommissioning of power plants in the country) and the government has pledged to *decrease* current energy tariffs. However, the need to develop renewable energy sources and meet climate change objectives will likely put pressure on the low energy tariffs which are currently in place in the country. Higher tariffs



could be implemented along with a progressive tax system which targets high energy consumers in an effort to induce them to invest more in energy saving measures.

- Malta has experienced several black-outs in recent years (2010 and 2014); thus, revised energy taxes could receive more support if put into the broader context of energy savings and actions to reduce supply disruptions and invest in new power generating technologies.^{483,484} The implementation of energy efficiency measures, increased consumer information, and the installation of smart meters could be part of a wider package of measures introduced to facilitate the transition towards a more efficient and sustainable energy system in Malta.
- Malta is currently struggling to meet EU air quality standards in certain areas and the country has one of the highest per capita ownership rates of cars in the EU (with 709 motor vehicles per 1,000 inhabitants in 2012).⁴⁸⁵ This is despite the small size of the country and the short distance of most journeys. Higher taxes on transport fuels would provide an incentive to reduce traffic congestion (and related loss of productive time) and improve air quality (thereby helping the country to meet related EU air quality targets), whilst reducing the differential favouring diesel over petrol might also improve air quality over time.

> Transport Taxes:

- Vehicles: Vehicle taxes and transport fuel taxes combined are already 3.0% of GDP, which is at the higher end for the EU-28. Furthermore, registration taxes and circulation fees are already in place in Malta and reflect environmental criteria including CO₂ emissions. We have not, therefore, suggested an increase in vehicle taxation in this study. Such revisions could help address the externalities associated with excessive air pollution, traffic and congestion which as noted above is a major problem in the country.
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. Malta had a passenger aviation tax in place between 1997 and 2008, but it was discontinued following public

⁴⁸³ Times of Malta (2010), *Malta-wide blackout as aging plant trips again. Blackout causes traffic congestion*, Accessed 20th October 2014,

http://www.timesofmalta.com/articles/view/20100323/local/malta-wide-blackout-as-aging-plant-tripsagain.299461

⁴⁸⁴ Times of Malta (2014), Update 4: Power restored but few localities still without electricity, flight diverted. Police investigations, internal inquiries underway, Accessed 20th October 2014, <u>http://www.timesofmalta.com/articles/view/20140812/local/update-4-power-restored-but-few-localitiesstill-without-electricity-flights-diverted.531616</u>

⁴⁸⁵ World Bank (2014), *Data – Motor Vehicles per 1000 people*, Accessed 20th October 2014, <u>http://data.worldbank.org/indicator/IS.VEH.NVEH.P3</u>

pressure.⁴⁸⁶ There is scope for re-introducing this tax with suggested rates of €25 per passenger for flights to countries in the European Union and €50 per passenger for flights to countries outside the European Union. In addition, an air transport tax of €1.25 per tonne of freight could be introduced. For the purposes of this study, the year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted in the 'good practice' section on aviation, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax (see Section 5.2.2). Given its peripheral location (which makes Malta very dependent on air travel for tourism and trade) and current problems facing the national carrier Air Malta,⁴⁸⁷ the introduction of such a tax is likely to be contentious. Malta has been a staunch opponent of the inclusion of aviation in the ETS scheme and has argued for a global measure rather than one which only covers the EU.⁴⁸⁸

Pollution and Resource Taxes:

• Aggregates: There is currently no tax on aggregates in Malta on a national level; however, a system of differentiated development planning fees is applied at the national level. The introduction of an aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This option would also be in-line with the EU flagship initiative 'A Resource Efficient Europe'⁴⁸⁹ and related Roadmap. In addition, Maltese stone has been reported as a key priority area in the National Environment Policy and in a project on implementing the polluter pays principle in Malta, given the rapid depletion of stone resources and environmental damage caused by their extraction, transportation, and disposal.⁴⁹⁰

It is suggested that Malta could introduce a tax on aggregate extraction set at $\in 2.40$ per tonne from 2017, and that the rate be kept constant in real terms thereafter. The types of materials that could be covered by the tax (as part of the common approach within the study) are:

o Marble

⁴⁹⁰ European Union (2004), Building Capacity to introduce the Polluter Pays Principle through Economic Instruments to Implement the EU Environmental Acquis, Accessed 20th October 2014, <u>http://ec.europa.eu/enlargement/pdf/fiche-projet/malta/mt-fm/2004/2004-016.762.06.02-building-</u> capacity-to-introduce-the-polluter-pays-principle.pdf



⁴⁸⁶ OECD/EEA (2013) OECD/EEA Database on Instruments used for Environmental Policy and Natural Resources Management, Accessed 4th August 2014, www2.oecd.org/ecoinst/queries/index.htm

⁴⁸⁷ Times of Malta (2014), *What's the best route for Air Malta*?, Accessed 20th October 2014, <u>http://www.timesofmalta.com/articles/view/20140922/editorial/What-s-the-best-route-for-Air-Malta-.536694</u>

⁴⁸⁸ Times of Malta (2011) *New Emission rules should have 'limited impact' on Air Malta*, Accessed 20th October 2014, http://www.timesofmalta.com/articles/view/20110406/local/new-eu-emission-rules-should-have-limited-impact-on-air-malta.358466

⁴⁸⁹ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>

- o Chalk and dolomite
- o Slate
- Limestone and gypsum
- Sand and gravel
- Some of these materials are both domestically extracted and imported, while others are only imported (and could be taxed on import). The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues. Aggregate that could be particularly useful to target using economic incentives is soft-stone. Soft-stone is currently traded at a low price in Malta (reflecting high competition from many open sites) and this price does not adequately reflect the related environmental externalities or the resource limitations of the rock itself. A material extraction tax could have impacts on the amount of discarded materials, encourage reuse, and reduce waste and also affect the number of quarries in operation.
- Waste landfill tax: Landfill taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive. Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. Landfill taxes also provide support to the application of the waste hierarchy. In 2012, the rate of waste landfilled (directly or indirectly) in Malta was 93%, considerably higher than the EU-28 average of 29%.491 There is currently no landfill tax in Malta and the current charges promulgated by government legislation seem unlikely to be sufficient to even to cover operational costs at modern sites. It is suggested that, in order to incentivise reduction in the landfilling rate, the rate for nonhazardous landfill is raised to €50 per tonne by 2021. An early announcement of this tax and its escalation over a number of years would help drive the change in the waste management sector needed to meet EU targets in 2020 and beyond. We suggest this tax should be indexed to an appropriate measure of inflation.
- Waste incineration / MBT tax: Malta currently has one incinerator operating in Marsa and the government has been exploring whether it should construct a new incinerator close to the Delimara power plant.⁴⁹² Malta does not have an incineration tax in place.⁴⁹³ In order to prevent a

⁴⁹¹ Eurostat (2014) Landfill rate of waste excluding major mineral wastes [t2020_rt110], Accessed 13rd October 2014,

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=0&language=en&pcode=t2020 _rt110&tableSelection=1

⁴⁹² Malta Today (2014) *Studies underway for new incinerator*, Accessed 14th October 2014, <u>http://www.maltatoday.com.mt/news/national/24972/studies-underway-for-new-incinerator-20130224#.VDzjgU0cR9A</u>

⁴⁹³ CEWEP (2014) *Landfill taxes & bans – February 2014,* Accessed 14th October 2014, <u>http://www.cewep.eu/media/www.cewep.eu/org/med_557/1200_2014-02-06_cewep_-</u> <u>landfill_inctaxesbans.pdf</u>

shift from landfilling to incineration (as has happened in other Member States) it is suggested that an incineration tax of €15 per tonne be introduced over the same period as the landfill tax is introduced. An equivalent rate is also proposed for MBT facilities. These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe.⁴⁹⁴

• **Packaging:** A small number of Member States have implemented packaging taxes for all packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested that the following rates could be applied to all packaging placed on the market in Malta:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2016 and be kept constant in real terms.

 Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. According to provisional data, Malta exceeded the NO_x emissions ceiling in 2010 and 2012 set by the National Emission Ceilings Directive (NEC Directive).⁴⁹⁵ Moreover in 2010, more than 49% of the total population in the country was exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg per m³) for over 35 days per year.⁴⁹⁶ Malta does not currently have a system of air pollution taxes in place. It is suggested that an air pollution

⁴⁹⁶ European Environmental Agency (2014), *Air pollution fact sheet 2013 – Malta*, Accessed 14th October 2014, <u>http://www.eea.europa.eu/themes/air/air-pollution-country-fact-sheets/malta-air-pollutant-emissions-country-factsheet/view</u>



⁴⁹⁴ European Commission (2011) *Roadmap to a Resource Efficient Europe*, 20th September 2011, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN</u>

⁴⁹⁵ European Environmental Agency (2014), *NEC Directive status report 2013 Reporting by Member States under Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants*, Accessed 15th October 2014, <u>http://www.eea.europa.eu/publications/nec-directive-status-report-2013/at_download/file</u>

tax might be implemented in order to generate improvements in air quality as follows:

- NOx €1,000 per tonne
- o PM10 €2,000 per tonne
- SOx €1,000 per tonne

It is understood that the main problems in Malta are NOx, PM, methane and NMVOCs, while SOx emissions are less of a problem (according to EEA data).

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

The tax could be focused directly on major polluting activities, such as, energy and construction sectors, and industries regulated under the IPPC.

Water abstraction: Water is a critical issue in Malta given its scarcity, environmental status, and the country's reliance on costly (and energy intensive) reverse osmosis for generating potable water. A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". Surface and ground water supplies in Malta are currently under heavy stress, with an extraction rate in 2011 which was higher than 48%.⁴⁹⁷ Although there are Groundwater Abstraction Metering Regulations which require annual fees related to the installation and maintenance of meters for groundwater abstraction, the need to introduce and enforce tariffs for abstraction is an area that has received particular attention. Domestic users are charged a subsidised rate, with subsidies varying inversely with the size of the household. Agricultural water use is also exempted from abstraction taxes (the costs of water abstraction are limited to the private on-farm costs and no water price is charged beyond this).

It is therefore suggested that a water abstraction tax be introduced of the order of €300 per 1,000m³ for household consumption, €190 per 1,000 m³ for manufacturing purposes, and €26 per 1,000 m³ for agriculture. A transition period from 2016 to 2021 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms. There may be some challenges associated with implementing such a system in Malta given the difficulty in quantifying the extent of private groundwater abstraction as well as issues related to impacts on agriculture (including impacts on food prices.⁴⁹⁸ Thus, such a tax will need to be accompanied by effective enforcement

⁴⁹⁸ MEPA (2008), *THE ENVIRONMENT REPORT 2008 - Sub-Report 5 (Fresh Waters)*, Final report, Accessed 14th October 2014, <u>http://www.mepa.org.mt/file.aspx?f=4475</u>.

mechanisms as well as necessary infrastructure and support for waste water treatment facilities and provision for agricultural irrigation.

- Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21 May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.⁴⁹⁹ Malta does not have a waste water tax currently in place and wastewater management costs are covered by existing water tariffs.⁵⁰⁰ The only charge in place is a one-time permit application fee for the discharge of trade effluents which is not sufficient to cover the regulation, monitoring and compliance costs associated with the disposal of these trade effluents. To strengthen the prevention of water pollution it is suggested that a waste water tax be introduced with tax rates adjusted in-line with 'good practice'. With relative price levels in Malta this would imply, for BOD, a rate of €1.69 per kg of the pollutant. For fresh-water discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. It is suggested that rates should be held constant in real terms from 2019. The revenues from such a tax could be used to cover the costs associated with the treatment and disposal of waste water discharges as well as for investment in facilities for wastewater treatment and provision for agricultural irrigation (polished water).⁵⁰¹
- Pesticides: Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> <u>designed to achieve these targets</u>".

Malta does not have a tax on pesticides. There is a trend towards banding taxes to reflect the level of hazard associated with them, and we would suggest such an approach is suitable for Malta. Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €15 per kg of active ingredient. The

⁵⁰¹ Malta Water Association (2012), *Towards Integrated Water Management in Malta – Recommendation* to Political Parties, Final report, July 2012, <u>http://www.maltastar.com/userfiles/file/mwa.pdf</u>



⁴⁹⁹ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

⁵⁰⁰ Malta Resource Authority (2014), Decision on Proposed Water Tariffs March 2014 – Summary of Review Process and Conclusions, Accessed 18th August 2014, <u>http://mra.org.mt/wp-content/uploads/2014/03/5480/Minister-MECW-Approval-of-new-tariffs-for-supply-of-water-27.03.14.pdf</u>

suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark) would be a concrete measure to adequately address the environmental externalities posed by pesticides on the environment.

Fertilisers: Malta does not currently have a tax on nitrogen (or other) fertilisers. However, Malta's groundwater reserves have been already severely contaminated by nitrates. The quality of the aquifers has worsened over the recent years (a survey carried out in 2009 demonstrated that 90% of the groundwater reserves in Malta are unfit for potable water) mainly due to over-fertilization.⁵⁰² It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers could be considered as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at tax at a rate of €0.3 per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

15.2.3 Summary of Revenue Outcomes

Table 15-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025			
Energy Taxes						
Transport fuels	3	10	18			
C&I / Heating	11	42	73			
Sub-total Energy, million EUR	13	52	91			
Sub-total Energy, % GDP	0.17%	0.69%	1.20%			

Table 15-4: Potential Additional Revenue from Environmental Fiscal Reform in Malta, million EUR (real 2014 terms)⁵⁰³

⁵⁰² Malta Water Association (2012), Towards Integrated Water Management in Malta – Recommendation to Political Parties, Final report, July 2012, <u>http://www.maltastar.com/userfiles/file/mwa.pdf</u>

⁵⁰³ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

Тах	2017	2020	2025
Transport Taxes			
Passenger Aviation Tax	59	128	158
Freight Aviation Tax	0.01	0.02	0.02
Sub-total Transport, million EUR	59	129	158
Sub-total Transport, % GDP	0.77%	1.69%	2.08%
Pollution and Resource Taxes			
Landfill Tax - Non-haz General	4	8	8
Landfill Tax - Inerts (C&D)	0.8	1.0	1.0
Incineration / MBT Tax	0.2	0.5	0.5
Air Pollution Tax	3	7	5
Water Abstraction Tax	3	8	7
Waste Water Tax	1.0	1.4	1.4
Pesticides Tax	2	4	4
Aggregates Tax	0.14	0.09	0.09
Packaging Tax	2	2	2
Single Use Bag Tax	4	1	1
Fertiliser Tax	0.000	0.000	0.000
Sub-total Pollution & Resource, million EUR	21	32	30
Sub-total Pollution & Resources, % GDP	0.28%	0.42%	0.40%
Total Environmental Taxes			
Total, million EUR	93	212	280
Total Increase, % GDP	1.23%	2.80%	3.68%

Table 15-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 15-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Malta, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR



Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	5
Increased Cost Recovery for Water Use	65
Total	71

15.2.4 Environmental Benefits

Table 15-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.13.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €25 million of benefits are anticipated annually by 2025 in real terms.

Table 15-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Malta, million EUR (real 2014 terms)⁵⁰⁴

Тах Туре	2017	2020	2025
Energy Taxes	0.5	1.8	3.2
Transport Taxes (excluding transport fuels)	0.4	1.0	1.3
Pollution and Resource Taxes	6	20	22
Total, million EUR	7	23	26
Total, % GDP	0.09%	0.26%	0.27%

15.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Malta: $^{\rm 505}$

In 2012, environmental taxes generated revenue equivalent to 2.98% of GDP. The headline figures suggest that there is considerable potential for additional

⁵⁰⁴ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

⁵⁰⁵ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

revenue from environmental taxes in Malta. These could generate EUR 0.1 billion in 2017, rising to EUR 0.3 billion in 2025 (both in real 2014 terms). This is equivalent to 1.23% and 3.68% of GDP in 2017 and 2025, respectively.

- The largest single contribution to revenue comes from the suggested passenger aviation tax. This accounts for EUR 0.16 billion by 2025 (real 2014 terms), equivalent to 1.61% of GDP.
- The next largest contribution to revenue comes from the proposed reforms to the taxes rates on fuels used for business heating. This accounts for EUR 0.073 billion by 2025 (real 2014 terms), equivalent to 0.75% of GDP.
- Revenue potential from the proposed landfill tax would raise EUR 0.008 billion by 2025 (real 2014 terms), equivalent to 0.08% of GDP.
- A water abstraction tax has also been suggested. This would contribute EUR 0.007 billion by 2025 (real 2014 terms), equivalent to 0.07% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 0.015 billion by 2025 (real 2014 terms), equivalent to 0.16% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.025 billion by 2025 (real 2014 terms), equivalent to 0.25% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €71 million per annum could be raised in addition to the above.



16.0 Netherlands

16.1 Country Overview

16.1.1 Key Facts about the Economy and Tax System

- The Netherlands experienced a period of economic growth from 2003–2008, with GDP increasing on average by 2.3% in real terms per annum during those years. In 2009 GDP fell by 3.7% in real terms against 2008. 2010 and 2011 saw growth, although below pre-recession levels at an average of 1.2% per annum in real terms. 2012 and 2013, however, were years of negative growth, with GDP falling by 1% per annum in real terms on average over this two year period.⁵⁰⁶
- The Netherlands' overall tax revenue (including social contributions) as a percentage of GDP is slightly below the EU-28 average of 39.8%, at 39.6% (2012). This percentage has risen over the past 10 years from 38.7% in 2002, and has held fairly constant since 2006.⁵⁰⁷
- Social contributions provided the largest part of the Netherlands' total tax income, at 41.9% in 2012. The remainder is close to evenly split between direct and indirect taxation, which accounted for 28.2% and 29.9% respectively. The share of social contributions has risen over the past 10 years while the shares of direct and indirect taxation have both fallen.⁵⁰⁸
- In 2012, environmental tax revenue as a percentage of GDP was 3.56% —the third highest percentage share in the EU28. Although this share is slightly higher than the 3.51% found 10 years ago in 2002, it is lower than it has been for any year since. It was at its highest in 2006 at 3.9%.⁵⁰⁹
- Energy taxes represented the largest share of environmental taxation in 2012 accounting for 1.94% of GDP. Transport (excluding fuel) taxes accounted for 1.11% of GDP, and pollution and resource taxes accounted for 0.51%.⁵¹⁰
- In 2012, 54.5% of the total environmental tax revenue in the Netherlands was from taxes on energy. This percentage has been rising steadily over the past 10 years from 51% in 2002, excepting a dip to 49.2% in 2007.⁵¹¹

⁵⁰⁶ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁵⁰⁷ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T AX_AG

⁵⁰⁸ Ibid.

⁵⁰⁹ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

⁵¹⁰ Ibid.

⁵¹¹ Ibid.

16.1.2 Relative Position within the EU

Expressed as a proportion of GDP, in 2012 the revenue derived by the Netherlands from environmental taxation was significantly higher than the EU-28 average of 2.4%. Similarly expressed, the individual revenue streams for energy taxation, transport (excluding fuel), and pollution and resource taxation were all higher than the respective EU-28 averages of 1.8%, 0.5%, and 0.1%. In particular, the revenues from transport and pollution and resource taxes were considerably higher (see Figure 16-1).⁵¹²



Figure 16-1: Environmental Taxes in the Netherlands as a % of GDP vs EU-28 Levels (2012)

In 2012, the Netherlands ranked 3rd highest among the EU-28 Member States for revenue from environmental taxes considered as a percentage share of GDP. It ranked 2nd in the EU-28 for pollution and resource tax revenue as a share of GDP, and 3rd for transport (excluding fuel) tax revenue as a share of GDP. The Netherlands ranked in 12th place in terms of energy tax revenue as a share of GDP (see Table 16-1).⁵¹³

⁵¹² Ibid. ⁵¹³ Ibid.



Table 16-1: Ranking of the Netherlands' Position in EU-28 (2012)

Measure	Ranking	
Environmental Taxes as a Share of GDP (%)	3	
Energy Taxes as a Share of GDP (%)	12	
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	3	
Pollution & Resource Taxes as a Share of GDP (%)	2	

Source: based on Eurostat data

16.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.14.0 (please see separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{514,515}

- > Energy Taxes:
 - The Dutch excise duties on fuels and electricity are shown in Table 16-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Table 16-2: Standard Rates of Excise Duties on Fuels and Electricity in the Netherlands

Excise Duty	Unit	Rate Applied in the Netherlands	Existing ETD Minimum	EU-28 Average	EU-28 Median
Transport Fuels					
Leaded Petrol ¹	€ per 1000 litres	€845.51	€421	€585	€583
Unleaded Petrol	€ per 1000 litres	€759.24	€359	€519	€509
Gas Oil (Diesel)	€ per 1000 litres	€477.76	€330	€427	€405

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

⁵¹⁴ Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugi n=1</u>

⁵¹⁵ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

Excise Duty	Unit	Rate Applied in the Netherlands	Existing ETD Minimum	EU-28 Average	EU-28 Median
Kerosene	€ per 1000 litres	€477.76	€330	€440	€405
Liquid Petroleum Gas	€ per 1000 kg	€322.17	€125	€209	€180
Natural Gas ^{2, 3}	€ per GJ	€5.39 (0 - 170,000m ³) €1.27 (170,000 -1 million m ³) €0.46 (1 million -10 million m ³) €0.33 (>10 million m ³)	€2.60	€3.03	€2.66
Motor Fuels – Industry	/ Commercial Use				
Gas Oil (Diesel)	€ per 1000 litres	€477.76	€21	€221	€163
Kerosene	€ per 1000 litres	€477.76	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€322.17	€41	€126	€125
Natural Gas	€ per GJ	€5.39 (0 - 170,000m ³) €1.27 (170,000 - 1 million m ³) €0.46 (1 million - 10 million m ³) €0.33 (>10 million m ³)	€0.30	€1.76	€1.50
Heating – Business Use)				
Gas Oil (Diesel)	€ per 1000 litres	€477.76	€21	€221	€163
Kerosene	€ per 1000 litres	€477.76	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€35.83	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€322.17	€0.00	€82	€40
Natural Gas	€ per GJ	€5.39 (0 - 170,000m ³) €1.27 (170,000 - 1 million m ³) €0.46 (1 million - 10 million m ³) €0.33 (>10 million m ³)	€0.15	€1.36	€0.46



€ per GJ	£0 52				
	£0.55	€0.15	€1.27	€0.31	
Use					
€ per 1000 litres	€477.76	€21	€179	€125	
€ per 1000 litres	€477.76	€0.00	€279	€330	
€ per 1000 kg	€35.83	€15	€85	€26	
€ per 1000 kg	€322.17	€0.00	€111	€42	
€ per GJ	€5.39 (0 - 170,000m ³) €1.27 (170,000 - 1 million m ³) €0.46 (1 million - 10 million m ³) €0.33 (>10 million	€0.30	€2.04	€0.94	
€ per GJ	m³) €0.53	€0.30	€1.77	€0.32	
Electricity ⁶					
€ per MWh	€118.5 (0 - 10,000 kWh) €43.1 (10,000- 50,000 kWh) €11.5 (50,000- 10,000,000 kWh) €0.50 (>10,000,000 kWh)	€0.50	€8.42	€1.03	
€ per MWh	€118.5 (0-10,000 kWh) ⁷ €43.1 (10,000- 50,000 kWh) €11.5 (50,000- 10,000,000 kWh) €1.00 (>10,000,000 kWh)	€1.00	€14.53	€2.06	
	Use € per 1000 litres € per 1000 kg € per 1000 kg € per GJ € per GJ € per MWh € per MWh	Use	Use E per 1000 litres $€477.76$ $€21$ € per 1000 kg $€477.76$ $€0.00$ € per 1000 kg $€35.83$ $€15$ € per 1000 kg $€322.17$ $€0.00$ € per 1000 kg $€5.39 (0 - 170,000 - 1 million m^3)$ $€1.27 (170,000 - 1 million m^3)$ € per GJ $€0.46 (1 million - 10 million m^3)$ $€0.30$ € per GJ $€0.33 (>10 million m^3)$ $€0.30$ € per GJ $€0.30$ $€0.30$ € per GJ $€0.53$ $€0.30$ € per GJ $€0.53$ $€0.30$ € per GJ $€0.50 (>10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 60,50)$ $€0.50$ € per MWh $€118.5 (0 - 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 60,50)$ $€0.50$ € per MWh $€118.5 (0 - 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + Wh)$ $€1.00$ € per MWh $€118.5 (0 - 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 50,000 + 10,000 + 10,000 + 10,000 + 10,000 + 10,000 + 10,000 + 10,000 + 1$	Use ε per 1000 litres ε 477.76 ε 21 ε 179 ε per 1000 kg ε 477.76 ε 0.00 ε 279 ε per 1000 kg ε 35.83 ε 15 ε 855 ε per 1000 kg ε 322.17 ε 0.00 ε 111 ε per 1000 kg ε 322.17 ε 0.00 ε 111 ε per GJ ε 5.39 (0 - 170,000m ³) ε 0.30 ε 111 ε per GJ ε 5.39 (0 - 170,000m ³) ε 0.30 ε 2.04 ε per GJ ε 0.33 (>10 million m ³) ε 0.30 ε 1.77 ε per GJ ε 0.53 ε 0.30 ε 1.77 ε per GJ ε 0.53 ε 0.30 ε 1.77 ε per GJ ε 118.5 (0 - 10,000 kWh) ε 0.50 ε 8.42 ε per MWh ε 118.5 (0 - 10,000 kWh) ε 0.50 ε 8.42 ε per MWh ε 118.5 (0 - 10,000 kWh) ε 1.00 ε 1.4.53 ε per MWh ε 118.5 (0 - 10,000 kWh) ε 1.00 ε 1.4.53 ε per MWh ε 1.15 (50,000- 10,000,000 kWh) ε 1.00 ε 1.4.53 ε per MWh	

1. Leaded petrol is not sold any longer.

2. These rates are approximate because the national tax rate is based on m³. Tariffs per m³ are: € 0.1894 (0 – 170,000 m^{3} ; €0.0446 (170,000 – 1 million m^3 ; € 0.0163 (1 million – 10 million m³); 0.0117 (over 10 million m³). For propellant use, natural gas used in installations for the production of CNG (compressed natural gas) is taxed at a generic rate of € 0.128 per

Excise Duty		Unit	Rate Applied in the Netherlands	Existing ETD Minimum	EU-28 Average	EU-28 Median
m ³	€ 3.64	4 per GJ).				
3. The	re is a	surcharge on this tax	in order to finance the s	subsidy schen	ne on renew	able energy
sino bra bus	e 1 st J kets. ness a	anuary 2013. Tariffs a This also holds for the and non-business use	are € 4.60, €1.70, €0.50 e other uses of natural ga	0 and €0.40, as. No distinc	respectively tion is made	for the four between
4. The	coal t	ax is calculated based	d on weight: €14.27 per	1,000 kg.		
5. As r sou foui	 As noted above, a surplus is applied for financing the development of renewable energy sources. Tariffs applied are as follows: € 4.60, €1.70, €0.50, and €0.40, respectively for the four brackets, no distinction is made between business/non-business use. 					energy ively for the
6. The 1 st - sch dist	rates anuar eme of nctior	in the table are given y 2013 a surcharge o n renewable energy. 1 n is made between bu	per MWh, whereas nation n this energy tax is in pla The rate of this surcharge siness and non-business	onal rates are ace in order to e is expected s use.	given per k o finance the to increase.	Wh. Since e subsidy No
7. As o sus	f 1 st Ja ainab	anuary 2014 a tax rec le electricity in the firs	duction of 7.7 cent per k at tax bracket (0-10.000	Wh applies fo kWh).	or locally pro	duced

Source: DG TAXUD (2014) Excise Duty Tables (Part II – Energy products and Electricity), Situation as at 1 July 2014, http://ec.europa.eu/taxation_customs/index_en.htm#

- Excise duty on mineral oils ("Accijns van minerale oliën"):⁵¹⁶
 - Exemptions or refunds apply for kerosene used for the propelling of airplanes (other than pleasure craft).
 - A tax reduction might apply for LPG in vehicles used in public functions, like buses.
 - Rates are generally considerably higher than the ETD minimum and the EU-28 average. Only the rates for heavy fuel oil are considerably lower than the EU-28 average, but still higher than the ETD minimum.
- Energy tax ("Energiebelasting"):⁵¹⁷
 - The energy tax is levied on delivery of electricity and natural gas.
 - Exemptions apply for natural gas and electricity used as fuel to generate electricity and for electricity used for chemical reduction and in electrolytic and metallurgical processes.
 - Tax refunds apply for use of electricity above 10 million kWh per year per connection by an energy-intensive business (if they have

⁵¹⁷ European Commission (2014) Taxes in Europe Database, Accessed 27 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=873/1395149523&taxType=Energy+prod</u> <u>ucts+and+electricity</u>



⁵¹⁶ European Commission (2014) Taxes in Europe Database, Accessed 27 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=873/1395149523&taxType=Energy+prod</u> <u>ucts+and+electricity</u>

entered long-term energy efficiency agreements with the government and as long as they pay on average more than the European minimum rate) or for natural gas or electricity used by non-profit institutions (50% refund).

- A tax credit/reduction applies to each electricity connection with a capacity of more than 1x6 Ampere and for the use of natural gas in the horticulture sector (greenhouse heating).
- The rates applied for electricity for deliveries up to 50.000 kWh are much higher than the EU-28 average. The rates for deliveries between 50.000 and 10 million kWh are closer to the EU-28 average for both business and non-business use, but still considerably higher than the ETD minimum. The rate for deliveries above 10 million kWh is equal to the ETD minimums.
- The rates for natural gas respect the ETD minimum for all uses except for transport fuel. In the latter case the rates applied for deliveries of more than 170,000 m³ are below the ETD minimum and below the EU-28 average. The rates for deliveries of less than 170,000 m³ are significantly higher than the EU-28 averages.
- Tax on coal ("Kolenbelasting"):⁵¹⁸
 - The tax is levied on coal or coal products imported or when released from the coal establishment.
 - Exemptions apply for coal not used as a fuel and for coal used for dual purposes.
 - Tax refunds are granted when the coal tax has been levied when an exemption was applicable and for coal exports.
 - The rate (€0.53 per GJ) is higher than the ETD minimum; both for business and non-business use (heating), but lower than the EU-28 average.
 - The tax on coal will be abolished by 2016 with the closing down of five older power plants. This was agreed in the 2013 Energy Agreement.⁵¹⁹
- Revenue in 2012 from the mineral oil excise duties, energy tax and the tax on coal together amounted to €11,480 million (equivalent to 1.92% of GDP and to 4.91% of total tax revenue). It should be noted that the excise duty on leaded petrol does not generate any revenue, as leaded petrol is not sold in the Netherlands.

⁵¹⁸ European Commission (2014) *Taxes in Europe Database*, Accessed 27 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=873/1395149523&taxType=Energy+prod</u> <u>ucts+and+electricity</u>

⁵¹⁹ Ministerie van Economische Zaken (2013) Kamerbrief over Energieakkoord voor Duurzame Groei, Accessed 22 September 2014, http://www.rijksoverheid.nl/documenten-enpublicaties/kamerstukken/2013/09/06/kamerbrief-over-energieakkoord-voor-duurzame-groei.html
> Transport Taxes (excluding transport fuels):

- Tax on passenger cars and motorcycles ("Belasting van personenauto's en motorrijwielen – BPM"):⁵²⁰
 - The tax on passenger cars is based on the fuel type and CO₂ emissions; the tax on motorcycles or vans is levied on the net catalogue price (see Appendix A.14.0 for more details).
 - For used passenger cars, motorcycles and vans: this one-off registration tax is reduced in line with the reduction in value of the vehicle.
 - Exemptions apply among others for vans of entrepreneurs, ambulances, police vehicles, military vehicles and fire engines, electric cars, taxis and used vehicles over 25 years old.
 - Revenue in 2012: €1,500 million (equivalent to 0.25% of GDP and to 0.64% of total tax revenue).
- Tax on heavy motor vehicles ("Belasting zware motorrijtuigen" or "Eurovignette"):⁵²¹
 - Tax on the use of a motorway by heavy goods vehicle in the Netherlands.
 - The rate is dependent on total number of axles and Euroclassification of the vehicle.
 - For a week or for a month, reduced rates apply. The rate for one day is € 8.00, regardless of the type of vehicle.
 - Exemptions apply among others for vehicles used by certain public services, vehicles used in road-making, vehicles in business-stock and vehicles commonly used for short distances on motorways.
 - Revenue in 2012: €134 million (equivalent to 0.02% of GDP and to 0.06% of total tax revenue).
- Motor vehicles tax ("Motorrijtuigenbelasting" (MRB)):⁵²²
 - The tax rate for passenger cars depends on weight, fuel type and CO₂-emissions and province of residence of the owner. For instance for a 1,000kg car using petrol the tax rate ranges from €396 (Zeeland) to €424 (Zuid-Holland) per year.

⁵²² Rijksoverheid (2014) Belastingen op auto en motor, Accessed 4 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingen-op-auto-en-motor</u>



⁵²⁰ European Commission (2014) *Taxes in Europe Database*, Accessed 27 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=443/1388754879&taxType=Other+indire ct+tax</u>

⁵²¹ European Commission (2014) *Taxes in Europe Database*, Accessed 27 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=682/1388754879&taxType=Other+direct</u> <u>+tax</u>

- The tax rate for vans and busses depends on weight: e.g. an entrepreneur pays €340 per year for a 1,400 kg van.
- The tax rate for lorries depends on weight, number of axles, suspension and EURO-classification.
- A fixed fee applies for motorcycles.
- Exemptions apply e.g. for motor vehicles used in agriculture and forestry, taxis, ambulances, police vehicles, fire brigade vehicles and old vehicles (older than 40 years).⁵²³
- Tax reductions apply e.g. for old vehicles between 26 and 40 years old, electric motor vehicles, vehicles which run on hydrogen, caravans, circus wagons and campers.⁵²⁴
- A partial tax refund can be requested for commercial vehicle fleets which have more trucks than trailers.
- Revenue in 2012: €5,138 million (equivalent to 0.86% of GDP and to 2.20% of total tax revenue).
- Aviation noise tax:⁵²⁵
 - The tax applies to airports where soundproofing projects around the airport have not been completed. The tax is to be paid by owners or holders of an aircraft as part of the airport charge.
 - The following rates apply in 2014: Schiphol airport, €180.50 per noise-production unit; airports of national significance, €37 per noise-production unit; and the rates at airports of regional significance are to be arranged by Provinces.
 - Revenue in 2012: €46 million.

Pollution and Resource Taxes:

• Waste tax ("Afvalstoffenbelasting") or landfill tax:^{526,527}

⁵²³ Rijksoverheid, Belastingen op auto en motor, Accessed 4 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingen-op-auto-en-motor/vraag-en-antwoord/wat-is-de-overheid-van-plan-met-de-motorrijtuigenbelasting-mrb-voor-oldtimers.html</u>

⁵²⁴ Rijksoverheid, Belastingen op auto en motor, Accessed 4 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingen-op-auto-en-motor/vraag-en-antwoord/wat-is-de-overheid-van-plan-met-de-motorrijtuigenbelasting-mrb-voor-oldtimers.html</u>

⁵²⁵ OECD (2014) Database on instruments used for environmental policy, Accessed on 2 September 2014, <u>http://www2.oecd.org/ecoinst/queries/AllInformation_Result.aspx?Key=f08e343c-a619-4c83-9286-</u>226b1dc20acc&Keys=1773c438-e42c-476c-aede-a7cdada3f820&Ctry=19

⁵²⁶ European Commission (2014) Taxes in Europe Database, Accessed 2 September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=874/1388754878&taxType=Other+indire_ct+tax</u>

⁵²⁷ Belastingdienst (2014) Afvalstoffenbelasting, Accessed 3 September 2014, <u>http://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/overige_belasting</u> <u>en/belastingen_op_milieugrondslag/afvalstoffenbelasting/</u>

- The tax was abolished on 1st January 2012 and reinstated on 1st April 2014.
- The disposal of dredging is exempted from the tax.
- Tax rate: €17 per 1,000 kilograms (as of 1st April 2014).
- Revenue in 2011: €17 million (equivalent to 0.00% of GDP and to 0.01% of total tax revenue).
- The 2015 Fiscal Plan foresees an extension in the scope of the tax to waste incinerated by waste incineration plants. The rate for both landfilled and incinerated waste is expected to be €13 per 1,000 kg from 2015.⁵²⁸
- Packaging waste :
 - The Netherlands used to have a packaging tax ("Verpakkingenbelasting") in place, but since 1st January 2013, this has been replaced by the packaging waste management charge ("Afvalbeheersbijdrage Verpakkingen"). This is a scheme which allocates the funds collected to the packaging waste fund ("Afvalfonds Verpakkingen") for the collection and recycling of packaging waste.
 - The charge rate per kilogram distinguishes between eight materials (see table in annex). This is not a tax and the rates applied are considerably lower than those which were applied under the packaging tax.
- Tap water tax ("Belasting op leidingwater"):529
 - The tax is charged on tap water delivered to a consumer by a fixed connection to the water mains.
 - Tap water is taxed to a maximum quantity of 300 cubic metres per connection per year.
 - The 2014 tax rate is €0.330 per cubic metre (increased from €0.165 per cubic metre in 2013).⁵³⁰
 - Exemptions may apply for tap water delivered for emergency provisions such as fireplugs and sprinkler installations.
 - Revenue in 2010 was €126 million.
- Water system charge ("watersysteemheffing"):⁵³¹

⁵²⁸ Rijksoverheid (2014) Belastingplan 2015, Accessed 23 September 2014, http://www.rijksoverheid.nl/onderwerpen/belastingplan-2015

⁵²⁹ OECD (2014) Database on instruments used for environmental policy, Accessed on 3 September 2014, <u>http://www2.oecd.org/ecoinst/queries/All_Information.aspx</u>

⁵³⁰ Belastingdienst (2014) Tabellen tarieven milieubelastingen, Accessed 3 September 2014, <u>http://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/zakelijk/overige_belastingen_op_milieugrondslag/tarieven_milieubelastingen/tabellen_tarieven_milieubelastingen</u>

- This charge is levied to finance measures and programmes to prevent flooding, surplus water (after heavy rainfall) and water shortage.
- The cost recovery rate is 100%.⁵³²
- There are two parts of the charge: The solidarity part is paid by each inhabitant of the concerned river basin; the profit part is paid by land owners and owners of buildings.
- The rate for the solidarity part is a fixed amount per household.
- The rate for the profit part is based on the value of the property or the land.
- The cost recovery rate is deemed to be 100%.⁵³³
- Wastewater treatment charge ("Zuiveringsheffing"):^{534,535}
 - The charge is levied on the amount and the qualification of (indirect) discharges into the sewerage system or into wastewater treatment plants.
 - The charge is meant to cover the costs of transport and treatment of wastewater.
 - The rate is based on the pollution load of substances discharged in one calendar year.
 - A lump charge is levied on households on the basis of a fixed number of pollution units (up to 3).
 - Revenue in 2010: €1,128 million.
 - The cost recovery rate is deemed to be 100%.536
- Water pollution charge ("Zuiveringsheffing"):

⁵³¹ Kenniscentrum InfoMil (2014) Handboek water, Accessed 5 September 2014, <u>http://www.infomil.nl/onderwerpen/klimaat-lucht/handboek-water/wetgeving/waterschapswet-</u> <u>O/inhoud/watersysteemheffing/</u>

⁵³² European Commission (2012) Commission Staff Working Document. Member State: the Netherlands. Accompanying the document: Report from the Commission on the implementation of the Water Framework Directive (2000/60) River Basin Management Plans, Brussels, 14.11.2012, SWD (2012)379.

⁵³³ European Commission (2012) Commission Staff Working Document. Member State: the Netherlands. Accompanying the document: Report from the Commission on the implementation of the Water Framework Directive (2000/60) River Basin Management Plans, Brussels, 14.11.2012, SWD (2012)379.

⁵³⁴ OECD (2014) Database on instruments used for environmental policy, Accessed on 2 September 2014, <u>http://www2.oecd.org/ecoinst/queries/All_Information.aspx</u>

⁵³⁵ Kenniscentrum InfoMil (2014) Handboek water, Accessed 5 September 2014, <u>http://www.infomil.nl/onderwerpen/klimaat-lucht/handboek-water/wetgeving/waterschapswet-</u> <u>O/inhoud/zuiveringsheffing/</u>

⁵³⁶ European Commission (2012) Commission Staff Working Document. Member State: the Netherlands. Accompanying the document: Report from the Commission on the implementation of the Water Framework Directive (2000/60) River Basin Management Plans, Brussels, 14.11.2012, SWD (2012)379.

- The charge is levied on the amount and the qualification of direct discharges, i.e. discharges into surface water systems.
- The calculation of the charge is identical to that of the waste water treatment charge.
- Municipal sewerage charge:537
 - Local authorities charge households for the costs of the local sewerage system.
 - Charges are waived for households with less than minimum income.
 - Rates are determined by local authorities per household, differentiated according to the number of members.
 - Revenue in 2008 (the latest year for which figures are available):
 €1143 million.
 - The cost recovery rate is 95%.⁵³⁸
- A tax on groundwater extraction was abolished in 2011 and has not been levied since 1st January 2012.

16.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in the Netherlands. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

16.2.1 Current Status of EFR

The Netherlands has a relatively high level of (revenues from) environmentally related taxes⁵³⁹ (see Section 16.1.1) and can be considered one of the frontrunners in this area. In recent years, however, some environmentally related taxes have been removed such as the taxes on packaging, waste and groundwater extraction. These measures were taken within the renewed fiscal philosophy presented in the 2012 Fiscal Plan which aims for a simpler, more robust and fraud resistant fiscal system. This has led to the introduction and subsequent termination of a number of environmental taxes in recent years.

From 1st January 2013 the packaging tax was replaced by a waste management charge. Companies that use more than 50,000kg of packaging for their products are required to

⁵³⁹ Eurostat (2014) Environmental tax statistics, Accessed 24 September 2014, http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Environmental_tax_statistics



⁵³⁷ OECD (2014) Database on instruments used for environmental policy, Accessed on 2 September 2014, <u>http://www2.oecd.org/ecoinst/queries/All_Information.aspx</u>

⁵³⁸ European Commission (2012) Commission Staff Working Document. Member State: the Netherlands. Accompanying the document: Report from the Commission on the implementation of the Water Framework Directive (2000/60) River Basin Management Plans, Brussels, 14.11.2012, SWD(2012)379

pay a charge depending on the type and amount of packaging generated. Revenues are allocated to a fund which has set up a waste management system and aims to ensure waste monitoring and prevent packaging litter.⁵⁴⁰ The waste tax or landfill tax, abolished on 1st January 2012, was reinstated on 1 April 2014.

Over the past decade water prices have decreased in real terms. The removal of the groundwater extraction tax further decreases water prices in the Netherlands. This trend may give an unwanted signal to water users and fail to incentivise more efficient water use.⁵⁴¹ In addition, the government recently rejected the introduction of a road pricing scheme.⁵⁴²

Some efforts have also been taken to further green taxation. For example, the exemption from the coal tax for coal used in the production of electricity has been abolished. The reduced tax rate for red diesel (diesel used in mobile agricultural machinery) has been abolished as of 1 January 2013 and the excise duty for LPG and diesel was increased in 2013 and 2014. In addition, excise rates on all energy products are indexed to inflation.⁵⁴³ These measures were also driven by the government's aim to put public finances in order.^{544 545}

In addition the government repealed an earlier decision to decrease rates of the motor vehicles tax in its 2014 tax plan.⁵⁴⁶ From 2015 onwards, the CO₂ emission brackets within the tax on passenger cars and motorcycles will be further sharpened.⁵⁴⁷. However, the recently adopted 2015 Fiscal Plan does not mention this measure thus it is unclear when this measure will be put in place.⁵⁴⁸

⁵⁴³ The Netherlands is one of few Member States to index excise duty levels to inflation, thereby helping to maintain the real value of taxes over time and thus revenue, and as a result to maintain the impact of the tax on relative prices and thus on agents' behavior (European Commission (2013) Tax reforms in EU Member States 2013 Tax policy challenges for economic growth and fiscal sustainability. EUROPEAN ECONOMY 5 | 2013.)

⁵⁴⁵ Rijksoverheid (2014) Accijns op brandstoffen, Accessed 5 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/accijns/accijns-op-brandstoffen</u>

⁵⁴⁰ Afvalfonds verpakking (2014) Afvalfonds verpakking, Accessed 3 September 2014, <u>www.afvalfondsverpakkingen.nl</u>

⁵⁴¹ Ecologic, Eclareon (2014) Assessment of climate change policies in the context of the European Semester. Country Report: The Netherlands, Study under DG Climate Action Service Contract: 071201/2012/635684/SER/CLIMA.A.3, Berlin, 2014.

⁵⁴² Ecologic, IEEP, IVM, BIO (2013) Steps towards greening in the EU - Monitoring Member States achievements in selected environmental policy areas, Country Report on the Netherlands, Study under DG Environment's Framework contract for economic analysis ENV.F.1/FRA/2010/004, Brussels, 2013.

⁵⁴⁴ European Commission (2014) Taxes in Europe Database, Accessed 27 August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/measureDetail.html?id=2282</u>

⁵⁴⁶ Rijksoverheid (2013) Belastingplan 2014, Accessed 5 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingplan-2014</u>

⁵⁴⁷ Rijksoverheid (2013) Belastingplan 2014, Accessed 5 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingplan-2014</u>

⁵⁴⁸ Rijksoverheid (2014) Belastingplan 2015, Accessed 14 October 2014, http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2014/09/16/belastingplan-2015.html

The rate of the tap water tax was increased from 1 January 2014 to €0.330 per cubic metre.⁵⁴⁹ Tap water is taxed to a maximum quantity of 300 cubic metres per connection per year. The 2014 budget foresaw the repeal of this tax ceiling as of 1 July 2014. The government has however decided not to implement this measure.⁵⁵⁰ The government has also set up a project to modernise the wastewater treatment charge ("zuiveringsheffing") for large companies to contribute to an efficient and sustainable treatment of wastewater.⁵⁵¹

In a letter on green growth sent to the Dutch Parliament in 2013, the Dutch government envisages a further greening of taxation.⁵⁵² The letter however recognised that smart policies are needed that prevent pricing (such as taxes) having negative impacts on competitiveness, which requires a European and sometimes a global approach. What exactly is meant by this is not specified in the letter. Thus, further action on EFR can be expected in the future, however cross-border issues have led to competitiveness concerns and undermined political and public support for action in this area. This was the case with the introduction of an air passenger duty in 2008 in the Netherlands which was abolished after one year due to concerns about passengers diverting to airports in neighbouring Germany and Belgium. Similarly, recent fuel tax increases have led to cases of fuel tourism, particularly in border areas, and have sparked much political and media attention⁵⁵³.

There have also been wider discussions on environmental tax reform. For example, in a 2014 policy brief on fiscal greening of energy taxes, the Netherlands Environmental Assessment Agency sets out some initial short-term policy options.⁵⁵⁴ Based on an indepth analysis of the existing energy taxes,⁵⁵⁵ a series of ideas for policy options are presented such as reconsidering exemptions for biomass and green gas (because of their negative impacts on air quality), for waste incineration, shipping and aviation. The policy brief argues that energy taxes should not just take into account the CO₂ content of fuels, but also the impacts on air quality; while tariffs should be brought in line with the

⁵⁵¹ Ministerie van Infrastructuur en Milieu (2014) Brief van de minister aan de Tweede Kamer betreffende waterkwaliteit. Den Haag, 2 juni 2014.

⁵⁵⁵ Vollebergh, H., Drissen, E., Eerens, H. and Geilenkirchen, G. (2014) Milieubelastingen en Groene Groei Deel II, Evaluatie van belastingen op energie in Nederland vanuit milieuperspectief, PBL Planbureau voor de Leefomgeving, Den Haag.



⁵⁴⁹ Rijksoverheid (2014) Belasting op leidingwater, Accessed 5 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingen-voor-ondernemers/milieubelastingen/belasting-op-leidingwater</u>

⁵⁵⁰ Rijksoverheid (2014) Belasting op leidingwater, Accessed 5 September 2014, <u>http://www.rijksoverheid.nl/onderwerpen/belastingen-voor-ondernemers/milieubelastingen/belasting-op-leidingwater</u>

⁵⁵² Dutch Ministry for the Economy (2013b) Kamerbrief Groene Groei: voor een sterke, duurzame economie. Online available: <u>http://www.rijksoverheid.nl/onderwerpen/duurzame-economie/documenten-en-publicaties/kamerstukken/2013/03/28/kamerbrief-groene-groei-voor-een-sterke-duurzame-economie.html</u>.

⁵⁵³ Withana, S., ten Brink, P., Illes, A., Nanni, S., Watkins, E., (2014) *Environmental tax reform in Europe: Opportunities for the future*, A report by the Institute for European Environmental Policy (IEEP) for the Netherlands Ministry of Infrastructure and the Environment. Final Report. Brussels. 2014.

⁵⁵⁴ Vollebergh, H. (2014) Fiscale vergroening: uitdagingen voor de belastingen op energie PBL, Planbureau voor de Leefomgeving, Den Haag.

relative environmental damage *inter alia* by shifting the energy tax from small to big consumers and by shifting the taxes on transport fuels from petrol to diesel.

A new tax reform is expected soon, since the previous one dates back to 2001. It is generally expected that the tax burden on labour will be decreased in the new reform. It has been noted that green taxes may be considered to the extent that they generate sizeable revenues, are simple in implementation, and have a useful additional function in the total policy package.⁵⁵⁶ In June 2013 a tax reform committee published a report advocating *inter alia* such a reduction, but at the same time also suggesting to minimise the instrumental aspect of the tax system. It was generally expected that the 2015 Fiscal Plan (published on 16th September 2014) would contain concrete reform measures based on this report.⁵⁵⁷ The Plan however only announces the ambition to come up with a concrete package of measures in the 2016 Fiscal Plan. How ambitious this package will be in terms of greening the Dutch tax system will depend on the green credentials of the governing coalition. Any new proposals will need to be researched, discussed with interest groups, run through parliament, designed, implemented, and a suitable announcement period considered.

No CSRs related to environmental fiscal reform were issued for the Netherlands in 2013.

16.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in the Netherlands. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

Energy Taxes:

- It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€21.8 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€12.1 per GJ). Finally, due to the existing rates for kerosene used for heating being very high relative to coal and gas the rates for heating fuels are equalised using the minimum rate for LPG of €5.74 per GJ.
- The existing electricity tax rates are harmonised according to the highest rate, which for the Netherlands is non-business use.

⁵⁵⁶ Personal communication with Hans Vos, October 2014

⁵⁵⁷ Rijksoverheid (2014) Belastingplan 2015, Accessed 23 September 2014, <u>www.rijksoverheid.nl/onderwerpen/belastingplan-2015</u>

- Table 16-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the Good Practice section above. The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
- There is currently a high differential in the tax rates applied to diesel and petrol. Aligning the two as per the proposed revision to the ETD suggests a much higher rate for diesel, the tax rate increasing by over 70%. The uplift in the rate for kerosene is similar. The largest percentage increases are for LPG and foir natural gas, however.
- For commercial and industrial motors, there are significant increases in rates for LPG and natural gas;
- There are major increases in the taxes applied to some of the heating fuels: rates for heavy fuel oil, gas and coal are increased by 711%, 269% and 1,140%, respectively.
- There is a marginal increase in the tax on electricity for business use.

Table 16-3: Existing and Suggested Rates Based upon Proposed Revisions to the ETD

Energy Tax	Units	Suggested Rates	Existing Rates			
Transport Fuels						
Motor spirit (petrol)	€ per 1000 litre	759	759			
Light fuel oil (diesel)	€ per 1000 litre	819	478			
LPG (propellant)	€ per 1000 kg	1060	322			
Kerosene	€ per 1000 litre	824	478			
Natural gas (prop)	€ per GJ	23	2			
Industry and Commercial Motors						
Gas oil	€ per 1000 litre	478	478			
Kerosene	€ per 1000 litre	481	478			
LPG	€ per 1000 kg	616	322			
Natural gas	€ per GJ	13	2			
Business Heating	•					
Gas oil	€ per 1000 litre	478	478			
Heavy fuel oil	€ per 1000 kg	292	36			
Kerosene	€ per 1000 litre	478	478			
LPG	€ per 1000 kg	322	322			



Energy Tax	Units	Suggested Rates	Existing Rates	
Natural gas	€ per GJ	6.86	1.86	
Coal	€ per GJ	7.63	0.53	
Non-Business Heating				
Gas oil	€ per 1000 litre	478	478	
Heavy fuel oil	€ per 1000 kg	292	36	
Kerosene	€ per 1000 litre	478	478	
LPG	€ per 1000 kg	322	322	
Natural gas	€ per GJ	6.86	1.86	
Coal	€per GJ	7.63	0.53	
Electricity				
Electricity - business use	€ per MWh	43.53	43.40	
Electricity - non-business use	€ per MWh	43.53	43.53	

> Transport Taxes:

- Vehicles: The Netherlands taxes on vehicles are some of the higher ones in the EU. Combined with the taxes on vehicle fuels, the tax burden on transport is above the level where further increases are proposed, notably once the transport fuel taxes are revised in line with above proposals (the good practice benchmark relates to vehicles taxes and transport fuel taxes combined). That having been said, there is potential for the Netherlands, which is one of the countries included in the Eurovignette scheme, to review the approach to taxing HGVs, notably in respect of providing for greater differentiation across vehicles in different Euro classes, and to extending its scope to cover vehicles between 3.5t and 12t weight (the system currently applies to vehicles over 12t weight only).⁵⁵⁸
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. The Netherlands already had an air passenger duty in 2008 but this duty, as noted above, was abolished after one year due to competiveness concerns and a reduction in demand for air tickets.

⁵⁵⁸ See Ricardo-AEA (2014) Evaluation of the Implementation and Effects of EU Infrastructure Charging Policy since 1995, Final Report to DG MOVE, January 2014.

There is thus scope for introducing a passenger aviation tax and a tax on air freight in the Netherlands, which will need to be designed in such a way as to address concerns with the previous duty. However, as Schiphol is fighting to maintain its position as a key European hub and with current problems faced by many airlines, opposition to such a tax is expected to be very strong. Suggested rates for an air passenger tax could be €15 per passenger (flights within the Netherlands), €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). The suggested air freight transport tax rate is €1.25 per tonne of freight. For the purposes of the modelling undertaken as part of this work the year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. A longer implementation period could also be considered, particularly given likely opposition to such a measure, e.g. phased implementation between 2018 and 2020. The way in which the picture unfolds concerning the proposals from ICAO might also influence future levels and/or design of this tax.

Pollution and Resource Taxes:

- Aggregates: There is currently no tax on aggregates in the Netherlands. An aggregates tax (in relation to land and marine aggregates) can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is in line with the EU flagship initiative 'A Resource Efficient Europe'.⁵⁵⁹ It is suggested that a tax on aggregates is introduced and that the rate is set at €2.40 per tonne from 2017, and that thereafter, the rate is kept constant in real terms. A longer implementation period could also be considered. If this rate would prove to be insufficient in the future to have a positive effect on the use of secondary material, the introduction of a higher tariff might be considered. Ideally, EU or bilateral action should also be encouraged to prevent the tax having a negative impact on the competitiveness of the construction sector and to help minimise impacts in border areas. The types of materials that could be covered by the aggregates tax are:
 - o Marble
 - Chalk and dolomite
 - Slate
 - Limestone and gypsum
 - Sand and gravel

Although some of these materials are not extracted in the Netherlands, the suggested aggregates tax could be applied to domestic aggregate extraction and imports to the Netherlands, excluding exports (a similar

⁵⁵⁹ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>



approach to the aggregates levy applied in the UK⁵⁶⁰). It is important that the tax apply to both land and marine aggregates to avoid displacing the burden of aggregates extraction from the land to the North Sea. The tax could also adopt a phased approach applying to certain materials such as sand and gravel first and then expanding coverage to other materials over time. The specific range of materials suggested above reflects, in part, the nature of the data available to us in developing estimates of potential revenues. The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues.

- Waste incineration / MBT tax: There are currently twelve waste incineration plants operating in the Netherlands and there is currently no incineration tax in place. However, the 2015 Fiscal Plan foresees the implementation of an incineration tax. The rate for both landfilled and incinerated waste is expected to be €13 per 1,000 kg from 2015 onwards.⁵⁶¹ Moreover there are several mechanical biological treatment (MBT) plants used to prepare waste for subsequent energy recovery, and for stabilising waste before landfilling. In order to ensure that recycling rates do not stagnate, and to generate some additional revenue, it is suggested that the waste tax could be increased, to at least €15 per tonne, in 2020, and that rates are set so that other forms of residual waste treatment are taxed in an equivalent manner.
- Packaging: The packaging tax in the Netherlands was abolished and replaced by packaging waste management charge from 1st January 2013. The charge is paid by companies which annually place 50,000kg or more of packaging waste on the Dutch market (revenues are allocated to the packaging waste fund). Thus, in addition to the currently applied packaging charges (which seek to cover the costs of the collection and recycling of packaging waste from producers), a packaging tax could be (re)introduced to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested that the following rates could be applied on all packaging placed on the market in the Netherlands:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

⁵⁶⁰ Söderholm, P (2011) Taxing Virgin Natural Resources: Lessons from Aggregates Taxation in Europe, Luleå University of Technology, Sweden. Submitted to Resources, Conservation and Recycling 2011

⁵⁶¹ Rijksoverheid (2014) Belastingplan 2015, Accessed 23 September 2014, http://www.rijksoverheid.nl/onderwerpen/belastingplan-2015

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage firms to take measures to prevent the generation of packaging in the first place (as opposed to increase recycling). It is suggested that these rates be applied from 2017 and be kept constant in real terms. Higher rates could also be considered in order to further stimulate behaviour change; however this would have to be weighed against potential political acceptability and is something for consideration over time. A longer implementation period could also be considered, e.g. phased implementation from 2018/2019.

- Single-use carrier bag tax: There is currently no tax on single-use plastic carrier bags in the Netherlands. Of these bags, plastic bags in particular cause many environmental problems when littered in the environment. especially when they are transported to, or littered in the riverine, or marine, environment. Moreover in countries with high level of tourism littered plastic bags can deter visitors and can lead to costly clean-up operations. For example it has been estimated that municipalities in the Netherlands spend approximately €10.4 million each year removing beach litter.⁵⁶² A wide body of experience suggests that taxing single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.⁵⁶³ Consequently, it is suggested that the Netherlands implements a tax on single-use carrier bags at a minimum rate of €0.11 per bag from 2017 and maintains the rate constant in real terms thereafter.
- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. According to Airbase (EEA) 100% of the urban population in the Netherlands is exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg per m³) for between 8 and 35 days per year.⁵⁶⁴ The Netherlands does not currently have a system of air pollution taxes in place. However, it used to have a

⁵⁶⁴ Eurostat (2014) Resource Efficiency Scoreboard: EU Urban Population Exposed to PM10 Concentrations Exceeding the Daily Limit Value %, Accessed 9 October 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=0&pcode=t2020_rn200&</u> <u>language=en</u>



⁵⁶² Mouat, J., R.L. Lozano and H. Bateson (2010), 'Economic impacts of marine litter', Report of Kimo international, available at <u>http://www.kimointernational.org/Home.aspx</u>

⁵⁶³ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

 NO_x emission trading scheme up until 31st December 2013.⁵⁶⁵ As EU air quality standards such as for NO_x and PM10 are not met, it is suggested that an air pollution tax could be implemented in order to generate improvements in air quality. Minimum tax rates could be applied as follows:

- o SO_x €1,000 per tonne
- o NO_x €1,000 per tonne
- o PM₁₀ €2,000 per tonne

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2020. Thereafter the rates could be held constant in real terms.

- Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". The European Commission estimates that water charges cover 95% or 100% of annual costs to water management boards for providing water services.⁵⁶⁶ Currently, although there are user charges in place, there are no taxes for water abstraction in the Netherlands – the groundwater extraction tax was abolished in 2011. Thus, water abstraction taxes could be introduced at the following levels of taxation: €290 per 1,000 m³ for households, €180 per 1,000 m³ for manufacturing purposes and €25 per 1,000 m³ for agriculture. In order to avoid double taxation, the design and application of this tax would have to take into account the existing tap water tax system and could be collected at the source of extraction (i.e. from water abstraction companies). Groundwater abstraction by households and other private operators may occur; however, this would be hard to monitor. A transition period from 2016 to 2020 is suggested, whereby the rates are increased over the specified period to the suggested levels. Thereafter the rates could be held constant in real terms.
- Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21st May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.⁵⁶⁷ The Netherlands has waste water user charges in place, i.e. a waste water treatment charge for indirect discharges and a water pollution charge for direct discharges into

⁵⁶⁵ Rijksoverheid (2012) Besluit intrekking handel in NOx-emissierechten, Accessed 9 October 2014, www.rijksoverheid.nl/documenten-en-publicaties/besluiten/2012/10/05/besluit-intrekking-handel-in-nox-emissierechten.html

⁵⁶⁶ European Commission (2012) Commission Staff Working Document. Member State: the Netherlands. Accompanying the document: Report from the Commission on the implementation of the Water Framework Directive (2000/60) River Basin Management Plans, Brussels, 14.11.2012, SWD (2012)379.

⁵⁶⁷ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

surface water systems. Although these charges have been introduced to cover costs, they have also provided incentives for behavioural change. These charges vary in level and structure on a regional basis (at the level of water management bodies). However, to further strengthen the prevention of water pollution it is suggested that the user charge rates applied by the various water management boards are at least at the same level and in line with good practice rates (see Section 5.3.6). This would imply, for BOD, a minimum rate of €2.47 per kg of the pollutant. For freshwater discharges, it would be preferable to also tax phosphorus discharges. The minimum rates could be phased in over a transition period from 2016 to 2019 and thereafter held constant in real terms.

 Pesticides: Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

> "...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> <u>designed to achieve these targets</u>".

The Netherlands does not have a pesticides tax and its Action Plan does not expressly mention the introduction of such a tax.⁵⁶⁸ There is a trend towards banding taxes to reflect the level of hazard associated with them, and we would suggest such an approach is suitable in the Netherlands. Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €10 per kg active ingredient. The suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark) would be a concrete measure that would contribute towards the aims of the Action Plan. The tax could be applied on imports and ideally at the EU level to avoid competitiveness concerns.

 Fertilisers: The Netherlands does not currently implement a tax on nitrogen (or other) fertilisers. In the past, the Netherlands had a Mineral Accounting System (MINAS) for nutrient surpluses; however this was ruled to be not in accordance with the EU Nitrates Directive and was discontinued from 2006.⁵⁶⁹ Since 2013 a new policy on fertilisers has been in place. In 2014, stricter standards for bringing manure onto the land have been set,



⁵⁶⁸ Rijksoverheid (2012) Actieplan duurzame gewasbescherming, <u>www.rijksoverheid.nl/onderwerpen/bestrijdingsmiddelen/documenten-en-publicaties/rapporten/2012/10/04/actieplan-duurzame-gewasbescherming.html</u>

⁵⁶⁹ EEA (2005) Market-based instruments for environmental policy in Europe

thereby forcing farmers to deliver more manure to recycling firms. These standards thus have a similar effect to a fertiliser tax in terms of reducing the surplus of nutrients onto the land. A fertiliser tax could also be introduced to complement the current standards-based approach. It is suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of €0.20 per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

16.2.3 Summary of Revenue Outcomes

Table 16-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025				
Energy Taxes							
Transport fuels	391	1,537	2,649				
C&I / Heating	403	1,536	2,574				
Electricity	6	6	6				
Sub-total Energy, million EUR	800	3,079	5,229				
Sub-total Energy, % GDP	0.13%	0.50%	0.84%				
Transport Taxes							
Passenger Aviation Tax	1,200	2,592	3,057				
Freight Aviation Tax	0.99	1.97	2.05				
Sub-total Transport, million EUR	1,201	2,594	3,059				
Sub-total Transport, % GDP	0.19%	0.42%	0.49%				

Table 16-4: Potential Additional Revenue from Environmental Fiscal Reform in the Netherlands, million EUR (real 2014 terms)⁵⁷⁰

⁵⁷⁰ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

Тах	2017	2020	2025				
Pollution and Resource Taxes							
Incineration / MBT Tax	58	80	85				
Air Pollution Tax	36	66	47				
Water Abstraction Tax	240	575	584				
Pesticides Tax	94	185	197				
Aggregates Tax	166	103	108				
Packaging Tax	73	66	61				
Single Use Bag Tax	149	32	35				
Fertiliser Tax	0.029	0.049	0.039				
Sub-total Pollution & Resource, million EUR	814	1,106	1,117				
Sub-total Pollution & Resources, % GDP	0.13%	0.18%	0.18%				
Total Environmental Taxes							
Total, million EUR	2,815	6,779	9,405				
Total Increase, % GDP	0.45%	1.09%	1.51%				

Table 16-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 16-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in the Netherlands, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	306
Increased Cost Recovery for Water Use	1,517
Total	1,823

16.2.4 Environmental Benefits

Table 16-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.14.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €185



million of benefits are anticipated annually by 2025 in real terms.

Table 16-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in the Netherlands, million EUR (real 2014 terms)⁵⁷¹

Тах Туре	2017	2020	2025
Energy Taxes	16	59	96
Transport Taxes (excluding transport fuels)	18	37	43
Pollution and Resource Taxes	11	50	51
Total, million EUR	45	147	189
Total, % GDP	0.01%	0.02%	0.02%

16.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in the Netherlands:⁵⁷²

- In 2012, environmental taxes generated revenue equivalent to 3.56% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Netherlands. These could generate EUR 2.8 billion in 2017, rising to EUR 9.4 billion in 2025 (both in real 2014 terms). This is equivalent to 0.45% and 1.51% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the proposed passenger aviation tax. This accounts for EUR 3.1 billion by 2025 (real 2014 terms), equivalent to 0.36% of GDP.
- The next largest contribution to revenue comes from the suggested harmonisation of the taxes on transport fuels with those in the proposed ETD. This accounts for EUR 2.6 billion by 2025 (real 2014 terms), equivalent to 0.32% of GDP.
- The proposed amendments to the taxes on fuels used for business heating would account for EUR 2.6 billion by 2025 (real 2014 terms), equivalent to 0.31% of GDP.
- Revenue potential from a water abstraction tax would raise EUR 0.6 billion by 2025 (real 2014 terms), equivalent to 0.07% of GDP.

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

⁵⁷¹ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

⁵⁷² % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

- A pesticides tax has also been suggested. This would contribute EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.02% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 0.3 billion by 2025 (real 2014 terms), equivalent to 0.04% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.02% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €1.8 billion per annum could be raised in addition to the above.



17.0 Slovenia

17.1 Country Overview

17.1.1 Key Facts about the Economy and Tax System

- From 2003 to 2008 Slovenia enjoyed a period of strong economic growth with an average annual increase in GDP of 4.6% in real terms. Although growth slowed in 2008, as with the rest of the EU-28, recession fully hit in 2009, when Slovenia's GDP fell by 7.9% in real terms. There was muted growth between 2010 and 2011, but negative growth returned for the years 2012 and 2013, during which GDP fell by an average of 1.8% in real terms.⁵⁷³
- Slovenia's overall tax revenue (including social contributions) as a percentage of GDP is below the EU-28 average of 39.8%, at 37.9% (2012). This share rate has fallen from a high of 39% in 2005.⁵⁷⁴
- The total tax income of Slovenia in 2012 was made up 40.9% by social contributions, 38.5% by indirect taxes, and 20.6% by direct taxes. All three revenue streams have fluctuated over past 10 years in terms of their percentage shares of the total tax take.⁵⁷⁵
- In 2012, environmental tax revenue amounted to 3.82% of Slovenia's GDP. This percentage share was the second highest in the EU-28 for the year, and represented a 10 year high for Slovenia, having risen from 3.25% of GDP in 2002.⁵⁷⁶
- The majority of Slovenia's environmental tax revenue for 2012 came from taxation of energy, which amounted to 3.1% of GDP. Making smaller contributions, transport (excluding fuel) taxes amounted to 0.41% of GDP and pollution and resource taxes amounted to 0.31% of the country's GDP in 2012.⁵⁷⁷
- Energy taxes accounted 81.2% of Slovenia's total environmental tax revenue in 2012. Overall, this percentage has risen over the past 10 years, from 78.8% in 2002.⁵⁷⁸

⁵⁷⁵ Ibid.

⁵⁷⁶ Ibid.

578 Ibid.

⁵⁷³ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁵⁷⁴ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

<u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG</u>

⁵⁷⁷ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

17.1.2 Relative Position within the EU

In 2012, Slovenia's revenue from environmental taxes expressed as a proportion of GDP was well above the EU average of 2.4%. This is largely due to the contribution from energy taxes which, expressed a proportion of GDP, were significantly higher than the EU-28 average of 1.8%. The contribution from taxes on pollution and resources was more than three times the EU-28 average. The corresponding percentage for transport (excluding fuel) taxes, however, was below the average of 0.5% (see Figure 17-1).⁵⁷⁹



Figure 17-1: Environmental Taxes in Slovenia as a % of GDP vs EU-28 Levels (2012)

Considering revenue derived from environmental taxation as a percentage share of GDP, Slovenia ranked 2nd in the EU-28 for 2012 against this measure. For the proportion of GDP coming from taxes placed on energy, Slovenia was in 1st place of all Member States and also ranked highly for the proportion of GDP from pollution and resource taxes, in 3rd place. For transport (excluding fuel) tax revenue as GDP share Slovenia ranked somewhat lower, at 17th place (see Table 17-1).⁵⁸⁰

⁵⁷⁹ Ibid. ⁵⁸⁰ Ibid.



Table 17-1: Ranking of Slovenia's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	2
Energy Taxes as a Share of GDP (%)	1
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	17
Pollution & Resource Taxes as a Share of GDP (%)	3

Source: based on Eurostat data

17.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given Appendix A.15.0. This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). Revenue figures are given in nominal terms and % of GDP figures are based upon GDP in current prices from Eurostat.⁵⁸¹

> Energy Taxes:

• The Slovenia excise duties on fuels and electricity are shown in Table 17-2 alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Table 17-2: Standard Rates of Excise Duties on Fuels and Electricity in Slovenia

Excise Duty	Unit	Rate Applied in Slovenia	Existing ETD Minimum	EU-28 Average	EU-28 Median	
Transport Fuels						
Leaded Petrol ¹	€ per 1000 litres	€421.61	€421	€585	€583	
Unleaded Petrol	€ per 1000 litres	€549.51 ²	€359	€519	€509	
Gas Oil (Diesel)	€ per 1000 litres	€450.36 ³	€330	€427	€405	
Kerosene	€ per 1000 litres	€330	€330	€440	€405	
Liquid Petroleum Gas	€ per 1000 kg	€127.50	€125	€209	€180	
Natural Gas	€ per GJ	€3.517	€2.60	€3.03	€2.66	
Motor Fuels – Industry / Commercial Use						

⁵⁸¹ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

Excise Duty	Unit	Rate Applied in Slovenia	Existing ETD Minimum	EU-28 Average	EU-28 Median
Gas Oil (Diesel)	€ per 1000 litres	€43.90 ³	€21	€221	€163
Kerosene	€ per 1000 litres	€165	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€63.75	€41	€126	€125
Natural Gas	€ per GJ	€3.51 ⁷	€0.30	€1.76	€1.50
Heating – Business Use)				
Gas Oil (Diesel)	€ per 1000 litres	€133.09 ³	€21	€221	€163
Kerosene	€ per 1000 litres	€55.56 ⁴	€0	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€61.10⁵	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€41.76 ⁶	€0	€82	€40
Natural Gas	€ per GJ	€1.35 ⁷	€0.15	€1.36	€0.46
		€1.47 ⁸			
Coal and Coke	€ per GJ	€1.60 ⁹	€0.15	€1.27	€0.31
		€1.8310			
Heating – Non-Busines	s Use				
Gas Oil (Diesel)	€ per 1000 litres	€133.09 ³	€21	€179	€125
Kerosene	€ per 1000 litres	€55.564	€ 0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€61.10⁵	€ 15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€41.76 ⁶	€ 0.00	€111	€42
Natural Gas	€ per GJ	€1.35 ⁷	€ 0.30	€2.04	€0.94
		€1.47 ⁸			
Coal and Coke	€ per GJ	€1.60 ⁹	€ 0.30	€1.77	€0.32
		€1.8310			
Electricity					
Business Use	€ per MWh	€3.05	€ 0.50	€8.42	€1.03
Non-Business Use	€ per MWh	€3.05	€ 1.00	€14.53	€2.06



	Ex	cise Duty	Unit	Rate Applied in Slovenia	Existing ETD Minimum	EU-28 Average	EU-28 Median
	Notes:						
	 Leaded petrol is forbidden for sale in Slovenia. Includes CO₂-tax in the amount of €34.56 per 1000 litres. Includes CO₂-tax in the amount of €37.44 per 1000 litres. Includes CO₂-tax in the amount of €34.56 per 1000 litres. Includes CO₂-tax in the amount of €46.08 per 1000 kg. Excise duty for LPG used for heating (business and non-business use) is €0, this figure shows only the CO₂-tax. Includes CO₂-tax in the amount of €0.8047 per GJ. [CN 2701]; Includes CO₂-tax in the amount of €1.1829 per GJ, energy value used: 1000 kg = 28 C¹ 						ure shows .000 kg = 28
	 [CN 2702]; Includes CO₂-tax in the amount of €1.3091 per GJ, energy value used: 1000 kg = 16.5 GJ. 						.000 kg =
	10. [CN 2704]. Includes CO2-tax in the amount of €1.5393 per GJ, energy value used: 1000 kg = 29 GJ.						.000 kg = 29
L	Source: DG TAXUD (2014) Excise Duty Tables (Part II – Energy products and Electricity), Situation as at 1 July 2014, http://ec.europa.eu/taxation_customs/index_en.htm#						

- The excise duties outlined in Table 17-2 are all at or above the existing
 rates in the ETD. Taxes on transport fuels are, other than for kerosene and
 LPG, above the EU-28 average and median rates. In contrast, motor fuels
 used by industry/commercial sector, and fuels used for business and nonbusiness heating are typically well below average and median European
 rates. Taxes on electricity are €3.05 per MWh, which is above the EU-28
 average, but well below the median rates.
- A number of special rates and reductions apply, for example, for gas oil used for agriculture and railways.
- In 2012, revenues from energy excise duties amounted to €1.07 billion, equivalent to 3.02% of GDP.⁵⁸²
- A tax on CO₂ came into force in 1997 into Slovenia.⁵⁸³ This was the first instance of a CO₂ tax being implemented by a Central and Eastern Europe country. The tax is levied on all CO₂ emissions from the combustion of fuel and from the incineration of combustible organic substances.

⁵⁸² European Commission (2014) *Taxes in Europe Database,* Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=534/1389189783&taxType=Energy+prod</u> <u>ucts+and+electricity</u>

⁵⁸³ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=714/1388754940&taxType=Other+indire</u> <u>ct+tax</u>

- A tax rate of €14.4 per tonne of CO₂ is charged on all fuels, with specific tax rates calculated according to the carbon content of each fuel. These are listed in Table 17-2.
- A number of exemptions exist, including on biomass for heating, fuel extracted from biomass and biogas, fuel used in chemical reactions, electrolytic and metallurgical processes; fuel exported to the EU area; kerosene used in aviation; and fuel used by companies that participate in the EU ETS.⁵⁸⁴
- Tax revenues in 2012 totalled €55 million, equivalent to 0.16% of GDP.
- Since 2010, energy suppliers are required to collect an energy efficiency tax from final customers. Tax rates vary from €0.002 to €0.05 per litre for petroleum fuels. District heating and electricity are taxed at €0.0005 per kWh. The revenues from this tax are fully earmarked for energy efficiency programmes.⁵⁸⁵

> Transport Taxes (excluding transport fuels):

- Registration tax:
 - A motor vehicles tax ("davek na motorna vozila") is payable at the time of purchase or first time registration of a passenger motor vehicle in Slovenia (or at the time of registration of a vehicle imported into Slovenia). Tax rates are determined by the CO₂ emissions, fuel type, and power of the vehicle, and range from 0.5% to 31% of the pre-VAT selling price of the vehicle. An additional premium is charged for motor vehicles with large engine capacities. Exemptions include: exported vehicles, vehicles used by families with three or more children, vehicles for carrying disabled people. Revenue from the motor vehicles tax in 2012 was €34.8 million, equivalent to 0.10% of GDP.⁵⁸⁶
- Circulation tax:
 - Owners of registered motor vehicles and trailers are required to pay an annual fee on the use of motor vehicles "letna dajatev za uporabo vozil v cestnem prometu". The tax rate is calculated by a different method for each vehicle type on the basis of one or more of the following measures: engine capacity, number of passengers and maximum permissible weight. The tax rate also varies by a

⁵⁸⁶ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=537/1388754941&taxType=Other+indirect+tax</u>



⁵⁸⁴ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-</u> <u>9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

⁵⁸⁵ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

fixed percentage depending on vehicle emissions (measured by EURO standards). Tax rates vary from €62 to €565 for personal cars. Alternative rates apply to motorbikes, buses, trucks, and trailers. The main exemptions to this tax include: electric vehicles, tractors and tractor trailers, motorcycles, three-wheeled small capacity cycles, light four wheeled cycles, light trailers, public service vehicles, and vehicles for disabled persons. Revenue from the annual fee on the use of motor vehicles in 2012 was €109 million, equivalent to 0.31% of GDP.⁵⁸⁷

- Other vehicle taxes:
 - An end-of-life vehicles tax is payable on all new vehicles in Slovenia, with a tax rate of €0.0063 per kg of vehicle. The tax generated €0.5 million of revenue in 2012, equivalent to 0.001% of GDP.⁵⁸⁸
 - Slovenia has a road toll system in place for most motorways and expressways, implemented on the 1 July 2008. This is split into two systems: vignettes are required for all motorcycles, private cars and vans whose maximum permitted weight does not exceed 3.5 tonnes; open and closed tolling systems are in place for vehicles weighing over 3.5 tonnes. The amount payable is determined by the class of vehicle, EURO emissions standard, the type of toll road, and the distance covered, and can be linked to an electronic tag in the vehicle.⁵⁸⁹ In Slovenia, tolls follow a concession funding model with the state-owned motorway company, DARS d.d, being awarded the concession. Slovenia changed from a vignette to a system of manual tolls from trucks in 2010 and plans to introduce free-flowing toll collection in 2015, consistent with the interoperability Directive (2004/52).⁵⁹⁰

Pollution and Resource Taxes:

Landfilling of waste in Slovenia has been subject to a landfill tax since 2001. The tax basis is the number of units of waste, multiplied by a set number of "soil load units" for each category of inert, non-hazardous and hazardous waste (units of 1, 5 and 10, respectively). The tax rate is calculated by multiplying the number of "soil load units" by €0.022. Thus tax rates of €5.5 per tonne for inert waste, €11 per tonne for non-hazardous waste, and €22 per tonne for hazardous waste apply. Revenue

⁵⁸⁷ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=812/1388754940&taxType=Other+direct</u> <u>+tax</u>

⁵⁸⁸ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

⁵⁸⁹ DARS (2014) Tolling System and Roads, Accessed 14th August 2014, <u>http://www.dars.si/Dokumenti/Toll/Tolling_system_and_roads_298.aspx</u>

⁵⁹⁰ See Ricardo-AEA (2014) Evaluation of the Implementation and Effects of EU Infrastructure Charging Policy since 1995, Final Report to DG MOVE, January 2014.

from the landfill tax in 2012 was €4.6 million, equivalent to 0.013% of GDP).^{591 592}

- Electronic and electrical equipment (EEE), pneumatic tyres, and packaging waste placed on the market are taxed in Slovenia. The tax basis is the mass of EEE, pneumatic tyres, or packaging waste, multiplied by a "unit of environmental load". The unit of environmental load measure aims to account for the environmental impacts of disposal of WEEE, end-of-life tyres, and packaging waste. A different unit of environmental load are: €0.0083 for WEEE, €0.0054 for end-of-life tyres, and €0.0017 for packaging waste. The tax generated revenue of €1.5 million in 2012, equivalent to 0.004% of GDP.⁵⁹³
- Slovenia has a tax on the extraction of mineral resources. The tax rate is dependent on the type of material extracted and the quantity of that material extracted in previous years.^{594,595}
- A tax on the area of land used for mining applies to all mineral extraction operations. The tax rate is dependent on the type of material extracted and the area of land use for mining.^{596,597}
- Slovenia has a tax on lubricating oils and fluids. A tax rate of €0.1586 per kg applies. The full tax rate is applied to lubricating oils used in vehicles, while industrial lubricating oils are subject to a 50% tax rate. Revenue from the tax was €2.5 million in 2012, equivalent to 0.007% of GDP.⁵⁹⁸

⁵⁹¹ OECD (2012), OECD Environmental Performance Review: Slovenia 2012, <u>http://dx.doi.org/10.1787/9789264169265-en</u>

⁵⁹² Source: European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=814/1388754940&taxType=Other+indire ct+tax</u>

⁵⁹³ Source: European Commission (2014) Taxes in Europe Database, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=814/1388754940&taxType=Other+indirect+tax</u>

⁵⁹⁴ Personal communication with Andrej Udovč, Professor of Environmental Economics, University of Ljubljana

⁵⁹⁵ Unable to obtain revenue figures as part of this study

⁵⁹⁶ Personal communication with Andrej Udovč, Professor of Environmental Economics, University of Ljubljana

⁵⁹⁷ Unable to obtain revenue figures as part of this study

⁵⁹⁸ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

- Volatile organic compounds are subject to a tax in Slovenia. A tax rate of €0.001 per unit load applies. The tax generated revenue of €0.1 million in 2012, equivalent to 0.0003% of GDP.⁵⁹⁹
- Slovenia has a tax on fluorinated greenhouse gases.⁶⁰⁰
- Slovenia has a "payment for water rights" charge which applies to a number of activities requiring access to (or use of) water, including hydroelectric power production, fishing, mineral water extraction and usage of thermal underground waters. Specific rates are levied for the commodity used in each activity e.g. a rate of €0.0248 per 1000 kJ of heat is charged for the use of thermal underground waters.⁶⁰¹
- A water abstraction tax is levied in Slovenia.⁶⁰² Rates vary according to the use to which the abstracted water is applied, and are generally specified on a per m³ of water basis. Water abstraction charges raised €26 million of revenue in 2012, equivalent to 0.074% of GDP.⁶⁰³
- A wastewater pollution tax applies to the disposal of waste water in Slovenia. The tax is payable by all legal entities using water in their industrial processes, and the owner or manager of a building where municipal waste water arises. The tax basis is the number of waste water pollution load units in the taxation period, and a tax rate of €26.40 per unit of waste water load applies. The tax raised €29.8 million in revenue in 2012, equivalent to 0.084% of GDP.^{604,605}

⁶⁰¹ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

⁶⁰² OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

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⁵⁹⁹ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

⁶⁰⁰ Statistical Office of the Republic of Slovenia (2013) *Improvement and Upgrading of the Existing Environmental Accounts (Environmentally Related Taxes)*, January 2013, <u>http://www.cbd.int/financial/fiscalenviron/slovenia-environcount.pdf</u>

⁶⁰³ Eurostat (2014) *National Tax Lists*, 28th May 2014, <u>http://epp.eurostat.ec.europa.eu/statistics_explained/images/c/c4/National_tax_lists_20140528.xls</u>

⁶⁰⁴ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=814/1388754940&taxType=Other+indire</u> <u>ct+tax</u>

⁶⁰⁵ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

 Wastewater collection and treatment is subject to a charge in Slovenia.⁶⁰⁶ Both variable and fixed rates charges are in place, these vary across municipalities depending on a number of factors (e.g. the level of service provided, service costs, population distribution and density, etc.). Rates vary from €0.089 to €2.405 per m³ for households, and from €0.129 to €2.436 per m³ for industry. The charges generated revenue of €30 million in 2012, equivalent to 0.085% of GDP.⁶⁰⁷

17.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Slovenia. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

17.2.1 Current Status of EFR

Environmental awareness developed relatively early in Slovenia. Pressure to develop effective environmental legislation increased in the 1980s, as it was scientifically established that, in some places, pollution had reached considerable proportions and posed a serious threat to human health and the environment.

The Environmental Protection Act (EPA), passed in 1993, provides the main legislative basis of financing environmental protection in Slovenia. The EPA established the polluter pays principle, and enabled the government to introduce environmental taxes and charges to stimulate reduction of pollution. A new EPA was adopted in 2004 in order to fully harmonise the country's environmental laws with EU environmental directives.

Significant steps towards environmental tax reform have been taken in recent years. Slovenia was the first country in Central and Eastern Europe to introduce a CO_2 tax. This tax, implemented in 2007, has modest tax rates, suggesting that its primary function is to generate revenue rather than internalise the cost of pollution. Further legislation was passed in 2010 to extend the CO_2 tax to motor fuels. Another major step was taken in March 2010, when a reform of the motor vehicle tax linked the tax rate to vehicles CO_2 .

However, a number of taxes and exemptions still exist that are difficult to justify on environmental grounds. Generous refunds of excise duty, introduced in 2009 in response to the economic downturn, guarantee minimum EU tax rates for commercial diesel. Slovenia also has a significant tax differential between petrol and diesel.

In 2012, environmental taxes in Slovenia represented 3.8% of GDP, the third highest in the EU. This share rose by 0.8 percentage points from a 3.0% value in 2006–2008, mainly due to increasing revenues from excise duties on mineral oil and gas. In fact, energy taxes now account for a greater share of GDP in Slovenia than in any other



⁶⁰⁶ OECD (2014) *Database on Instruments Used for Environmental Policy*, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=3a15a4ab-7d0c-4b07-b7c6-</u> <u>9f10dbc06b6e&QryCtx=1&QryFlag=3</u>

⁶⁰⁷ Eurostat (2014) *National Tax Lists*, 28th May 2014, <u>http://epp.eurostat.ec.europa.eu/statistics_explained/images/c/c4/National_tax_lists_20140528.xls</u>

Member State. It is important to note, however, that this is not due to high tax rates (which are no higher than in most other European countries), but to the high level of final energy consumption in Slovenia relative to GDP.⁶⁰⁸

A working group was established in 2012 to develop proposals on green tax reform. The group has made a number of further proposals to expand the scope of some environmental taxes, as well as the possibility of introducing new taxes on pollution or the use of certain materials. However, little public attention is paid to the working group and these proposal are not published.

In 2013, the group released a report on environmentally harmful subsidies in Slovenia, the abolition of which would help to address the budget deficit, strengthen incentives for environmental protection, and enhance economic efficiency. Partly on the basis of this report, a joint government committee has agreed to review environmentally harmful subsidies in Slovenia.⁶⁰⁹ A proposal for the gradual reduction of EHS over the next five year period was due to be published by the end of 2013.

17.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Slovenia. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

Energy Taxes:

- It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€15.4 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for kerosene (€3.2 per GJ). Finally, the rates for heating fuels are equalised using the minimum rate for gas oil of €2.3 per GJ.
- The existing electricity taxes are harmonised and above the ETD minimum of €0.15 per GJ so no change is suggested.
- The changes indicate that the rates for LPG, used as a propellant, would increase significantly, reflecting the current, low, level of taxation. The

⁶⁰⁸ Eurostat (2012) *Taxation Trends in the European Union*, 2012, <u>http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-DU-12-001/EN/KS-DU-12-001-EN.PDF</u>

 $^{^{609}}$ Document of the National Assembly of RS, no. 411-01 / 13-30 / 4 dated 20 September 2013

same applies to natural gas. In addition, diesel and kerosene rates are increased, bringing both into line with the tax on petrol.

- Rates applied to LPG and natural gas, used in industrial motors, are also increased in line with gas oil.
- As regards heating fuels, rates for LPG and coal are increased quite significantly.
- Table 17-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the good practice section on energy taxes (Section 5.1). The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
- There is currently a significant differential in the tax rates applied to diesel and petrol. Aligning the two as per the proposed revision to the ETD leads to the tax rate for diesel increasing by over 30%. The uplift in the rate for kerosene is over 80%. The largest increases are for LPG and for natural gas, however, these moving to 6 and 4 times their current levels, respectively.
- For commercial and industrial motors, there are significant increases in rates for gas oil and LPG;
- There are major increases in the taxes applied to some of the heating fuels: rates for heavy fuel oil, natural gas and coal are all increased by around 150%, with the LPG tax rate increasing by 290%.

Energy Tax	Units	Suggested Rates	Existing Rates					
Transport Fuels	Transport Fuels							
Motor spirit (petrol)	€ per 1000 litre	550	550					
Light fuel oil (diesel)	€ per 1000 litre	593	450					
LPG (propellant)	€ per 1000 kg	765	128					
Kerosene	€ per 1000 litre	597	330					
Natural gas (prop)	€ per GJ	16	4					
Industry and Commercial Motors	Industry and Commercial Motors							
Gas oil	€ per 1000 litre	165	44					
Kerosene	€ per 1000 litre	165	165					
LPG	€ per 1000 kg	206	64					
Natural gas	€ per GJ	4	4					

• There is no change to the taxes on electricity.

Table 17-3: Existing and Suggested Rates Based upon Proposed Revisions to the ETD



Energy Tax	Units	Suggested Rates	Existing Rates	
Business Heating				
Gas oil	€ per 1000 litre	133	133	
Heavy fuel oil	€ per 1000 kg	154	61	
Kerosene	€ per 1000 litre	133	56	
LPG	€ per 1000 kg	164	42	
Natural gas	€ per GJ	3.42	1.35	
Coal	€ per GJ	4.19	1.63	
Non-Business Heating				
Gas oil	€ per 1000 litre	133	133	
Heavy fuel oil	€ per 1000 kg	154	61	
Kerosene	€ per 1000 litre	133	56	
LPG	€ per 1000 kg	164	42	
Natural gas	€ per GJ	3.42	1.35	
Coal	€per GJ	4.19	1.63	
Electricity				
Electricity - business use	€ per MWh	3.05	3.05	
Electricity - non-business use	€ per MWh	3.05	3.05	

> Transport Taxes:

Vehicles: The revenues from taxes on vehicles and from taxes on transport related fuels, when combined, are already 3.0% of GDP, which is above the benchmark figure of 2.7% of GDP suggested as a target figure (see Section 5.2.1). We do not model any changes in these. We note, however, that the differentiation in charges for HGVs for road use could be stronger in favour of cleaner vehicles, It should be noted that a recent study indicated that Slovenia's road charges for HGVs are the highest in the EU-28 relative to the quality of its roads (measured in terms of the rates charged per km).⁶¹⁰

⁶¹⁰ See Ricardo-AEA (2014) Evaluation of the Implementation and Effects of EU Infrastructure Charging Policy since 1995, Final Report to DG MOVE, January 2014.

Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. The introduction of a tax on passenger flights and air freight is recommended in Slovenia. The suggested rates for the air passenger tax are €25 per passenger (to other countries in the European Union), and €50 per passenger (to other countries outside the European Union). The suggested air freight tax rate is €1.25 per tonne of freight. The year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted in the good practice section, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax (see Section 5.2.2).

Pollution and Resource Taxes:

- Aggregates: An aggregates tax can help stimulate the market for use of aggregates from secondary sources (such as construction waste). This is in-line with the flagship initiative 'A Resource Efficient Europe'.⁶¹¹ Slovenia taxes the extraction of aggregates under a broader system of mineral extraction taxes. It is recommended to increase tax rates for aggregates to €2.40 per tonne from 2017, and that thereafter, they are kept constant in real terms. The types of materials that could be covered by the tax are:
 - o Marble
 - Chalk and dolomite
 - o Slate
 - Limestone and gypsum
 - Sand and gravel

Not all of these are extracted in Slovenia. The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues;

Waste – landfill tax: A landfill tax is currently in place in Slovenia. Landfill taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive. Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. Landfill taxes also provide support to the application of the waste hierarchy. The current landfill tax system applies a rate for non-hazardous equivalent to €11 per tonne of waste going to landfill. The disposal of inert and hazardous waste is also taxed at rates of €5.5 per tonne and €22 per tonne respectively. It is suggested that the rate for non-hazardous landfill is raised to a minimum of €50 per tonne by 2019. An early announcement of this tax and its escalation over a number of years would help drive further change in the waste management sector needed to meet EU targets in 2020 and

⁶¹¹ European Commission (2011) *Roadmap to a Resource Efficient Europe*, COM(2011) 571 final, <u>http://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm</u>



beyond. We suggest this tax should be indexed to an appropriate measure of inflation.

- Waste incineration / MBT tax: In order to ensure that wastes are not simply shifted from landfill to incineration, it is suggested that an incineration tax is introduced, up to €15 per tonne over the same period as the landfill tax is increased (i.e. up to 2019. We would recommend that the tax is applied on materials being prepared for export for incineration also so as to avoid a simple movement of waste to incinerators in countries without such a tax in place (or which may exempt imported wastes from the tax). An equivalent rate is also proposed for MBT facilities. These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe.⁶¹²
- Packaging: A small number of Member States have implemented packaging taxes for all packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. Slovenia has a low level tax in place (as well as the more common producer responsibility fees), but these seem designed to ensure data capture rather than generating a specific incentive. It is suggested that the following rates could be applied to all packaging placed on the market in Slovenia:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2017 and be kept constant in real terms.

• Single-use carrier bag tax: There is currently no tax on single-use carrier bags in Slovenia. Of these bags, plastic bags in particular cause many environmental problems when littered in the environment, especially when they are transported to, or littered in the riverine, or marine, environment. Moreover in countries with high level of tourism littered plastic bags can deter visitors. A wide body of experience suggests that taxing single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission

⁶¹² European Commission (2011) *Roadmap to a Resource Efficient Europe*, 20th September 2011, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN</u>

adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.⁶¹³ Consequently, it is suggested that Slovenia implements a tax on single-use carrier bags at a rate of €0.08 per bag from 2016, and maintains the rate constant in real terms thereafter.

- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. According to Airbase (EEA) all of the urban population in Slovenia is exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg/m³) for over 35 days per year.⁶¹⁴ Analysis of PM₁₀ sources indicates that the cause of this pollution is largely road transport, particularly in urban centres with heavy traffic.⁶¹⁵ However, some gains could be made from implementing a tax on stationary sources of such pollution, whilst also raising revenue. Slovenia does not currently have a system of air pollution taxes in place. It is suggested that an air pollution tax could be implemented in order to generate improvements in air quality as follows:
 - o SOx €1,000 per tonne
 - o NOx €1,000 per tonne
 - PM₁₀ €2,000 per tonne

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2021. The rates are then held constant in real terms.

 Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". Water abstraction charges are currently in place in Slovenia. However, simplification of the tax structure and an increase in tax rates is recommended. It is suggested that appropriate levels of taxation would be of the order €110 per 1,000m³ for the public water supply, €70 per 1,000 m³ for manufacturing purposes and €9 per 1,000 m³ for agriculture. We have assumed that the additional revenue which such rates may generate can accrue to the central budget. A transition period from 2016 to 2021 is suggested, whereby the rates are

⁶¹⁵ Ministry of the Environment and Spatial Planning (2013) *Air Pollution*, Accessed 13th October 2014, <u>http://www.arso.gov.si/en/soer/air_pollution.html</u>



⁶¹³ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>

⁶¹⁴ Eurostat (2014) Resource Efficiency Scoreboard: EU Urban Population Exposed to PM10 Concentrations Exceeding the Daily Limit Value %, Accessed 21st January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=0&pcode=t2020_rn200&</u> <u>language=en</u>

increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.

- Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21 May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.616 Slovenia has waste water user charges, but not a waste water tax. Charges vary across municipalities depending on a number of factors, with both fixed and combined fixed/variable pricing structures in place, and are levied on a per m³ basis, rather than being charged according to the level of pollutants in waste water. To improve prevention of water pollution it is suggested to implement a waste water tax and adjust tax rates in-line with good practice (see Section 5.3.6). With relative price levels in Slovenia this would imply. for BOD, a rate of €1.81 per kg of the pollutant. For fresh-water discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2016 to 2019 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. Existing exemptions should be reviewed and adjusted accordingly. It is suggested that rates should be held constant in real terms once they reach the 2019 levels.
- Pesticides: Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. Member States shall use all necessary means designed to achieve these targets".

The Slovenia Plan notes, amongst other things, that:617

"...the maximum residue levels of PPP found in food, feed and the environment have still been exceeded in some cases, which requires a more thorough systemic approach to the integrated pest management (hereinafter referred to as: IPM) and the shift of farm holdings from the existing conventional production to sustainable farming practices (e.g. organic or integrated)".

Amongst its objectives are the following:

"...to minimise the hazard and risk to human and animal health and the environment from the use of PPP, including through the

⁶¹⁶ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

⁶¹⁷ Government of the Republic of Slovenia (undated) National Action Programme: to Achieve Sustainable Use of Plant Protection Products for the Period 2012-2022,
substitution of the most dangerous substances with safer (including non-chemical) alternatives;

to reduce the levels of harmful active substances in food and drinking water, including through the substitution of the most dangerous ones with safer (including non-chemical) alternatives".

One part of the Programme considers '*Reduction of PPP use or risk resulting from their use or prohibition of their use in specific areas*'. There is a trend towards banding taxes to reflect the level of hazard associated with them, and we would suggest such an approach is suitable for application in Slovenia to support the objectives of the Programme. Our calculations assume that the country implements a pesticides tax, and in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €10 per kg active ingredient. The suggested transition period is from 2017 to 2019, and following this the rate should be kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark) would be a concrete measure that would contribute towards the aims of the Action Plan.

Fertilisers: Slovenia does not currently implement a tax on nitrogen (or other) fertilisers. It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of €0.2 per kg N be implemented from 2017 with rates gradually increasing to the maximum level in 2019.

17.2.3 Summary of Revenue Outcomes

Table 17-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Table 17-4: Potential Additional Revenue from Environmental Fiscal Reform in Slovenia, million EUR (real 2014 terms)⁶¹⁸

Тах	2017	2020	2025
Energy Taxes			
Transport fuels	26	103	179

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C



⁶¹⁸ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

Тах	2017	2020	2025	
C&I / Heating	2	8	14	
Sub-total Energy, million EUR	28	111	193	
Sub-total Energy, % GDP	0.08%	0.32%	0.55%	
Transport Taxes				
Passenger Aviation Tax	17	29	23	
Freight Aviation Tax	0.01	0.02	0.02	
Sub-total Transport, million EUR	17	29	23	
Sub-total Transport, % GDP	0.05%	0.08%	0.07%	
Pollution and Resource Taxes				
Landfill Tax - Non-haz General	9	14	14	
Incineration / MBT Tax	1	3	3	
Air Pollution Tax	6	11	8	
Water Abstraction Tax	7	17	15	
Waste Water Tax	6	8	8	
Pesticides Tax	6	11	10	
Aggregates Tax	22	10	7	
Packaging Tax	9	10	12	
Single Use Bag Tax	22	5	5	
Fertiliser Tax	0.003	0.005	0.005	
Sub-total Pollution & Resource, million EUR	89	88	83	
Sub-total Pollution & Resources, % GDP	0.25%	0.25%	0.24%	
Total Environmental Taxes				
Total, million EUR	134	228	299	
Total Increase, % GDP	0.38%	0.65%	0.85%	

Table 17-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 17-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Slovenia, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	54
Increased Cost Recovery for Water Use	55
Total	109

17.2.4 Environmental Benefits

Table 17-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.15.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €15 million of benefits are anticipated annually by 2025 in real terms.

Table 17-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Slovenia, million EUR (real 2014 terms)⁶¹⁹

Тах Туре	2017	2020	2025
Energy Taxes	1.3	4.9	8.4
Transport Taxes (excluding transport fuels)	0	0	0
Pollution and Resource Taxes	7.8	27	27
Total, million EUR	9.3	32	35
Total, % GDP	0.026%	0.086%	0.091%

17.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Slovenia: $^{\rm 620}$

⁶¹⁹ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

⁶²⁰ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

- In 2012, environmental taxes generated revenue equivalent to 3.82% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Slovenia. These could generate EUR 0.1 billion in 2017, rising to EUR 0.3 billion in 2025 (both in real 2014 terms). This is equivalent to 0.38% and 0.85% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the proposed harmonisation of taxes on transport fuels in line with those in the proposed ETD. This accounts for EUR 0.2 billion by 2025 (real 2014 terms), equivalent to 0.46% of GDP.
- The next largest contribution to revenue comes from the suggested passenger aviation tax. This accounts for EUR 0.023 billion by 2025 (real 2014 terms), equivalent to 0.06% of GDP.
- The water abstraction tax would account for EUR 0.015 billion by 2025 (real 2014 terms), equivalent to 0.04% of GDP.
- Revenue potential from the suggested landfill tax would raise an estimated EUR 0.014 billion by 2025 (real 2014 terms), equivalent to 0.04% of GDP.
- It has also been suggested that taxes on fuels used for business heating be harmonised with the proposed rates in the ETD. This would contribute EUR 0.014 billion by 2025 (real 2014 terms), equivalent to 0.04% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 0.054 billion by 2025 (real 2014 terms), equivalent to 0.14% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 0.015 billion by 2025 (real 2014 terms), equivalent to 0.04% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €109 million per annum could be raised in addition to the above.

18.0 Spain

18.1 Country Overview

18.1.1 Key Facts about the Economy and Tax System

- Spain saw sustained economic growth from 2003 to 2007, enjoying an average increase in GDP of 3.5% per annum in real terms over this period. Growth slowed in 2008, with the country's GDP increasing by only 0.9% in real terms on the previous year. Since then, between 2009 and 2013, GDP has fallen at an average rate of 1.3% per annum in real terms, though GDP did increase by 0.1% between 2010 and 2011.⁶²¹
- Spain's overall tax revenue (including social contributions), expressed as a percentage of GDP, was 34.3% in 2012 which was below the EU-28 average of 39.8%. This percentage share has declined over the past 10 years decreasing dramatically from a high of 38.4% in 2007.⁶²²
- Social contributions account for the greatest share of Spain's total tax income, at 37.9% in 2012, while direct taxes accounted for 30.9% and indirect taxes for 31.2%. There have been fluctuations in all three revenue streams over the past 10 years, although the overall percentage shares have ultimately remained similar to 2002 levels.⁶²³
- Revenue from environmental taxes amounted to 1.57% of Spain's GDP in 2012, the lowest percentage share in the EU-28 for that year. This share represents a 10 year low for Spain, and has fallen from 2.08% of GDP in 2002.⁶²⁴
- Energy taxes represented the largest share of environmental tax revenues, amounting to 1.27% of GDP in 2012. Transport (excluding fuel) taxes amounted to 0.26% of GDP, and pollution and resource taxes were 0.03% of GDP in 2012.⁶²⁵
- In 2012, taxation of energy provided 80.9% of Spain's total environmental taxation revenue. This is an increase of just one percentage point from 10 years ago (79.8% in 2002). In the interim, it fell to 76.5% in 2006 before rising again.⁶²⁶

623 Ibid.

625 Ibid.

626 Ibid.



⁶²¹ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁶²² Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

⁶²⁴ Eurostat (2014) *Environmental tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

18.1.2 Relative Position within the EU

Revenue from environmental taxes as a percentage share of GDP were markedly lower than the EU-28 average of 2.4% in 2012. Energy tax revenue as a share of GDP was below the EU-28 average, as were the comparable figures for revenues from transport (excluding fuel) taxes and pollution and resource taxes (see Figure 18-1).⁶²⁷



Figure 18-1: Environmental Taxes in Spain as a % of GDP vs EU-28 Levels (2012)

In 2012, Spain ranked the lowest out of all EU-28 Member States for revenue from environmental taxation as a share of GDP. It also ranked the lowest for energy tax revenues. For transport (excluding fuel) taxes, and for pollution and resource taxes, it ranked somewhat higher, being positioned at 19th place for both measures (see Table 18-1).⁶²⁸

Table 18-1: Ranking of Spain's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	28
Energy Taxes as a Share of GDP (%)	28
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	19
Pollution & Resource Taxes as a Share of GDP (%)	19

Source: based on Eurostat data

627 Ibid.

628 Ibid.

18.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.16.0. This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{629,630}

- > Energy Taxes:
 - The Spanish excise duties on fuels and electricity are shown in Table 18-2: Standard Rates of Excise Duties on Fuels and Electricity in Spain alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Excise Duty	Unit	Rate Applied in Spain	Existing ETD Minimum	EU-28 Average	EU-28 Median
Transport Fuels					
Leaded Petrol	€ per 1000 litres	€457.79	€421	€585	€583
Unleaded Petrol ¹	€ per 1000 litres	€424.69	€359	€519	€509
Gas Oil (Diesel)	€ per 1000 litres	€331.00	€330	€427	€405
Kerosene	€ per 1000 litres	€330.00	€330	€440	€405
Liquid Petroleum Gas	€ per 1000 kg	€57.47	€125	€209	€180
Natural Gas	€ per GJ	€1.66	€2.60	€3.03	€2.66
Motor Fuels – Industry ,	Motor Fuels – Industry / Commercial Use				
Gas Oil (Diesel) ²	€ per 1000 litres	€84.71	€21	€221	€163
Kerosene	€ per 1000 litres	€330.00	€21	€283	€330
Liquid Petroleum Gas	€ per 1000 kg	€57.47	€41	€126	€125

Table 18-2: Standard Rates of Excise Duties on Fuels and Electricity in Spain

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C



⁶²⁹ Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugin=1</u>

⁶³⁰ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

Excise Duty	Unit	Rate Applied in Spain	Existing ETD Minimum	EU-28 Average	EU-28 Median
Natural Gas	€ per GJ	€1.15 - €0.65³	€0.30	€1.76	€1.50
Heating – Business Use)				
Gas Oil (Diesel) ¹	€ per 1000 litres	€84.71	€21	€221	€163
Kerosene	€ per 1000 litres	€78.71	€0.00	€270	€330
Heavy Fuel Oil	€ per 1000 kg	€12.00 - €15.00 ⁴	€15	€70	€25
Liquid Petroleum Gas	€ per 1000 kg	€15,00	€0.00	€82	€40
Natural Gas	€ per GJ	€0.65 - €0.15⁵	€0.15	€1.36	€0.46
Coal and Coke	€ per GJ	€0.65 ⁶	€0.15	€1.27	€0.31
Heating – Non-Busines	s Use				
Gas Oil (Diesel) ¹	€ per 1000 litres	€84.71	€21	€179	€125
Kerosene	€ per 1000 litres	€78.71	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	€15.00	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	€15.00	€0.00	€111	€42
Natural Gas	€ per GJ	€0.65	€0.30	€2.04	€0.94
Coal and Coke	€ per GJ	€0.65	€0.30	€1.77	€0.32
Electricity					
Business Use	€ per MWh	€0.50 ⁷	€0.50	€8.42	€1.03
Non-Business Use	€ per MWh	€17	€1.00	€14.53	€2.06

Notes:

- 1. The rate shown is for <98 octane I.O.
- 2. Diesel intended for electric power production and/or cogeneration of electricity and heat costs €29.15.
- 3. €0.64 excise rate is applied on natural gas used for stationary motors.
- 4. €12 excise rate is applied on heavy fuel oil used for electric power production and/or cogeneration of electricity and heat costs (See Council Directive 2003/96/EC).
- 5. The rate for natural gas and biogas applicable for industrial users is €0.15.
- 6. The rate for coal used for "professional uses" is €0.15 (following approval of Real Decreto-Ley 9/2013)
- 7. The rates applied for electricity used for business and non-business use are minimum tax rates. The actual electricity rates applied are higher, for example in the case of electricity used for nonbusiness purposes, tax rates around €9 per MWh are common.

Source: DG TAXUD (2014) Excise Duty Tables (Part II – Energy products and Electricity), Situation as at 1st July 2014,

<u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/r</u> <u>ates/excise_duties-part_ii_energy_products_en.pdf</u>

- Motor fuels:
 - The excise duty applied on unleaded petrol (€424) is below both the EU-28 average and median rates, but above the ETD threshold. Leaded petrol is no longer sold in Spain and a substitute for leaded petrol was introduced in August 2001 (*Real Decreto* 785/01). Gas oil/diesel used for transportation is taxed at a lower rate than petrol, both on a per litre and CO₂ content basis.⁶³¹
 - Excise duties on gas oil/diesel (€331) and kerosene (€330) used as transport fuels are in line with the minimum rates set under the ETD but below the EU-28 average and median rates. Liquefied Petroleum Gas (€57) and natural gas (€1.66) used as motor-fuels are both below the existing ETD minimum. The VAT rate for gas oil/diesel used as propellant increased from 18% to 21% in September 2012.
 - A reduced rate of €78.71 per 1,000 litres is applied on gas oil/diesel used as motor fuel for agricultural purposes. A reimbursement is provided for gas oil used for agricultural purposes. Gas oil/diesel used in railways is also exempt from excise duties. Additional excise duty exemptions are in place for fuels used for aviation and navigation purposes.
 - The general excise duties on hydrocarbons (*Impuesto sobre Hidrocarburos*) are made of three different types of rates (the *tipo general, tipo especial* and *tipo autonómico*). The tipo general are generally set at the national level through the *Ley 38/1992, de 28 de diciembre, de Impuestos Especiales,* while the *tipo especial* is a special excise duty applied on the retail sale of petrol, gas oil/diesel, fuel oil and kerosene. The TAXUD database reports *tipo general* and *tipo especial* as a single taxes. In addition, autonomous regions can choose to apply a regional excise rate (*tipo autonómico*) for fuel locally consumed in addition to those applied at the national level. The rates applied in the autonomous regions can be found in Appendix A.16.0. The *Impuesto sobre Hidrocarburos* yielded €9,933 million (equivalent to 0.96% of GDP) in 2013.⁶³²
- Electricity:
 - A fee on the use of continental waters for the production of electricity (*Canon por utilización de las aguas continentales para la*

www.agenciatributaria.es/static_files/AEAT/Estudios/Estadisticas/Informes_Estadisticos/Informes_Anual es_de_Recaudacion_Tributaria/Ejercicio_2013/IART_13.pdf



⁶³¹ OECD (2013), *Taxing Energy Use: A graphical Analysis*, OECD Publishing, p. 201.

 $^{^{632}}$ Agencia Tributaria (2014), Informe Anual de Recaudacion Tributaria: AÑO 2013, Accessed 24 $^{\rm th}$ September 2014,

producción de energia eléctrica) is applied on the value of electricity generated by hydroelectric plants.

- Moreover, Spain has a Special Tax on Electricity (*Impuesto especial sobre la electricidad*). The Tax was introduced following the approval of Ley 66/1997 and is regulated through the *Ley* 38/1992. Exemptions are granted for electricity delivered in the framework of diplomatic relations or international organisations; for consumption in third countries in the framework of international agreements, international aviation and navigation.
- In 2012, the Special Tax on Electricity generated revenues of €1.6 billion (equivalent to 0.15% of Spanish GDP), while the fee on the use of continental waters for the production of electricity was expected to generate revenues of €298 million in 2013 (equivalent to 0.02% of GDP).⁶³³
- Since 2013, Spain has implemented taxes on the production of electric energy (*Impuesto sobre el valor de la producción de la energía eléctrica*), production of radioactive fuel and storage of radioactive waste. These taxes are regulated under *Ley* 15/2012 (Law 15/2012)⁶³⁴ and rates can be found in the Appendix. These three taxes generated €1,570 million of revenues in 2013, equivalent to 0.15% of Spanish GDP.⁶³⁵
- A Special Excise Duty on Coal (*Impuesto especial sobre el Carbon*) has been in place in Spain since 2005, following the introduction of the Ley 22/2005 (Law 22/2005). Coal and Coke used for power generation and cogeneration of electricity and heat, for electrolytic and metallurgical processes, mineralogical processes and as a fuel for domestic consumption and any other use that does not involve combustion are exempt from the duty. According to data provided by the *Agencia* Tributaria, the tax generated €148 million of revenues in 2013, equivalent to 0.014% of Spanish GDP.⁶³⁶

http://eforenergy.org/docpublicaciones/informes/Informe_Completo_EfE_2013.pdf

http://www.agenciatributaria.es/static_files/AEAT/Estudios/Estadisticas/Informes_Estadisticos/Informes_ Anuales_de_Recaudacion_Tributaria/Ejercicio_2013/IART_13.pdf

⁶³³ Economics for Energy (2013), Impuestos energético-ambientales en España [Informe 2013], Accessed 23rd September 2014, URL:

⁶³⁴ Government of Spain (2012), *Ley* 15/2012, *de* 27 *de diciembre, de medidas fiscales para la* sostenibilidad energética (Law 15/2012), Accessed 3rd September 2014, <u>http://www.boe.es/diario_boe/txt.php?id=B0E-A-2012-15649</u>

⁶³⁵ Agencia Tributaria (2014), Informe Anual de Recaudacion Tributaria: AÑO 2013, Accessed 24th September 2014,

⁶³⁶ Agencia Tributaria (2014), *Informe Anual de Recaudacion Tributaria: AÑO 2013*, Accessed 24 September 2014,

http://www.agenciatributaria.es/static_files/AEAT/Estudios/Estadisticas/Informes_Estadisticos/Informes_ Anuales_de_Recaudacion_Tributaria/Ejercicio_2013/IART_13.pdf

> Transport Taxes (excluding transport fuels):

- Vehicle Registration Tax (Impuesto Especial sobre Determinados Medios de Transporte):⁶³⁷
 - A tax on specific means of transport has been in place since January 1993. It covers the registration of small vessels and boats for pleasure and / or water sports, mechanically powered aircrafts and self-propelled vehicles powered by an engine.⁶³⁸
 - The rates applied vary according to the market value of the vehicle and CO₂ emissions. For motorcycles and quads, the tax also takes into account the overall engine power and different rates are applied.⁶³⁹ A general 'default' tax rate is applied at national level on different categories of vehicles. Autonomous communities can set local rates up to 15% higher than those applied at the national level.
 - The city of Ceuta y Melilla is exempted from the tax.⁶⁴⁰. A detailed description of the different rates applied in the autonomous communities can be found in Appendix A.16.0.
 - In 2012, total revenues from this tax amounted to €428 million, accounting for 0.04% of GDP and 0.13% of total tax revenues.⁶⁴¹
- Vehicle Circulation Tax (Impuesto sobre los Vehículos de Tracción Mecánica):⁶⁴²
 - A tax on "mechanically powered vehicles" has been in place since November 1988, under the Municipal Road Tax (*Impuesto municipal sobre circulación de vehículos*) and now under Royal Legislative Decree No 2 of 5th March 2004.⁶⁴³

⁶⁴³ European Commission (2014), Taxes in Europe Database, Accessed 2nd September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetails.html</u>



⁶³⁷ European Commission (2014), *Taxes in Europe Database*, Accessed 2nd September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetails.html</u>

⁶³⁸ European Commission (2014), *Taxes in Europe Database*, Accessed 2nd September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetails.html</u>

⁶³⁹ Agencia Tributaria (2014), *Impuesto especial sobre determinados medios de transporte*, Accessed 2nd September 2014,

http://www.agenciatributaria.es/AEAT/Contenidos_Comunes/La_Agencia_Tributaria/Modelos_y_formulari os/Declaraciones/Modelos_500_al_599/576/Instrucciones/instr_mod576.pdf

⁶⁴⁰ Agencia Tributaria (2014), Impuesto especial sobre determinados medios de transporte, Accessed 2nd September 2014,

http://www.agenciatributaria.es/AEAT/Contenidos_Comunes/La_Agencia_Tributaria/Modelos_y_formulari os/Declaraciones/Modelos_500_al_599/576/Instrucciones/instr_mod576.pdf

⁶⁴¹ European Commission (2014), Taxes in Europe Database, Accessed 2nd September 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetails.html</u>

⁶⁴² OECD and EEA (2014), *Database on instruments used for environmental policy*, Accessed 3rd September 2014, <u>http://www2.oecd.org/ecoinst/queries/All_Information.aspx</u>

- The tax applies to the whole Spanish territory and is an annual tax applied on vehicle owners. The tax is municipal but is regulated at national level. All classes and categories of mechanically powered vehicles which are suitable for use on public highways or roads are subject to the tax.
- The tax rate is calculated according to the engine rating, type of vehicle and weight (for certain vehicles). National rates are set through Art. 95 of the *Real Decreto Legislativo 2/2004* (and are shown in the table below), autonomous communities may increase the tax by applying a coefficient of between 1 and 2 to these taxes.⁶⁴⁴
- In 2012, total revenue from this tax amounted to €2.243 million, accounting for 0.22% of GDP and 0.67% of total tax revenue.⁶⁴⁵

> Pollution and Resource Taxes:

- Landfill and incineration taxes:
 - There is currently no national landfill or incineration tax applied in Spain; however, Article 16 of the Spanish Waste Act (Ley 22/2011, de 28 de julio, de residuos y suelos contaminados) provides a possibility for waste authorities to introduce economic and fiscal measures, including landfill and incineration taxes, on municipal waste, and also allows autonomous communities to impose regional waste taxes at their own discretion. ⁶⁴⁶
 - Nine autonomous communities have introduced local waste taxes to date:
 - A tax on the management of municipal waste in Catalonia was introduced in 2004 generating revenues of €24.4 million in 2011. ⁶⁴⁷ The tax applies to incineration (€7.40 per tonne for incinerated municipal waste and €18.60 per tonne for incinerated municipal waste from local authorities that do not collect organic waste separately (Article 15 of Ley 8/2008, de 10 de julio, de financiación de las infraestructuras de gestión de los residuos y de los cánones

⁶⁴⁷ OECD and EEA (2014) *Database on instruments used for environmental policy*, Accessed 12th August 2014, <u>http://www2.oecd.org/ecoinst/queries/All_Information.aspx</u>

⁶⁴⁴ Government of Spain (2014), *Real Decreto Legislativo 2/2004, de 5 de marzo, por el que se aprueba el texto refundido de la Ley Reguladora de las Haciendas Locales (Vigente hasta el 15 de Julio de 2015),* Accessed 22nd September, 2014, <u>http://noticias.juridicas.com/base_datos/Admin/rdleg2-</u>2004.t2.html#c2s3ss4

⁶⁴⁵ European Commission (2014), Taxes in Europe Database, Accessed 22nd August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetails.html</u>

⁶⁴⁶ Ignasi Puig Ventosa, I. (2011) *Landfill and Waste incinerated taxes – the Spanish case*, <u>http://ec.europa.eu/environment/waste/pdf/strategy/5.%20Landfill%20and%20incineration%20taxes%2</u> <u>0in%20Spain%20Ignasi%20Puig%20(2).pdf</u>

sobre la disposición del desperdicio de los residuos⁶⁴⁸ since 2014) and landfill (€15.80 per tonne for controlled municipal waste and €25.40 per tonne of controlled municipal waste from local authorities that do not collect organic waste separately according to the development project approved by the Waste Agency of Catalonia since 2014).

- Valencia introduced a general tax on waste management excluding municipal waste in 2013 (with rates from €0.5 to €10 per tonne) and a landfill tax on construction waste.
- Waste taxes have been in place in Madrid since 2003 (with rates applied ranging from €5 to €8 per tonne and €1 per m³ of construction and demolition waste) and in Murcia since 2006 (with rates applied ranging from €3 to €15 per tonne).
- La Rioja applies a tax for waste management except for municipal waste (with rates applied ranging from €4 to €21 per tonne), landfilling of construction waste is not taxed in this region.
- Cantabria has a landfill tax on industrial non-hazardous waste of €7 per tonne in place since 2010.
- In Andalusia, landfill of hazardous waste and radioactive waste is taxed at rates ranging from €15-€35 per tonne.
- Castile and Leon and Extremadura apply a tax on the landfill of any type of waste (municipal, industrial, hazardous and construction waste) with rates ranging from €3-€35 per tonne in Castile and Leon, to €3 to €15 per tonne in Extremadura.
- In 2010, revenues from all waste related taxes in Spain amounted to about €315 million⁶⁴⁹, representing 0.03% of GDP.
- Air pollution taxes:
 - There is currently no air pollution tax applied at the national level in Spain; however, there are several taxes in place in the autonomous communities. Air pollution taxes have been in place in Galicia since 1996, Valencia since 2003, Andalusia since 2004, Murcia and Aragon since 2006, and Catalonia since 2014. Varying rates are applied in each region, for example, for SO₂ emissions, tax rates range from €33 to €94 per tonne, whilst for NO₂, rates range from

⁶⁴⁹ European Environment Agency (2012), *Environmental Fiscal Reform – Illustrative Potential in Spain*, EEA Staff Position Note, September 2012, <u>http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs/EEABriefingNoteforETRWorkshop_Madrid.pdf</u>



⁶⁴⁸ Ignasi Puig Ventosa, I. (2011) *Landfill and Waste incinerated taxes – the Spanish case*, <u>http://ec.europa.eu/environment/waste/pdf/strategy/5.%20Landfill%20and%20incineration%20taxes%2</u> <u>Oin%20Spain%20Ignasi%20Puig%20(2).pdf</u>

€50 to €140 per tonne emitted. The rates are low compared to those in Nordic countries such as Denmark and Sweden. Moreover, revenues from these taxes dropped from €28 million in 2005 to €7 million in 2010.

- Fluorinated greenhouse gases:
 - After the approval of Ley 16/2013,⁶⁵⁰ a tax on fluorinated greenhouse gases (i.e. perfluorocarbons, hydro-fluorocarbons and sulphur hexafluoride) was introduced.
 - The tax is being gradually phased in from 2014 and will not be fully operational until 2016.⁶⁵¹
 - The tax base is structured according to the weight (in kg), and environmental impact (in terms of global-warming potential) of each type of gas emitted.
 - No data is available on revenues from this tax as it was only recently introduced. Spanish authorities estimate that the tax could potentially generate up to €400 million in 2014 (equivalent to 0.039% of Spanish GDP).⁶⁵² It has been estimated that proposed amendments⁶⁵³ to the final bill could make this value drop to just €113 million⁶⁵⁴; however, the Congress of Deputies recently rejected the proposed amendments⁶⁵⁵, thus initial revenue estimates still hold.
- Other pollution taxes:
 - Other environmental taxes have been introduced in the autonomous communities. For example, in Aragon a soil pollution tax, and a tax on the environmental damage caused by the installation of cable transport (e.g. ski facilities), have been introduced. The tax on soil pollution applies to the construction of

⁶⁵³ www.congreso.es/public_oficiales/L10/CONG/BOCG/A/BOCG-10-A-109-2.PDF

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⁶⁵⁰ Government of Spain (2013), *Ley* 16/2013, *de* 29 *de* octubre, por la que se establecen determinadas medidas en materia de fiscalidad medioambiental y se adoptan otras medidas tributarias y financieras, Accessed 5th September 2014, <u>www.boe.es/boe/dias/2013/10/30/pdfs/B0E-A-2013-11331.pdf</u>

⁶⁵¹ Government of Spain (2013), *Ley 16/2013, de 29 de octubre, por la que se establecen determinadas medidas en materia de fiscalidad medioambiental y se adoptan otras medidas tributarias y financieras,* Accessed 5th September 2014, <u>www.boe.es/boe/dias/2013/10/30/pdfs/B0E-A-2013-11331.pdf</u>

⁶⁵² European Commission (2014), Assessment of the 2014 national reform programme and stability programme for SPAIN Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on Spain's 2014 national reform programme and delivering a Council opinion on Spain's 2014 stability programme, June 2014, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0410&from=fr</u>

⁶⁵⁴ Economics for Energy (2013) *Impuestos energetico-ambientales en España,* Accessed 24th September 2014, <u>http://eforenergy.org/docpublicaciones/informes/Informe_Completo_EfE_2013.pdf</u>

⁶⁵⁵www.congreso.es/portal/page/portal/Congreso/Congreso/SalaPrensa/NotPre?_piref73_7706063_73_ 1337373_1337373.next_page=/wc/detalleNotaSalaPrensa&idNotaSalaPrensa=14047&anyo=2014&me s=9&pagina=1&mostrarvolver=S&movil=null

large department stores since 2006. The €7.2 million collected in 2012 were used for preventive, corrective and restoration activities caused by construction and installation.

- In Andalusia a tax on disposable plastic bags is in place. This tax generated €0.7 million of revenues in 2011, which were not earmarked for any particular use.
- Additional environmental taxes include, for example, those in 0 Asturias, La Rioja, and the Canary Islands (taxes on activities causing environmental harm such as communication networks. electricity supply networks, underground or submarine electricity supply networks). Valencian Community (tax on activities causing environmental harm such as the production of electricity by hydroelectric power plants, thermonuclear plants and all other sources of energy), Castile and Leon (tax on environmental damage caused by some uses of water from reservoirs and by high voltage transportation of electricity). Castile and la Mancha (tax on certain activities that cause environmental harm, including a tax on production of electricity from nuclear plants and radioactive waste disposal), Extremadura (tax on production and distribution of electricity), and in Galicia (tax on environmental damage caused by some uses of water from reservoirs).
- Wastewater discharges and water pollution taxes:
 - At the national level, a fee on wastewater discharges has been applied to tackle water pollution since 1986 (Ley 29/1985, de 2 de agosto, de Aguas, modified by Ley 46/1999, de 13 de diciembre). In 2001, these fees generated €32.6 million of revenues (latest date for which OECD estimates are available).⁶⁵⁶ This fee is composed of a fixed rate of €0.0120 per m³ for municipal wastewater discharges and a fixed rate of €0.03 per m³ for industrial wastewater discharges. These rates increase progressively depending on the level of pollution.
 - Regional taxes on wastewater and discharges have been introduced in several autonomous communities and are sometimes combined with water abstraction taxes, as in Aragon, Cantabria, Catalonia and Galicia ⁶⁵⁷ These taxes are composed of a variable tax rate depending, in most cases, on the level of pollution, and a fixed tax rate, ranging from €1 per month per taxpayer in Andalusia to €1,280 per month per taxpayer in Austurias. The fixed element of the tax is not applied in Catalonia, the Canary Islands, Castile-La Mancha, La Rioja, Navarre and the Basque Country.

⁶⁵⁷ Vales-Gimenez, J., Zarate-Marco, A. (2013) Environmental taxation and industrial water use in Spain, in *Investigaciones Regionales*, No. 25, pp.133-62.



⁶⁵⁶ OECD and EEA (2014) Database on instruments used for environmental policy, Accessed 5th September 2014, <u>http://www2.oecd.org/ecoinst/queries/</u>

- Water abstraction charges:
 - There are no water abstraction charges applied at the national level:⁶⁵⁸ however, many autonomous communities have introduced regional taxes for water abstraction (which in some cases are combined with water pollution charges as noted above). Overall, these regional taxes and charges are considered inefficient, as noted by the EEA,⁶⁵⁹ since Spanish water tariffs are amongst the lowest in OECD/EU countries⁶⁶⁰. Large differences in design and tariff rates between regions suggest significant revenue raising potential from the introduction of a general tax for all utilities abstracting water, as well as gains from further efforts to tackle losses in non-domestic uses of water. ⁶⁶¹
 - Water abstraction charges applied in the other autonomous communities are set out in Table 18-3 below.

Autonomous Community	Introduction Date	Tax Rate (in €)
Andalusia	2011	Fixed rate: 1 per household per month Variable rate: 0.1-0.6 per m ³
Asturias	2000	Fixed rate: 3 per month Variable rate: 0.0001-1280 per m ³
Aragon (the same tax applies to water pollution)	2002	Fixed rate: 5.02 per household per month Variable rate: 0.6050 per m ³ or 18.8790 per month per activity
Balearic Islands	1992	Fixed rate: 3.8861 per month Variable rate: 0.2779-1.6662 per m ³
Cantabria (the same tax applies to water pollution)	2006	Fixed rate: 25.88 per annum Variable rate: 0.4874-0.6332 per m ³
Castile-La Mancha	2003	Variable rate: 0.2805-0.4883 per m ³
Catalonia (the same tax	2000	Variable rate: 0.0927-4.1176 per m ³

Table 18-3: Water Abstraction Charges Applied in the Autonomous Communities

⁶⁵⁸ IEEP (2013), Steps to Greening Country Report: Spain, Final report for the European Commission, p. 7.

⁶⁵⁹ European Environment Agency (2012), *Environmental Fiscal Reform – Illustrative Potential in Spain*, EEA Staff Position Note, Accessed 2nd September 2014, <u>http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs/EEABriefingNoteforETRWorkshop_Madrid.pdf</u>

⁶⁶⁰ See EC study, http://ec.europa.eu/europe2020/pdf/nd/swd2012_spain_en.pdf

⁶⁶¹ European Environment Agency (2012), *Environmental Fiscal Reform – Illustrative Potential in Spain*, EEA Staff Position Note, Accessed 2nd September 2014, <u>http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs/EEABriefingNoteforETRWorkshop_Madrid.pdf</u>

Introduction Date	Tax Rate (in €)
2012	Fixed rate: 2 per household and 4 per user per month Variable rate: 0.10-0.60 per m ³
2011	Fixed rate: 1.5-2.5 per person and per month, depending on the type of consumption Variable rate: 0.2800-0.4210 per m ³
2001	Variable rate: 0.4800 per m ³ and per pollution unit (formula determined through the Law 5/2000)
2001	Fixed rate: 30 per household or user per year Variable rate: 0.2500-0.3400 per m ³
2001	Variable rate: 0.6500 per m ³ if connected to public drainage system, and 0.0800 per m ³ otherwise
1993	Fixed rate: 28.6300 - 39.5600 per year per household or activity according to the size of the municipality, 102.73 – 3593.55 per year per activity depending on the calibre of the water meter Variable rate: 0.2840-0.5030 per m ³
	Introduction 2012 2011 2001 2001 2001 2001 2001

Sources: OECD and EEA (2014) Database on instruments used for environmental policy, Accessed 12th August 2014, <u>www2.oecd.org/ecoinst/queries/All_Information.aspx;</u> and Government of Spain (2000), Article 40 of Ley 5/2000, de saneamiento y depuración de aguas residuales de La Rioja of 25 October, Accessed 23rd September 2014, <u>http://noticias.juridicas.com/base_datos/CCAA/Ir-I5-2000.html</u>

18.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Spain. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

18.2.1 Current Status of EFR

The economic downturn has led to a need for fiscal consolidation in several EU Member States. In Spain, this has *inter alia* led to a decline in funding for environmental agencies, reinforcing a downward trend since 2000.⁶⁶² Furthermore, revenues from environmental taxes have declined by 1.3% (as a percentage of total tax revenues) between 2000 and

⁶⁶² IEEP et al. (2013), Steps towards greening in the EU: Monitoring Member States' achievements in selected environmental policy areas; EU summary report, Final Report - July 2013, <u>http://ec.europa.eu/environment/enveco/resource_efficiency/pdf/Greening.pdf</u>



2010.⁶⁶³ Environmentally-related taxes account for just 1.6% of Spanish GDP, ranking the country last among the EU-28.⁶⁶⁴ One possible explanation for this weak performance could be that the Government perceives environmental taxes as having negative impacts on employment and competitiveness.⁶⁶⁵ This view may, however, be changing slowly as seen in recent developments and the Government's need for additional sources of revenue (see Appendix A.4.0 for a detailed discussion about the impacts of EFR on employment).

In 2013, a package of measures aimed at reinforcing fiscal consolidation was approved by the Spanish Government.⁶⁶⁶ This included the *Ley* 16/2013 (Law 16/2013) which included important elements on environmental taxation, such as, an increase on excise rates for certain types of oil and gas, and the introduction of a tax on fluorinated greenhouse gases. The package also covered electricity and partially amended and clarified *Ley* 15/2012 (Law 15/2012) regarding the tax on nuclear waste, although these changes were considered by some to be relatively minor.⁶⁶⁷

Water remains a core environmental issue in the country. Two-thirds of Spain have problems of water scarcity and is subject to droughts.⁶⁶⁸ Moreover, the country is struggling to comply with the provisions of the Drinking Water Directive, the Urban Wastewater Treatment Directive and the Water Framework Directive.⁶⁶⁹ In some autonomous communities, water tariffs are amongst the lowest in the EU-28 (sometimes as low as 0.01 per m³) while the agriculture sector has few economic incentives to increase efficiency and reduce water consumption for irrigation (irrigation accounted for 68% of total water demand in 2013).⁶⁷⁰ There are also problems with water pollution

http://search.oecd.org/officialdocuments/displaydocumentpdf/?doclanguage=en&cote=com/env/epoc/ctpa/cfa%282008%2938/final

⁶⁶⁶ European Commission (2014), Assessment of the 2014 national reform programme and stability programme for SPAIN Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on Spain's 2014 national reform programme and delivering a Council opinion on Spain's 2014 stability programme, June 2014, <u>http://eur-lex.europa.eu/legal-</u>content/EN/TXT/PDF/?uri=CELEX:52014SC0410&from=fr

⁶⁶⁷ Government of Spain (2014), *Ley* 16/2013, *de* 29 *de* octubre, por la que se establecen determinadas medidas en materia de fiscalidad medioambiental y se adoptan otras medidas tributarias y financieras, Accessed 5th September 2014, <u>http://www.boe.es/boe/dias/2013/10/30/pdfs/B0E-A-2013-11331.pdf</u>

⁶⁶⁸ IEEP (2013), Steps to Greening Country Report: Spain, Final report for the European Commission, p. 7.

⁶⁶⁹ European Commission (2011), Commission asks Spain to improve drinking water in Alicante (16 June 2011), Accessed 5th September 2014, <u>http://europa.eu/rapid/press-release_IP-11-728_en.htm</u>

⁶⁶³ IEEP (2013), Steps to Greening Country Report: Spain, Final report for the European Commission, p. 3.

⁶⁶⁴ DG Taxation and Custom union (2014), *Country Chapters:* Spain, Accessed 4th September 2014, <u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_s</u> <u>tructures/country_tables/es.pdf</u>

⁶⁶⁵ OECD (2008), *Taxation, Innovation and the Environment – The Spanish Case, Accessed* 4th September 2014,

⁶⁷⁰ European Commission (2012), Assessment of the 2012 national reform programme and stability programme for SPAIN Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on Spain's 2012 national reform programme and delivering a Council opinion on Spain's updated stability programme, 2012-2015, May 2015, <u>http://ec.europa.eu/europe2020/pdf/nd/swd2012_spain_en.pdf</u>

including a variety of emissions (of nitrogen, phosphorus, chemical oxygen demand, etc.) and urban waste water treatment.⁶⁷¹

Spain also faces a number of challenges related to air pollution. Seasonal air pollution still persists in major cities (mainly due to traffic congestion and large use of private transportation) and Spain is expected to miss its 2020 target for reducing greenhouse gas emissions.⁶⁷² In November 2010, Spain was taken to court by the European Commission for its inability to comply with air quality limits under Directive 2008/50/EC on ambient air quality.⁶⁷³ While there are currently no air pollution taxes applied at the national level, some autonomous communities apply taxes on air pollutants such as SO₂ and NO₂. In those regions where air pollution taxes are applied (and not all regions apply such taxes), tax rates are amongst the lowest (sometimes lower than €50 a tonne) applied in Europe (together with France and Italy).⁶⁷⁴ However, some recent efforts have been undertaken in this area; for example, the government approved measures to tackle air pollution including the *Real Decreto* 102/2011 (Royal Decree 102/2011) which set out a number of objectives, targets, limits and authorisation procedures for SO_x and NO_x emissions and the introduction of a new tax on fluorinated greenhouse gases in October 2013.⁶⁷⁵

Waste is another challenging sector. Spain landfilled more than 50% of its municipal waste in 2011.⁶⁷⁶ Although some progress has been made over the last years, in particular after implementation of the two *National Municipal Solid Waste Management Plans* (of 2000-2006 and 2008-2012), more action is needed to increase recycling and reduce landfilling in the country.⁶⁷⁷ Interesting initiatives are underway in some

⁶⁷⁷ ETC/SCP (2013), *Municipal waste management in Spain*, Accessed 5th September 2014, <u>http://www.google.fr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=OCCYQFjAA&url=http%3A%2F%2Fwww.eea.europa.eu%2Fpublications%2Fmanaging-municipal-solid-waste%2Fspain-municipal-waste-management&ei=tH8JVPycPMOROPLpgYAF&usg=AFQjCNFon7Ruy0GSBVNkZ3ZmAde8NMVfw&bvm=bv.74649129.d.ZWU</u>



⁶⁷¹ European Environment Agency (2012), Environmental Fiscal Reform – Illustrative Potential in Spain, EEA Staff Position Note, September 2012, <u>http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs/EEABriefingNoteforETRWorkshop_Madrid.pdf</u>

⁶⁷² European Commission (2014), Assessment of the 2014 national reform programme and stability programme for SPAIN Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on Spain's 2014 national reform programme and delivering a Council opinion on Spain's 2014 stability programme, June 2014, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0410&from=fr</u>

⁶⁷³ IEEP (2013), Steps to Greening Country Report: Spain, Final report for the European Commission, p. 4.

⁶⁷⁴ IEEP (2014), *Environmental Tax Reform in Europe: Opportunities for the future,* Final report for the Netherlands Ministry of Infrastructure and the Environment, May 2014, http://www.ieep.eu/assets/1397/ETR_in_Europe_-_Final_report_of_IEEP_study_-_30_May_2014.pdf

⁶⁷⁵ KPMG (2013), New tax measures introduced by Law 16/2013 of 29 October 2013 establishing certain environmental tax measures and adopting other tax and financial measures, November 2013, http://www.kpmg.com/ES/es/servicios/Abogados/Fiscal/Documents/Novedades2013-Ley16-29-oct-EN.pdf

⁶⁷⁶ Eurostat (2013), *Eurostat News Release: In 2011, 40% of treated municipal waste was recycled or composted, up from 27% in 2001,* Accessed 5th September 2013, <u>http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/8-04032013-BP/EN/8-04032013-BP-EN.PDF</u>

autonomous communities – such as, the landfill and incineration tax in Catalonia⁶⁷⁸ - and effectiveness of these initiatives can offer valuable insights to other parts of the country.

In 2013, the Spanish Government commissioned a group of experts to elaborate a proposal on a comprehensive and integral reform of the Spanish taxation system.⁶⁷⁹ This report, known as the Lagares report, was presented in March 2014 and included a chapter (Chapter VI) almost entirely devoted to environmental taxation which includes proposals in a number of areas such as (see pages 86 to 93):

- > The alignment of tax rates on diesel and petrol;
- > Replace the tax base of electricity tax from sales to consumption;
- > Reform the vehicle circulation tax to consider emissions of the vehicles; and
- > The introduction of congestion charging.

The report also suggested the need to remove fiscal benefits provided by Corporate Income Taxation (*Impuesto Sobre Sociedade*) including tax breaks on activities linked to environmental purposes and R&D with additional revenues invested in other measures.

After the presentation of the Lagares report, the Government submitted three proposed bills amending different taxes to the Spanish Parliament.^{680,681,682} None of these proposed bills related to the proposals on environmental taxation in the *Lagares* report. However, the report's proposal to suppress the tax deduction on environmental investments provided in the Corporate Income Tax (proposal 45) has been included in the proposed bill to reform the system of Corporate Income Tax (*Proyecto de Ley del Impuesto sobre Sociedades*). Although there have been some concerns of the impact

http://www.economiadigital.es/es/downloads2/reforma_fiscal_informe_lagares.pdf

⁶⁸⁰ Congreso de los Diputados (2014), Proyecto de Ley por la que se modifican la Ley 37/1992, de 28 de diciembre, del Impuesto sobre el Valor Añadido, la Ley 20/1991, de 7 de junio, de modificación de los aspectos fiscales del Régimen Económico Fiscal de Canarias, la Ley 38/1992, de 28 de diciembre, de Impuestos Especiales, y la Ley 16/2013, de 29 de octubre, por la que se establecen determinadas medidas en materia de fiscalidad medioambiental y se adoptan otras medidas tributarias y financieras, Accessed 18th September 2014, URL:

http://www.congreso.es/portal/page/portal/Congreso/PopUpCGI?CMD=VERLST&BASE=pu10&D0CS=1-1&D0C0RDER=LIF0&QUERY=%28B0CG-10-A-108-1.C0DI.%29#(Página1)

http://www.congreso.es/portal/page/portal/Congreso/PopUpCGI?CMD=VERLST&BASE=pu10&D0CS=1-1&D0C0RDER=LIF0&0UERY=%28B0CG-10-A-109-1.C0DI.%29#(Página1)

http://www.congreso.es/portal/page/portal/Congreso/PopUpCGI?CMD=VERLST&BASE=pu10&D0CS=1-1&D0C0RDER=LIF0&QUERY=%28B0CG-10-A-107-1.C0DI.%29#(Página1)

⁶⁷⁸ Puig Ventosa, I., Gonzales, A.C., Jofra Sora, M., (2012) Landfill and waste incineration taxes in Catalonia, Spain, in Kreiser, L., Yabar, A., Herrera, P., Milne, J.E., Aishabor, H. (Eds) *Green Taxation and Environmental Sustainability. Critical Issues in Environmental Taxation*, Vol. XII, p. 244-257

⁶⁷⁹ Comisión de Expertos (2014), Informe de la comisión de expertos para la reforma del sistema tributario español (Lagares Report), Final Report, March 2014, URL:

⁶⁸¹Congreso de los Diputados (2014), *Proyecto de Ley del Impuesto sobre Sociedades*, Accessed 18th September 2014, URL:

⁶⁸² Congreso de los Diputados (2014), Proyecto de Ley por la que se modifican la Ley 35/2006, de 28 de noviembre, del Impuesto sobre la Renta de las Personas Físicas, el texto refundido de la Ley del Impuesto sobre la Renta de No Residentes, aprobado por el Real Decreto Legislativo 5/2004, de 5 de marzo, y otras normas tributarias, 18th September 2014, URL:

and effectiveness of these tax breaks, this could be considered one of the few measures in the Spanish tax system at the national level specifically conceived with an environmental purpose.

There have also been discussions on EFR among civil society groups which have been relatively active in proposing specific environmental taxes. In 2009, a draft bill was registered in the Spanish Parliament by a number of large environmental NGOs, the trade union, and a left wing party, but the bill did not pass and thus no legislation was forthcoming.⁶⁸³ In 2012, this draft bill was revised and updated before being registered again in the Parliament – it was again met with defeat.⁶⁸⁴ In March 2014 a number of NGOs – that is, Green Budget Europe, Plataforma por un Nuevo Modelo Energético, and Xarxa per la Sobirania Energética – signed a manifesto calling for a deep reform of the Spanish tax system and the inclusion of environmental objectives in the current fiscal reform that the country is undergoing.⁶⁸⁵ More recently Green Budget Europe and Fundacio ENT also proposed several concrete proposals on environmental taxation, focusing on energy and transportation.⁶⁸⁶ Specific proposals put forward by civil society groups in the context of the CEPRiE project (Carbon and Energy Pricing Reform in Europe)⁶⁸⁷ include the following (see pg. 9 to 10):⁶⁸⁸

- To reform current taxes on hydrocarbons and coal, while reducing the tax benefits/exemptions currently in place;
- To shift energy taxation to reflect the energy content and CO₂ emissions of energy products;
- To move towards a convergence between the tax rates on petrol and diesel fuels (currently petrol taxes are 33% higher than diesel);
- > To amend the current tax base for electricity to increase efficiency; and
- To increase the scope of circulation charges on certain means of transportation (*impuesto de matriculación*) to reflect CO₂ emissions and consider a reform of the *impuesto de circulación* to fully address the environmental impact of certain motor vehicles.

⁶⁸³ http://www.congreso.es/public_oficiales/L9/CONG/BOCG/B/B_190-01.PDF

⁶⁸⁴ <u>http://www.congreso.es/public_oficiales/L10/CONG/BOCG/A/BOCG-10-A-25-2.PDF</u> (p35 and ss)

⁶⁸⁵ Green Budget Europe et al. (2014), *La importancia de incluir aspectos ambientales en la reforma fiscal*, Final Report, March 2014, <u>http://ent.cat/blog/wp-content/uploads/140313-Manifiesto_final.pdf</u>

⁶⁸⁶ Green Budget Europe & Fundacio ENT (2014), *Propuestas de enmiendas con finalidad ambiental a diferentes Proyectos de Ley y respuesta de los Grupos Parlamentarios*, Final Report, September 2014, http://fundacioent.cat/images/stories/ENT/pdf/enmiendas%20a%20los%20proyectos%20de%20ley%20 sobre%20fiscalidad.pdf

⁶⁸⁷ Green Budget Europe (2014), *CEPRiE* - *Carbon and Energy Pricing Reform in Europe*, Accessed 21st October 2014, <u>http://www.foes.de/internationales/green-budget-europe/gbe-projekte/ceprie/?lang=en</u>

⁶⁸⁸ Jofra Sora, M., Meyer, E., Puig Ventosa, I. and Calaf Forn, M. (2014), *Los impuestos energéticos en España: situación y propuestas*, Final Report, June 2014, <u>http://www.foes.de/pdf/20140702_jornada_resumen_propuestas_fiscalidad.pdf</u>

Two country-specific recommendations relating to EFR were made as part of the 2014 European Semester:⁶⁸⁹

Recommendation 1: [...] Shift revenues towards less distortive taxes, such as consumption, environmental (e.g. on motor fuels) and recurrent property taxes.

Recommendation 7: [...] ensure the effective elimination of deficit in the electricity system as of 2014, including by taking further structural measures if needed. Address the problem of insolvent toll motorways so as to minimise costs for the State.

More detailed recommendations are made in the accompanying Commission Staff Working Document⁶⁹⁰ which states that it would be beneficial to tax CO₂ and the energy content of products separately to ensure the neutrality of the tax system among different energy sources. Moreover, the document suggests bringing the taxation of diesel to the same level as petrol. Finally, the document proposes to eliminate certain regional environmental taxes that hamper the functioning of the market or do not achieve their purpose and replace them with taxes at the national level. However, some experts argue that certain regional taxes work well and are tailored to reflect specific regional characteristics, thus they should not all be systematically harmonised as this could risk jeopardising progress made in some autonomous communities. Rather, a certain (but not necessarily complete) degree of harmonisation could be considered where appropriate⁶⁹¹ - for example, setting minimum tax rates at the national level above which individual autonomous communities could chose to set higher rates. The 2014 Spanish National Reform Programme⁶⁹² does not propose any specific EFR related measures, but it does put forward general measures on energy efficiency and flood prevention.

18.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Spain. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for

http://fundacioent.cat/images/stories/ENT/pdf/jornada_resumen_propuestas_fiscalidad.pdf and http://fundacioent.cat/images/stories/ENT/pdf/revisin%20impuestos%20energticos%20espaa.pdf

⁶⁸⁹ Council of the European Union (2014), COUNCIL RECOMMENDATION of on the National Reform Programme 2014 of Spain and delivering a Council opinion on the Stability Programme of Spain, 2014, 16th June 2014, <u>http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%2010786%202014%20INIT</u>

⁶⁹⁰ European Commission (2014), COMMISSION STAFF WORKING DOCUMENT "Assessment of the 2014 national reform programme and stability programme for SPAIN Accompanying the document Recommendation for a COUNCIL RECOMMENDATION on Spain's 2014 national reform programme and delivering a Council opinion on Spain's 2014 stability programme, June 2014, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0410&from=fr</u>

⁶⁹¹ Jofra Sora, M., Meyer, E., Puig Ventosa, I., Calaf Forn, M., (2014) Los impuestos energéticos en España: situación y propuestas, June 2014,

⁶⁹² Government of Spain (2014), PROGRAMA NACIONAL DE REFORMAS: REINO DE ESPAÑA (2014), Accessed 9th September 2014, <u>http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014_spain_es.pdf</u>

revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

Energy Taxes:

- It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€11.6 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for kerosene (€7.9 per GJ). Finally, the rates for heating fuels are equalised using the minimum rate for gas oil of €0.9/GJ. The suggested tax changes reflect some of the proposals put forward by civil society groups (see above).
- The existing electricity tax rates are harmonised according to the highest rate, which for Spain is non-business use. In addition to rate increases, it may also be relevant to consider a change in the tax base, for example, changing the tax base in the *Impuesto sobre la electricidad* from the current base on the sale price of electricity to one focused on the amount of final electricity consumed.⁶⁹³ This was, for instance, one of the suggestions of the Lagares report and has also been included in the proposals put forward by civil society.
- Table 18-4 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the good practice on energy taxes (see Section 5.1). The proposed rates are reached (in real terms) by 2018 or 2023, depending on whether all of the existing rates are below €0.15 per GJ or not.
- There is currently a significant differential in the tax rates applied to diesel and petrol. Aligning the two as per the proposed revision to the ETD leads to the tax rate for diesel increasing by almost 40%. The uplift in the rate for kerosene is more or less the same. The largest increases are for LPG and for natural gas, however, these moving to 10 times and 13 times their current levels, respectively.
- For commercial and industrial motors, there are significant increases in rates for gas oil, and even more so, for natural gas and LPG.
- There are major increases in the taxes applied to some of the heating fuels: rates for heavy fuel oil and LPG both increase by more than 500%, Rates for natural gas and coal are increased by 215% and 334%, respectively.

⁶⁹³ Jofra Sora, M., Meyer, E., Puig Ventosa, I. and Calaf Forn, M. (2014), Los impuestos energéticos en España: situación y propuestas, Final Report, June 2014, <u>http://www.foes.de/pdf/20140702_jornada_resumen_propuestas_fiscalidad.pdf</u>



Energy T	ax Units	Suggested Rates	Existing Rates
Transport Fuels			<u> </u>
Motor spirit (petrol)	€ per 1000 litre	e 425	425
Light fuel oil (diesel)	€ per 1000 litre	e 459	331
LPG (propellant)	€ per 1000 kg	590	57
Kerosene	€ per 1000 litre	e 461	330
Natural gas (prop)	€ per GJ	13	1
Industry and Commercial Motors	· ·		
Gas oil	€ per 1000 litre	e 328	85
Kerosene	€ per 1000 litre	e 330	330
LPG	€ per 1000 kg	420	57
Natural gas	€ per GJ	9	1
Business Heating		i	
Gas oil	€ per 1000 litre	e 85	85
Heavy fuel oil	€ per 1000 kg	99	15
Kerosene	€ per 1000 litre	e 84	79
LPG	€ per 1000 kg	101	15
Natural gas	€ per GJ	2.05	0.65
Coal	€ per GJ	2.82	0.65
Non-Business Heating	· ·		
Gas oil	€ per 1000 litre	e 85	85
Heavy fuel oil	€ per 1000 kg	99	15
Kerosene	€ per 1000 litre	e 84	79
LPG	€ per 1000 kg	101	15
Natural gas	€ per GJ	2.05	0.65
Coal	€per GJ	2.82	0.65
Electricity			

Table 18-4: Existing and Suggested Rates Based upon Proposed Revisions to the ETD

Energy Tax	Units	Suggested Rates	Existing Rates
Electricity - business use	€ per MWh	1.00	0.50
Electricity - non-business use	€ per MWh	1.00	1.00

> Transport Taxes:

- Vehicles: It is suggested that additional revenues of 1.17% GDP could be generated from increased transport fuel taxes (described above) and revisions to vehicle taxes. Possible changes to vehicle taxation could, for example, include: an increase in the rate of the vehicle registration tax; current CO₂ limits applied for different categories of vehicles could be tightened: criteria expanded to include consideration of EURO emission standards of vehicles; and certain exemptions eliminated or phased out (see Appendix A.16.0 for more details on existing exceptions etc.). In addition, the annual vehicle circulation tax could be reformed with rates modified to reflect CO₂ emissions (as with the vehicle registration tax) and potentially take into account additional environmental impacts.⁶⁹⁴ The latter proposals on the circulation tax are also among the suggestions of the Lagares report and proposals put forward by civil society. Spain has not yet implemented the provisions of the Eurovignette Directive. It operates a concession based scheme for charging HGVs for road use. The current approach lacks any differentiation on the basis of EURO class, and the rates applied (in terms of the amount paid per km) are relatively low. with only Greece applying lower rates of the countries operating concession based approaches.
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. Spain does not currently have an aviation tax in place, although Catalonia recently introduced a tax on the emissions of NO_x released during take-off and landing operations of commercial flights (see Appendix A.16.0 for more details).⁶⁹⁵ There is thus scope for introducing a passenger flight tax and a tax on air freight. The suggested rates for the air passenger tax are €15 per passenger for flights within

⁶⁹⁵ Parlament de Catalunya (2014), *LLEI 12/2014*, *del 10 d'octubre, de l'impost sobre l'emissió d'òxids de* nitrogen a l'atmosfera produïda per l'aviació comercial, *de l'impost sobre l'emissió de gasos i partícules a* l'atmosfera produïda per la indústria i de l'impost sobre la producció d'energia elèctrica d'origen nuclear, Accessed 21st October 2014, <u>http://legislacion.derecho.com/llei-012-2014-de-l-impost-sobre-l-emissio-doxids-de-nitrogen-a-l-atmosfera-produida-per-l-aviacio-comercial-de-l-impost-sobre-l-emissio-de-gasos-iparticules-a-l-atmosfera-produida-per-la-industria-i-de-l-impost-sobre-la-produccio-d-energia-electrica-dorigen-nuclear</u>



⁶⁹⁴ Jofra Sora, M., Meyer, E., Puig Ventosa, I. and Calaf Forn, M. (2014) Los impuestos energéticos en España: situación y propuestas, Final Report, June 2014, www.foes.de/pdf/20140702_jornada_resumen_propuestas_fiscalidad.pdf

Spain, €25 per passenger for flights within the the European Union), and €50 per passenger for flights outside the European Union. The suggested air freight tax rate is €1.25 per tonne of freight. For the purposes of this study, the year of implementation is taken to be 2016 with rates gradually increasing to the maximum level in 2018. As noted in the good practice section on aviation, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax (see Section 5.2.2). There may also be scope to consider taxation of kerosene fuel used in domestic flights where some form of EU or international cooperation would be required.

Pollution and Resource Taxes:

- Aggregates: No national or regional tax is levied on the 175 million tonnes of aggregates extracted in Spain (UEPG 2011 approximates⁶⁹⁶). An average rate of €2.40 per tonne of materials extracted could be applied to aggregates extracted in all Spanish regions. This could be a proposed minimum tax rate, with certain regions potentially choosing higher rates to reflect regional circumstances. Such a tax would help stimulate the use of secondary materials (such as construction waste) and recycled materials. Recycled aggregates currently represent less than 1% of the total aggregates produced.⁶⁹⁷ The types of materials that could be covered by the tax are:
 - Marble
 - Chalk and dolomite
 - Slate
 - Limestone and gypsum
 - Sand and gravel

Although some of these materials are not extracted in Spain (where the large majority of materials extracted are crushed rocks, sand and gravel), the suggested aggregates tax could be applied to domestic aggregate extraction and imports to Spain, excluding exports (a similar approach to the aggregates levy applied in the UK).⁶⁹⁸ The specific range of materials suggested reflects, in part, the nature of the data available to us in developing estimates of potential revenues. The tax would be introduced in 2017, and would remain constant in real terms thereafter.

• Waste – landfill tax: There is currently no national landfill tax applied in Spain; however, regional taxes on waste are applied in a number of autonomous regions. Landfill taxes provide incentives for improved waste

⁶⁹⁶ European Aggregates Association (2013) *Annual Review* 2012-2013, Accessed 21st October 2014, <u>http://www.uepg.eu/uploads/Modules/Publications/uepg-ar2012-2013</u> en inter v14 pbp small.pdf

⁶⁹⁷ Ibid.

⁶⁹⁸ Söderholm, P (2011) Taxing Virgin Natural Resources: Lessons from Aggregates Taxation in Europe, Luleå University of Technology, Sweden. Submitted to Resources, Conservation and Recycling 2011

management, and the meeting of targets under Article 11 of the Waste Framework Directive. Article 28(4) proposes that the use of economic instruments is evaluated in the development of waste management plans. Landfill taxes also provide support to the application of the waste hierarchy. It is suggested that a minimum rate for non-hazardous waste sent to landfill is set at €50 per tonne by 2021 for the whole of Spain. An early announcement of this tax and its escalation over a number of years would help drive further change in the waste management sector needed to meet EU targets in 2020 and beyond. We suggest this tax should be indexed to an appropriate measure of inflation.

- Waste Incineration / MBT Tax: There is currently no national incineration tax applied in Spain. Although Spanish legislation has made provision for the setting of incineration taxes by the autonomous regions, only Catalonia has introduced such a tax. There were around ten incinerators in use in Spain in 2009, treating 2.2 million tonnes a year of residual waste. Four of these facilities are in Catalonia⁶⁹⁹ which has what is considered an effective landfill and incineration tax in place⁷⁰⁰. It is suggested that a minimum national incineration tax be introduced at a rate of €15 per tonne. This would be a proposed minimum tax rate to be applied across all regions. It is suggested that the tax is applied on materials being prepared for export for incineration also, so as to avoid a simple movement of waste to incinerators in countries without such a tax in place (or which may exempt imported wastes from the tax). These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe.⁷⁰¹ An equivalent rate is also proposed for MBT facilities.
- Packaging: There are no material-specific packaging taxes currently levied in Spain. In 2011, in more than 150 kg of packaging waste per capita was produced and on average 100 kg of packaging waste was recycled.⁷⁰² According to Article 5(c) of Law 11/1997, the total quantity of packaging waste arising is to be reduced by at least 10% by weight (a target date is not specified in the law). These targets have, however, not been very effective as the actual generation of packaging has increased. Law 10/1998 also stipulates that Packaging Prevention Plans have to be drawn up by those responsible for placing more than a given limit of

⁶⁹⁹ BIO Intelligence Service *et al.* (2012) Use of Economic Instruments and Waste Management Performances, Final Report, Accessed 09th October 2014, <u>http://ec.europa.eu/environment/waste/pdf/final_report_10042012.pdf</u>

⁷⁰⁰ Puig Ventosa, I., Gonzales, A.C., Jofra Sora, M., (2012) Landfill and waste incineration taxes in Catalonia, Spain, in Kreiser, L., Yabar, A., Herrera, P., Milne, J.E., Aishabor, H. (Eds) *Green Taxation and Environmental Sustainability. Critical Issues in Environmental Taxation*, Vol. XII, p. 244-257

⁷⁰¹ European Commission (2011) *Roadmap to a Resource Efficient Europe*, 20th September 2011, <u>http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011DC0571&from=EN</u>

⁷⁰² Eurostat (2013) *Packaging Waste Statistics*, Accessed 9th October 2014, <u>http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Packaging_waste_statistics</u>

packaging on the Spanish market. These plans are required to help minimise the production of packaging waste at source and to reduce adverse effects on the environment. Reuse incentives are therefore part of companies' obligation to draw up Packaging Prevention Plans.⁷⁰³ In some Member States, packaging taxes have been applied to all packaging placed on the market in order to stimulate waste prevention and to reduce demand for raw materials. Based on these experiences, the following rates could be applied in Spain to packaging placed on the market:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO₂ savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2016 and be kept constant in real terms.

Single-use carrier bag tax: Approximately 150 plastic bags per capita are used every year in Spain, with most of them being single-use plastic carrier bags, for which supermarkets are the biggest provider.⁷⁰⁴ A plastic bag tax is not in place at the national level. Andalusia is the only region in Spain where a tax is levied on the consumption of single-use carrier bags. The tax was introduced in 2011 at a rate of €0.05 per bag. It was increased in 2014 to €0.10 per plastic bag. In Catalonia, a voluntary agreement between the regional Waste Agency, regional and national business groups, plastic bag manufacturers, food distributors, and supermarkets has contributed to a reported 40% drop in consumption of single-use plastic bags in the period from 2007 to 2011.705 The European Commission has issued a proposal for regulation to reduce the consumption of lightweight plastic carrier bags. ⁷⁰⁶ At the national level

⁷⁰³ Ecologic and IEEP (2009) A Report on the Implementation of the Packaging and Packaging Waste Directive 94/62/EC, Accessed 9th October 2014, http://ec.europa.eu/environment/waste/reporting/pdf/Packaging%20Directive%20Report.pdf

⁷⁰⁴ Eunomia (2012) Assistance to the Commission to Complement an Assessment of the Socio-economic Costs and Benefits of Options to Reduce the Use of Single-use Plastic Carrier Bags in the EU, Final Report for the European Commission DG Environment under Framework Contract No ENV.C.2/FRA/2011/0020, Accessed 10th October 2014, http://ec.europa.eu/environment/waste/packaging/pdf/study_options.pdf

⁷⁰⁵ Earth Policy Institute (2014) The Downfall of the Plastic Bag: A Global Picture, Plan B Updates, Accessed 10th October 2014, http://www.earth-policy.org/plan_b_updates/2013/update123

⁷⁰⁶ European Commission (2013) Proposal for a Directive of the European Parliament and of the Council amending Directive 94/62/EC on packaging and packaging waste to reduce the consumption of lightweight plastic carrier bags, COM/2013/0761 final - 2013/0371 (COD), Accessed 10th October 2014, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013PC0761

Spain plans to completely stop the use of plastic bags by 2018 (*Ley* 22/2011, *de* 28 *de* Julio, *de* residuos y suelos contaminados); thus, it could consider introducing a plastic bag tax at the national level in order to help achieve the desired reductions. It is suggested to apply such a tax at a rate of €0.09 per bag from 2017, and maintaining the tax at a constant level in real terms thereafter. We note that Andalusia already applies a marginally higher tax rate, so a clear precedent exists for such a tax.

- Air pollution: The urban population in Spain is exposed to air pollutant concentrations up to 38% above the EU reference values (50 µg per m³ per day of PM₁₀, 120 μ g per m³ per 8-hours' periods of O₃ and 40 μ g per m³ per year for NO₂. ⁷⁰⁷ In 2010, around 33% of the total population was exposed to PM₁₀ concentrations above limit values for 35 days.⁷⁰⁸ The equalisation of tax rates of diesel and petrol may, over the medium-term, and in conjunction with changes in vehicle taxes described above, contribute to improvements in this regard through influencing the vehicle stock. In addition, to these measures, taxes on air pollution from large and medium sources should provide incentives for measures to reduce pollution (e.g. abatement technologies), and therefore improve air quality (and thereby, the health of the population). No national tax on air pollution is currently in place; however, several regions (Andalusia, Murcia, Aragon, Galicia, Catalonia, and Valencia) have introduced taxes ranging from €33 to €94 per tonne for SO₂ emissions, and between €50 to €140 per tonne of NO₂ emitted (see Appendix A.16.0 for more details).⁷⁰⁹ These rates are considerably lower than those applied in Nordic countries such as Denmark and Sweden. 2010 data indicates that Spain exceeded its respective NO_X ceilings for that year set by the NEC Directive and has not been able to meet its ceilings for NH₃ emissions for 2012. ⁷¹⁰,⁷¹¹ In order to improve air quality, the following tax rates are therefore suggested:
 - SOx €1,000 per tonne
 - NOx €1,000 per tonne
 - o PM₁₀ €2,000 per tonne

⁷¹⁰ European Environmental Agency (2013), *NEC Directive status report 2013 Reporting by Member States under Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants, Accessed 16th October 2014, <u>http://www.eea.europa.eu/publications/nec-directive-status-report-2013/at_download/file</u>*

⁷¹¹ European Environmental Agency (2013), *Air pollution fact sheet 2013 – Spain*, Accessed 16th October 2014, <u>http://www.eea.europa.eu/themes/air/air-pollution-country-fact-sheets/spain-air-pollutant-emissions-country-factsheet/at_download/file</u>



⁷⁰⁷ European Environment Agency (2013) *Air pollution fact sheets 2013*, Spain, Accessed 10th October 2014

⁷⁰⁸ European Environmental Agency (2013), *Air pollution fact sheet 2013 – Spain*, Accessed 16th October 2014, <u>http://www.eea.europa.eu/themes/air/air-pollution-country-fact-sheets/spain-air-pollutant-emissions-country-factsheet/at_download/file</u>

⁷⁰⁹ European Environment Agency (2012), *Environmental Fiscal Reform – Illustrative Potential in Spain*, EEA Staff Position Note, Accessed 4th September 2014, <u>http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs/EEABriefingNoteforETRWorkshop_Madrid.pdf</u>

These taxes represent a significant increase over current practices in some regions; therefore, a progressive increase from 2016 to a maximum level by 2021 is suggested, and then held constant in real terms.

- Water abstraction: Water scarcity is a major concern in Spain which is expected to be exacerbated in the future with climate change. In 2002, Spain had a 35% abstraction rate of long-term freshwater resources, categorising Spain as a water-stressed country.712 The EU Water Framework Directive (Directive 2000/60/EC) stresses that cost recovery for water services should include environmental and resource costs. Although there is no national water abstraction tax in Spain, many autonomous communities have introduced regional taxes (which in some cases also combine water pollution charges) and these are used for the financing of river basin management. The EEA notes, however, that these taxes are rather inefficient, as they are amongst the lowest in OECD and EU countries and that there are large differences in design and rates between regions.^{713,714} Moreover, agriculture is exempted from environmental related water charges in Aragon. Asturias. Balearic Islands. Cantabria, Catalonia, Galicia and La Rioja.⁷¹⁵ Thus, it is suggested that minimum tax rates of €480 per 1,000m³ for households, €300 per 1,000m³ for manufacturing, and €40 per 1,000 m³ for agriculture could be introduced at the national level. These would be proposed minimum rates to be applied across all regions. As noted above, certain regions may choose to set higher tax rates than the minimum rate (e.g. as already applied in some autonomous communities). Given the significant difference in the structure and rates, a progressive increase in tax rates is recommended from 2016 to 2021, and rates maintained in real terms thereafter.
- Waste water: The Council Directive 91/271/EEC concerning urban wastewater treatment specifically targets waste water discharges and discharges from certain industrial sectors.⁷¹⁶ Spain has faced several accusations of breaching EU waste water legislation. This included allegations of improper treatment of waste water from agglomerations with more than 10,000 inhabitants due to failures in treatment systems, which

⁷¹² EEA (2014) *Water scarcity*, Accessed 10th October 2014, <u>http://www.eea.europa.eu/themes/water/featured-articles/water-scarcity</u>

⁷¹³ European Environment Agency (2012), *Environmental Fiscal Reform – Illustrative Potential in Spain*, EEA Staff Position Note, Accessed 2nd September 2014, <u>http://www.eea.europa.eu/highlights/fiscal-reform-can-create-jobs/EEABriefingNoteforETRWorkshop_Madrid.pdf</u>

⁷¹⁴ See EC study, <u>http://ec.europa.eu/europe2020/pdf/nd/swd2012_spain_en.pdf</u>

⁷¹⁵ OECD (2010) *Taxation, Innovation and the Environment*, Accessed 10th October 2014, <u>http://www.oecd.org/env/tools-evaluation/taxationinnovationandtheenvironment.htm</u>

⁷¹⁶ DG Environment (2014) *Urban Waste Water Directive Overview*, Accessed 29th January 2014, <u>http://ec.europa.eu/environment/water/water-urbanwaste/index_en.html</u>

pose risks to human health, inland waters, and the marine environment.⁷¹⁷ As noted above, a national *fee on wastewater discharges* is applied, with regional taxes on wastewater and discharges having been introduced in several autonomous communities which are sometimes combined with water abstraction taxes, and are typically composed of a fixed rate element, and a variable tax rate depending on the type and level of pollution.⁷¹⁸ In order to improve prevention of water pollution, waste water taxes could be introduced across all of the autonomous communities, at a level of at least €2.04 per kg of pollutant for all BOD. This would be a proposed minimum tax rate to be applied across all regions. Certain regions may choose to have a tax higher than the minimum rate (e.g. as already applied in some autonomous communities). A transition period between 2016 and 2019 would be needed in order to equalise the various rates, and exemptions reviewed. It is proposed to keep the rate constant in real terms from 2019 onwards.

 Pesticides: Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

> "...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> <u>designed to achieve these targets</u>".

Spain does not have a national tax or regional pesticides taxes in place and its consumption of pesticides is currently one of the highest in the EU. Since specific data on the types of active ingredient used for the preparation of the pesticides sold in the country is missing, a general tax rate of ξ 7.5 per kg of active ingredient could be implemented. The tax could be introduced from 2017 with a transition period to 2019. A rate structure similar to the one in Norway or Denmark, where the rate is banded according to the potential effects of different active ingredients, is considered to be the most effective.

• **Fertilizers:** Since September 2012 a low rate of VAT (at 10%) has been applied to all fertilizers sold in Spain.⁷¹⁹ This has encouraged further consumption and it has been reported that, in 2012, fertilizer consumption

⁷¹⁹ OECD (2012) Agricultural policies and support, Accessed 13rd October 2014, <u>http://www.oecd.org/tad/agricultural-policies/support-policies-fertilisers-biofuels.htm</u>



⁷¹⁷ European Commission (2011) *Environment: Commission takes Spain to Court over urban waste water and river basin plans*, European Commission IP/11/729 of 16/06/2011, Accessed 10th October 2014, <u>http://europa.eu/rapid/press-release IP-11-729 en.htm</u>

⁷¹⁸ Vales-Gimenez, J., Zarate-Marco, A. (2013) Environmental taxation and industrial water use in Spain, in *Investigaciones Regionales*, No. 25, pp.133-62.

in Spain equalled 124.3 kg per hectare of arable land, which was slightly less than the EU average of 149.4 kg per hectare per year.⁷²⁰ This consumption measures the quantity of plant nutrients that are used per unit of arable land and covers nitrogenous (with the worst environmental performance), potash, and phosphate fertilizers (including ground rock phosphate). As there is not fertiliser tax in place in Spain it is suggested that, in order to further improve efficiency in the application of fertilisers to land, a tax of \in 0.15 per kg of nitrogen fertiliser be introduced. As part of this work we have assumed that the tax would be implemented from 2017, and would increase up to the maximum level in 2019. Moreover, a broader environmental tax reform could also consider reclassifying VAT rates applied on fertilisers, increasing this to the standard rate of 21%.

18.2.3 Summary of Revenue Outcomes

Table 18-5 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025	
Energy Taxes				
Transport fuels	379	1,502	2,972	
C&I / Heating	166	513	602	
Electricity	66	66	66	
Sub-total Energy, million EUR	610	2,080	3,639	
Sub-total Energy, % GDP	0.06%	0.20%	0.35%	
Transport Taxes				
Vehicle Taxes	2458	9,836	12,308	

Table 18-5: Potential Additional Revenue from Environmental Fiscal Reform in Spain, million EUR (real 2014 terms)⁷²¹

⁷²⁰ World Bank (2014) *Fertilizer consumption database*, Accessed 13rd October 2014, <u>http://data.worldbank.org/indicator/AG.CON.FERT.ZS/countries/1W-EU?display=graph</u>

⁷²¹ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

Тах	2017	2020	2025
Passenger Aviation Tax	2,692	5,823	6,812
Freight Aviation Tax	0.36	0.72	0.77
Sub-total Transport, million EUR	5,151	15,659	19,121
Sub-total Transport, % GDP	0.49%	1.49%	1.82%
Pollution and Resource Taxes			
Landfill Tax - Non-haz General	565	794	813
Landfill Tax - Inerts (C&D)	4	2	2
Incineration / MBT Tax	83	126	132
Air Pollution Tax	212	372	255
Water Abstraction Tax	1,427	3,345	3,283
Waste Water Tax	237	330	330
Pesticides Tax	139	268	273
Aggregates Tax	402	194	135
Packaging Tax	262	257	272
Single Use Bag Tax	576	122	135
Fertiliser Tax	0.050	0.085	0.072
Sub-total Pollution & Resource, million EUR	3,906	5,810	5,630
Sub-total Pollution & Resources, % GDP	0.37%	0.55%	0.54%
Total Environmental Taxes			
Total, million EUR	9,667	23,550	28,390
Total Increase, % GDP	0.92%	2.24%	2.70%

Table 18-6 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 18-6: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Spain, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	1,927



Revenue Type	Revenue Per Annum, million EUR
Increased Cost Recovery for Water Use	7,083
Total	9,010

18.2.4 Environmental Benefits

Table 18-7 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.16.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, €1.6 billion of benefits are anticipated annually by 2025 in real terms.

Table 18-7: Monetised Environmental Benefits from Implementation of Suggested Taxes in Spain, million EUR (real 2014 terms)⁷²²

Тах Туре	2017	2020	2025
Energy Taxes	26	87	143
Transport Taxes (excluding transport fuels)	244	493	502
Pollution and Resource Taxes	341	949	912
Total, million EUR	612	1,529	1,557
Total, % GDP	0.06%	0.14%	0.14%

18.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Spain:⁷²³

In 2012, environmental taxes generated revenue equivalent to 1.57% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Spain. These could generate EUR 9.7 billion

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

 $^{^{722}}$ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

 $^{^{723}}$ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

in 2017, rising to EUR 28.4 billion in 2025 (both in real 2014 terms). This is equivalent to 0.92% and 2.70% of GDP in 2017 and 2025, respectively.

- The largest single contribution to revenue comes from the suggested increase in vehicle taxes. This accounts for EUR 12.3 billion by 2025 (real 2014 terms), equivalent to 1.08% of GDP.
- The next largest contribution to revenue comes from the proposed passenger aviation tax. This accounts for EUR 6.8 billion by 2025 (real 2014 terms), equivalent to 0.60% of GDP.
- The water abstraction tax would account for EUR 3.3 billion by 2025 (real 2014 terms), equivalent to 0.29% of GDP.
- Revenue potential from the suggested harmonisation of the taxes on transport fuels with the rates in the proposed ETD would raise EUR 3.0 billion by 2025 (real 2014 terms), equivalent to 0.26% of GDP.
- A national minimum landfill tax also been suggested. This would contribute EUR 0.8 billion by 2025 (real 2014 terms), equivalent to 0.07% of GDP.
- In addition, a range of more minor taxes on could generate revenue of EUR 2.2 billion by 2025 (real 2014 terms), equivalent to 0.19% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around EUR 1.6 billion by 2025 (real 2014 terms), equivalent to 0.14% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €9 billion per annum could be raised in addition to the above.



19.0 Sweden

19.1 Country Overview

19.1.1 Key Facts about the Economy and Tax System

- Sweden's GDP increased by an average 3.46% per annum in real terms between 2003 and 2007. Sweden was among those Member States already feeling the effects of global recession more strongly in 2008, with GDP falling by 0.6% in real terms on the previous year. The economy contracted significantly in 2009 with GDP dropping a further 5% in real terms. The economy bounced back in 2010, when GDP increased by 6.6% in real terms. The economy has continued to grow since then, although at a more modest rate.⁷²⁴
- Sweden's overall tax revenue (including social contributions) as a percentage of GDP is high compared to the majority of Member States, standing at 45% of GDP in 2013. However, it has fallen since 2002 (47.9% of GDP) and was at its highest in 2005 (49.3% of GDP).⁷²⁵
- Sweden's total tax take is split more-or-less evenly between direct and indirect taxes, which accounted for 41% and 42.3% of total revenue in 2013, respectively. The input made by social contributions, at 16.6%, is low compared to the majority of other Member States, and has fallen by 7.8% since 2002. Direct taxation's contribution has remained fairly stable, while the share of revenue raised via indirect taxes has risen by 7.6% over the same period.⁷²⁶
- Environmental tax revenue amounted to 2.49% of Sweden's GDP in 2012. This percentage share stood at 2.88% in 2002, and has fluctuated over the years, until beginning to fall in 2011.⁷²⁷
- In 2012, Sweden received the majority of its environmental tax revenue from energy, these amounting to 2.02% of GDP. Transport (excluding fuel) taxes amounted to 0.44% of GDP, and taxes placed on pollution and resources were of the order 0.03% of the country's GDP in 2012.⁷²⁸

726Ibid.

728 Ibid.

⁷²⁴ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁷²⁵ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

⁷²⁷ Eurostat (2014) *Environmental Tax Revenues* [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>
Energy taxes accounted for 81.1% of revenues from environmental taxes in 2012. This figure has fallen over the past 10 years from a percentage share of 84.7% in 2002.⁷²⁹

19.1.2 Relative Position within the EU

Expressed in terms of percentage share of GDP, Sweden's environmental tax revenue for 2012 was just above the EU-28 average of 2.4%. The revenues from energy taxes were above the EU-28 average of 1.8% of GDP; however, transport (excluding fuel) taxes and pollution and resource taxes were below the respective EU-28 averages of 0.5% GDP and 0.1% GDP (see Figure 19-1).⁷³⁰



Figure 19-1: Environmental Taxes in Sweden as a % of GDP vs EU-28 Levels (2012)

Sweden has a middle ranking among Member States regarding environmental tax revenue as a share of GDP, ranking 15th in 2012. Regarding energy tax revenues as a proportion of GDP, it ranked 11th, for revenues from transport taxes (excluding fuel), it ranked 14th, and for pollution and resource tax revenues, it was in 19th place (see Table 19-1).⁷³¹

729 Ibid.

730 Ibid.

731 Ibid.



Table 19-1: Ranking of Sweden's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	15
Energy Taxes as a Share of GDP (%)	11
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	14
Pollution & Resource Taxes as a Share of GDP (%)	19

Source: based on Eurostat data

19.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.17.0. This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Taxation Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon GDP in current prices from Eurostat:^{732,733}

- > Energy Taxes:
 - Sweden's excise duties on fuels and electricity are shown in Table 19-2 alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Table 19-2: Standard Rates of Excise Duties on Fuels and Electricity in Sweden (Rates applicable from 1 January 2015)

Excise Duty Unit	Rate Applied in Sweden ^{734 735} (1€=9.0914SEK ⁷³⁶)	Existing ETD Minimum	EU-28 Average	EU-28 Median
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⁷³² Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugin=1</u>

⁷³³ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

⁷³⁴ These tax rates exclude the sulphur tax and the nitrogen charge; see separate sections for these.

⁷³⁵ Significant rate increases will take effect from 2015 for propellants LPG and gas; and for all industry/business heating fuels in sectors outside the EU ETS

⁷³⁶ Note as the rates for 2015 are used they are converted to EUR using the estimated exchange rate published by Eurostat for 2015.

Excise Duty	Unit	Rate Applied in Sweden ^{734 735} (1€=9.0914SEK ⁷³⁶)	Existing ETD Minimum	EU-28 Average	EU-28 Median	
Motor Fuels – propellant						
Unleaded Petrol	€ per 1000 litres	SEK 5,850 (€643)¹	€359	€519	€509	
Gas Oil (Diesel)	€ per 1000 litres	SEK 5,051 (€556)²	€330	€427	€405	
Kerosene	€ per 1000 litres	SEK 5,051 (€556)	€330	€440	€405	
Liquid Petroleum Gas	€ per 1000 kg	SEK 3,385 (€372)	€125	€209	€180	
Natural Gas	€ per GJ	SEK 60 (€6.6)	€2.60	€3.03	€2.66	
Motor Fuels – Industry,	/ Commercial Use (Sta	itionary engines)				
Gas Oil (Diesel)	€ per 1000 litres	SEK 2,186 (€240) ³ SEK 255 (€28.05) ³	€21	€221	€163	
Kerosene	€ per 1000 litres	SEK 2,186 (€240) ³ SEK 255 (€28.05) ³	€21	€283	€330	
Liquid Petroleum Gas	€ per 1000 kg	SEK 2,359 (€259)³ SEK 328 (€36.08)³	€41	€126	€125	
Natural Gas	€ per GJ	SEK 43 (€4.7)	€0.30	€1.76	€1.50	
Heating – Business Use	e (Manufacturing, agric	culture, forestry and aqu	aculture)			
Gas Oil	€ per 1000 litres	SEK 2,186 (€240) ³ SEK 255 (€28.05) ³	€21	€221	€163	
Kerosene	€ per 1000 litres	SEK 2,186 (€240)³ SEK 255 (€26.93)³	€0.00	€270	€330	
Heavy Fuel Oil	€ per 1000 kg	SEK 2,301 (€253) ³ SEK 268 (€29.5) ³	€15	€70	€25	
Liquid Petroleum Gas	€ per 1000 kg	SEK 2,359 (€259) ³ SEK 328 (€36.08) ³	€0.00	€82	€40	
Natural Gas	€ per GJ	SEK 43 (€4.7) ³ SEK 7 (€0.77) ³	€0.15	€1.36	€0.46	
Coal and Coke	€ per GJ	SEK 66 (€7.3) ³ SEK 6.8 (€0.75) ³	€0.15	€1.27	€0.31	
Heating ⁴ - Non-Busines	s Use (incl. other busi	ness use not specified a	above)			
Gas Oil (Diesel)	€ per 1000 litres	SEK 4,068 (€447)	€21	€179	€125	



Excise Duty	Unit	Rate Applied in Sweden ^{734 735} (1€=9.0914SEK ⁷³⁶)	Existing ETD Minimum	EU-28 Average	EU-28 Median
Kerosene	€ per 1000 litres	SEK 4,068 (€447)	€0.00	€279	€330
Heavy Fuel Oil	€ per 1000 kg	SEK 4,282 (€471)	€15	€85	€26
Liquid Petroleum Gas	€ per 1000 kg	SEK 4,477 (€492)	€0	€111	€42
Natural Gas	€ per GJ	SEK 84 (€9.2)	€0.3	€2.04	€0.94
Coal and Coke	€ per GJ	SEK 121 (€13)	€0.3	€1.77	€0.32
Electricity					
Business Use - Manufacturing, agriculture, forestry and aquaculture	€ per MWh	SEK 5 (€0.55)	€0.5	€8.42	€1.03
Non-Business Use – and other businesses not specified above ⁵	€ per MWh	SEK 294 (€32)	€1.0	€14.53	€2.06

Notes:

1. This rate is for Class 1 petrol.

2. This rate is for Class 1 diesel. Class 2 has a rate of SEK 5,331 (€586) and Class 3 a rate of SEK 5,477 (€602). Reduced rate for agricultural motor fuel is SEK 4,151 (€457).

3. Different rates for non-ETS and ETS installations (the latter are exempt from the CO₂-tax).

4. CHP plants within ETS are exempt from the CO₂-tax; other heating plants within the ETS has a reduction of 20 per cent.

5. SEK 194 (€21.34) per MWh applies for use in the northern parts of Sweden.

Source: For fuels: SFS 2009:1497, http://www.lagboken.se/dokument/andrings-sfs/603966/sfs-2009_1497-lag-om-andring-i-lagen-1994_1776-om-skatt-pa-energi?id=44890; for electricity Förordning om fastställande av omräknade belopp för energiskatt på elektrisk kraft för år 2015 (will be printed in the SFS series before the end of November 2014).

- The petrol tax has been relatively stable, due to a legal requirement for indexation of energy taxes (although the figures fluctuate when expressed in euros because the Swedish currency is floating). In real eurodenominated terms, the tax is now slightly lower than at its peak in 1996, when it was 4 cents higher per litre. The differential to the diesel tax has been narrowed over recent years and is now about 10 cents per litre, whereas it was twice as high in the mid-1990's.
- Heating for non-business uses and electricity are taxed at some of the highest rates found in the EU. These rates apply for non-manufacturing

business too, e.g. services. On the other hand, when it comes to heating use in the manufacturing business, then energy and electricity are in fact taxed at rates below EU averages.⁷³⁷

- From 2011 the industrial installations covered by the EU-ETS have been exempted from the CO₂ tax, while becoming subject to an energy tax. From 2013 the same rules apply for CHP installations covered by the EU-ETS. While previously their CO₂ tax had been restricted under an ad-hoc mechanism, their effective tax rates are now close to the obligatory EU minimum.⁷³⁸ Other heating plants within the EU-ETS has obtained a reduced rate at 20% for the CO₂ tax, while still paying the full, general energy tax rate.
- The Swedish relief scheme for ETS-covered energy-intensive industries and CHP and other plants within the ETS has been notified as state aid to the European Commission and was deemed acceptable (state aid case N22/2008, compare GBER notification SA.32493). Also the lower energy and CO₂ tax rates for heating fuels used outside the EU ETS has been notified as state aid and has been deemed acceptable (GBER notification SA.32494).
- According to a report from the National Audit Office in Sweden the climate taxation reform provided a net tax relief of €650 million to the ETS sectors.⁷³⁹ The National Audit Office finds that "*in relation to the climate-related taxes, the government has not presented (to the parliament) a comprehensive, clear picture of costs between trade and industry and households or within trade and industry".⁷⁴⁰ In this context the Commission's state aid approval makes reference to a stipulated relief at about €50 million annually to ETS/energy-intensive industries while the actually implemented tax relief is higher.⁷⁴¹*
- The industries covered by ETS, altogether about 600 installations, account for 33% of carbon emissions in Sweden and include the metal industry (8%), mineral industries (6%), refineries (4%) and paper & pulp (3%).^{742,743}



⁷³⁷ Prior to 1992 the business electricity tax was 10 times higher than presently and closer to that of households; *Annex Table A.15. (by Stefan Speck) pp. 288 in M.S. Andersen and P. Ekins, eds. (2009) Carbon-energy taxation: lessons from Europe, Oxford University Press.*

⁷³⁸ A cap of 0.8 per cent of their annual product sales value.

⁷³⁹ Swedish National Audit Office (2012) Climate taxes: Who pays ?, Stockholm p 71 <u>http://www.riksrevisionen.se/PageFiles/16431/RiR_2012_01_Rapport_ENG_anpassad_NY.pdf</u>.

⁷⁴⁰ The relief for ETS installations has been partly compensated by increasing carbon-energy taxes for non-ETS sectors with €485 million.

⁷⁴¹ European Commission, 2008, State aid case N22/2008 – Sweden: C02-tax reduction for fuel used in installations covered by ETS, C(2008)1917.

⁷⁴² Åsa Löfgren et. al. (2013) The effect of EU-ETS on Swedish industry's investment in carbon mitigating technologies, Working papers in economics no. 565, University of Gothenburg: Department of Economics. https://gupea.ub.gu.se/bitstream/2077/32649/1/gupea_2077_32649_1.pdf

⁷⁴³ International Energy Agency (2013) Energy policies of IEA countries: Sweden, Paris.

In comparison about 50 companies made use of the initial exemption mechanism under the $\rm CO_2\,tax.^{744}$

 The reform of energy and carbon taxation has scheduled a phasing out of certain exemptions towards 2015. It provides for a doubling of the CO₂ tax for non-ETS business sectors from 2015.⁷⁴⁵ The Commission's state aid approval furthermore implies that the relief scheme for ETS-sectors is time-limited with expiry due by the end of 2017, though an extension to this is likely to be approved.

> Transport Taxes:

- There is a circulation tax on passenger vehicles in Sweden for new cars registered from 2006. The tax is differentiated according to CO₂ emissions. The annual base tax in 2014 is SEK 360 (€42) per vehicle with an additional penalty of SEK 250 (€29) for diesel cars registered from 1st January 2008 and SEK 500 (€58) for older diesel cars. The CO₂ component is linear and set, for 2014, at SEK 20 (€2.3) per g CO₂ per km emitted above 117 g CO₂ per km, whereas cars below the threshold are exempt. For diesel cars a multiplier of 2.33 applies.
- Since 2010, low-emission cars (including Euroclass 5 and 6) have been given a 5-year exemption from the circulation tax.
- Sweden introduced a sales (registration) tax on motor vehicles in 1955, which was gradually abolished over the period 1996 to 2000, with the purpose of trying to renew the car fleet and thereby improving the environmental performance of the cars on the road. It generated about €230 million in annual revenues. A comparable revenue stream today flows from a levy on traffic insurances.
- In 1998, Sweden joined the Eurovignette club, whereby an annual road user charge is levied on heavy duty vehicles. In Sweden it applies to vehicles of more than 12 tonnes. Foreign vehicles are liable when driving on motorways and certain highways. Charging depends on weight only and may go up to €1,500; annual revenues are less than €100 million. The scheme is not distance-based. Heavy and light-duty vehicles are subject to a weight-based circulation tax.
- Stockholm implemented an urban congestion tax during a trial period between 2005 and 2006, and a permanent tax followed from 1st August 2007. Revenues are included on Eurostat's national tax list. A comparable tax was introduced in Gothenburg in 2013. Annual revenues amount to about SEK 810 (€93) million in 2012, SEK 1 490 (€172) million in 2013..
- Pollution and Resource Taxes:

⁷⁴⁴ Nordic Council of Ministers (2002) The use of economic instruments in Nordic environmental policy 1999-2001, p.100, Copenhagen; Naturvårdsverket (1997) Miljöskatter i Sverige, Stockholm, p. 50.

 $^{^{745}}$ A detailed overview is available in Swedish National Audit Office (2012) Climate taxes: Who pays ?, Stockholm p 71

http://www.riksrevisionen.se/PageFiles/16431/RiR_2012_01_Rapport_ENG_anpassad_NY.pdf.

- A tax on pesticides ("Skatt på bekämpningsmedel") applies in Sweden. The tax is payable by all manufacturers and importers of pesticides. A tax rate of SEK 30 (€3.48) per kilogram of active ingredient of the pesticide applies. Revenue from the tax was about SEK 60 million (€7 million) in 2012.⁷⁴⁶
- Landfilling of waste in Sweden is subject to a landfill tax. A tax rate of SEK 435 (€50.40) per metric tonne of waste applies. The tax raised SEK 198 million (€22.9 million) in 2012.⁷⁴⁷ From 2006 to 2010 an incineration tax was in place based on the fossil fuel equivalents of waste, with an energy tax rate of SEK 150 (€17.34) per tonne carbon content.⁷⁴⁸
- A tax is charged on the extraction of gravel in Sweden. A tax rate of SEK 13 (€1.50) per metric ton of gravel applies, this is payable by all natural or legal persons who exploit a gravel pit. Revenue from the tax was SEK 167 million (€19.34 million) in 2012.⁷⁴⁹
- A tax on sulphur came into force in 1995. The tax applies to a wide range of solid and liquid fuels: peat, petrol, diesel oil, liquefied petroleum gas, methane, natural gas, coal, petroleum coke, mineral oil, and any other products used as fuel or for heating. A tax rate of SEK 30 (€3.48) per kg of sulphur in the fuel applies to solid and gaseous fuels. For liquid fuels, a rate of SEK 27 (€3.13) per m³ of oil for each tenth of a percent by weight of the sulphur content applies. The tax raised in 2012 was SEK 29 million (€3.4 million).⁷⁵⁰
- NO_X emissions are subject to a refunded levy in Sweden. A rate of SEK 50 (€5.79) per kg of NO_X emissions applies; this is payable by all operators of energy-producing plants.⁷⁵¹ The levy is refunded to those paying the levy so there is no revenue from the levy.
- In Sweden, all oil spills are subject to a water pollution fee. The tax basis is the number of 'basic amounts'. These are calculated according to the size

⁷⁴⁸ Lag om ändring i lagen om skatt på energi, SFS 2006:592 http://www.notisum.se/rnp/sls/sfs/20060592.pdf

⁷⁵¹ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=0e026cc8-9f1e-487f-9f9f-</u> <u>c3430eb94f37&QryCtx=1&QryFlag=3</u>



⁷⁴⁶ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=528/1388754970&taxType=Other+indire</u> <u>ct+tax</u>

⁷⁴⁷ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=530/1388754969&taxType=Other+indire</u> <u>ct+tax</u>

⁷⁴⁹ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=513/1388754968&taxType=Other+indirect+tax</u>

⁷⁵⁰ European Commission (2014) *Taxes in Europe Database*, Accessed 13th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=512/1388754968&taxType=Other+indire ct+tax</u>

of the oil spill and the size of the ship. The tax rate is adjusted each year, in 2000 the tax rate per basic amount was SEK 36,600 (€4,240).⁷⁵²

- A waste management fee is charged on batteries. Rates vary from SEK 30 (€3.48) to SEK 500 (€57.92) depending on the type of battery.⁷⁵³ It is unclear that this should be considered a tax since it is used to fund colleaction and management of used batteries.
- A charge is levied on the excavation of peat in Sweden. A yearly fee is charged, this varies from SEK 1,750 (€203) to SEK 17,500 (€2,027) according to the amount of material permitted for abstraction.⁷⁵⁴
- All aeroplane landings are subject to a noise related charge. The charge is set individually for each type of aeroplane and also varies between airports. Aeroplanes weighing less than 9 tonnes are exempt from this charge.⁷⁵⁵
- Waste water user charges are in place in Sweden. The charge usually consists of one fixed part and one part that varies according to water consumption. The rate varies by municipality.⁷⁵⁶

19.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in Sweden. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

19.2.1 Current Status of EFR

Sweden was in 1990 the first country to introduce a tax shift whereby environmentallyrelated taxes substituted taxes on labour. In 2001 a renewed reform programme was introduced to reallocate taxes from labour to environmentally harmful activities. The main change was that the carbon tax was increased, but other taxes were adjusted too,

⁷⁵² OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, http://www2.oecd.org/ecoinst/queries/QueryResult_4.aspx?Key=dff41df7-994f-45f6-962a-6f94dc99f060&QryCtx=3&QryFlag=3

⁷⁵³ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_4.aspx?Key=dff41df7-994f-45f6-962a-6f94dc99f060&OrvCtx=3&OrvFlag=3</u>

⁷⁵⁴ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_4.aspx?Key=dff41df7-994f-45f6-962a-6f94dc99f060&QryCtx=3&QryFlag=3</u>

⁷⁵⁵ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=0e026cc8-9f1e-487f-9f9f-</u> <u>c3430eb94f37&QryCtx=1&QryFlag=3</u>

⁷⁵⁶ OECD (2014) Database on Instruments Used for Environmental Policy, Accessed 13th August 2014, <u>http://www2.oecd.org/ecoinst/queries/QueryResult_2.aspx?Key=0e026cc8-9f1e-487f-9f9f-</u> <u>c3430eb94f37&QryCtx=1&QryFlag=3</u>

including those for vehicles, waste and pesticides. Of the €3.2 billion revenue shift announced in 2001 about €2.2 billion had been accomplished before the following government introduced a stand-still.

Despite the ambitious reform programme revenues from environmentally-related taxes could not keep pace with increases in GDP. Hence, since 2001, in Sweden, environment-related taxes as a share of GDP have not increased. Partly this was due to the behavioral impacts of taxes, and the fuel shifting within the domestic heating sector away from fossil fuels. Also the relative advantages for diesel vehicles eroded revenues from the higher-taxed petrol vehicles as the vehicle stock changed. Finally the economic recession plays a role too.

There has been a focus on removing, or limiting, exemptions, and reductions in tax rates for carbon and energy. A package agreed in 2009 aims at limiting these, stepwise, up to 2015, with the biggest reductions to materialize in the final year.

Biofuels have become an important element in Swedish energy supply, but despite being so, they are generally not taxed for energy content. As a result, about half of the carbonrelated emissions in Sweden are facing a zero-rate tax. Peat in particular is of some concern, as it plays key role in substituting for fossil fuels in ETS-sectors. The removal of the incineration tax also means that even the fossil element of the energy in waste remains untaxed.

Sweden's green tax shifting seems to have lost some momentum. The shares of taxes related to transport remain fairly modest and so are the taxes related to pollution and resources.

19.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in Sweden. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

- Energy Taxes:
 - It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€17.6 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for gas oil (€4.7 per GJ). Finally, the rates for heating fuels are equalised using the minimum rate for non-business use of coal at €10.92 per GJ.
 - Electricity is equalised at the household rate of around €8.95 per GJ.
 - Table 19-3 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are



derived see the Good Practice section above. The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below 0.15 per GJ or not.

Table 19-3: Existing and New Rates Based upon Proposed Revisions to ETD

Energy Ta	x Units	Suggested Rates	Proposed Rates in 2015
Transport Fuels		1	•
Motor spirit (petrol)	€ per 1000 litre	622	622
Light fuel oil (diesel)	€ per 1000 litre	672	533
LPG (propellant)	€ per 1000 kg	868	357
Kerosene	€ per 1000 litre	675	533
Natural gas (prop)	€ per GJ	19	6
Industry and Commercial Motors	·	·	
Gas oil	€ per 1000 litre	217	217
Kerosene	€ per 1000 litre	218	217
LPG	€ per 1000 kg	274	177
Natural gas	€ per GJ	5.80	3
Business Heating	·	·	
Gas oil	€ per 1000 litre	436	217
Heavy fuel oil	€ per 1000 kg	499	136
Kerosene	€ per 1000 litre	438	217
LPG	€ per 1000 kg	560	177
Natural gas	€ per GJ	12.04	3.3
Coal	€ per GJ	12.81	3.8
Non-Business Heating	·	·	
Gas oil	€ per 1000 litre	436	429
Heavy fuel oil	€ per 1000 kg	499	452
Kerosene	€ per 1000 litre	438	429
LPG	€ per 1000 kg	560	473
Natural gas	€ per GJ	12.04	8.84

Energy Tax	Units	Suggested Rates	Proposed Rates in 2015	
Coal	€per GJ	12.81	12.81	
Electricity				
Electricity - business use	€ per MWh	32.23	0.55	
Electricity - non-business use	€ per MWh	32.23	32.23	

> Transport Taxes:

Vehicles: Sweden has, at 133.3g CO₂ per km, a relatively high average emission level for new passenger cars and it is still above the EU target of 130g to be achieved by 2015.⁷⁵⁷ The transport sector accounts for 45% of total GHG-emissions within the country,^{758,759} but the taxes on transport in Sweden are lower than average in the EU-28 (0.45% of GDP compared to an average of 0.54% GDP), partly because Sweden no longer has a registration tax for vehicles. There is scope to increase vehicle taxes to the tune of 1.08% of GDP. It is suggested that Sweden should either increase its circulation tax in line with the Commission's 2005 proposal on passenger related taxes.⁷⁶⁰ It could also consider seeking to incorporate other elements than CO₂ in the tax base, and reducing the level (117 g CO₂ per km) at which the CO₂ element falls to zero.

For heavy-goods vehicles the opportunities for distance-based road-pricing that factor in the issues of air pollution and noise, in line with the 2011 Euro-vignette Directive, could be implemented, as also recommended by IEA.⁷⁶¹

Aviation: an aviation tax was agreed in 2006, but suspended before implementation. It is suggested that an aviation tax on air passenger flights and on air freight reflecting external costs other than carbon (noise, air pollution) could be implemented. The suggested rates for the air passenger tax are €15 per passenger for flights within the country concerned, €25 per passenger for flights to other countries in the European Union, and €50 per passenger for flights to countries outside the European Union. The suggested air transport tax rate is €1.25 per tonne of

⁷⁶¹ European Environment Agency (2013) *Road user charges for HGV – tables with external costs of air pollution,* EEA Technical Report 1/2013, Copenhagen; International Energy Agency (2013) *Energy policies of IEA countries: Sweden,* p13.



⁷⁵⁷ European Environment Agency (2012) Monitoring CO₂ emissions from new passenger cars in the EU: summary of data for 2012, Copenhagen.

⁷⁵⁸ IEA (2013) Energy policies in IEA countries: Sweden, Paris.

⁷⁵⁹ About 33% for domestic transport and 12% for non-domestic maritime and aviation.

⁷⁶⁰ European Commission (2005) Proposal for a Council directive on passenger car related taxes COM(2005)261 final.

freight. For the purposes of this study the suggested year of implementation is 2016.

- Pollution and Resource Taxes:
 - Waste: the tax has been supporting more recycling of waste. Waste taxes provide incentives for improved waste management, and the meeting of targets under Article 11 of the Waste Framework Directive. Further development of the Swedish waste tax would help drive changes in the waste management sector needed to meet EU targets in 2020 and give support to the application of the waste hierarchy. It is suggested that tax base is expanded to include incineration at a rate of at least €15 per tonne by 2017.
 - Air pollution: It is suggested that in order to generate improvements in air quality the tax rates on air pollution are complemented with new taxes on emissions of primary particles and VOC's:
 - VOC €1,000 per tonne
 - PM_{2.5} €2,000 per tonne

Given the novelty of the tax rates it is suggested that there is a transition period from 2016 to maximum levels by 2020. The rates are then held constant in real terms. Part of the revenues could accrue to the national budget.

- Water abstraction for public water supply: To improve efficiency in the usage of the water supply system, in particular the high leakage rates, it is suggested to adjust tax rates in-line with the good practice rates set out in Section 5.3.5. With relative price levels in Sweden this would imply rates of €0.65 per m³ for non-business and €0.50 per m³ for business purposes. Given the magnitude of the increase in rates a transition period from 2016 to 2020 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms. Part of the revenues could accrue to the national budget.
- Waste water: Sweden has no levy on direct discharges of water pollution from industry and treatment plants. To improve prevention of water pollution, improve compliance and to better reflect environmental burdens it is suggested that such a tax be introduced with rates in-line with good practice (see Section 5.3.6). With relative price levels in Sweden this would imply a rate of €3.25 per kg BOD. For fresh-water discharges phosphorus should also be charged, while for coastal discharges a charge on nitrogen may well be relevant. A transition period from 2016 to 2018 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms. Part of the revenues could accrue to the national budget.
- Pesticides: Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary</u> <u>means designed to achieve these targets</u>".

As noted above, Sweden already has a tax on pesticides ("Skatt på bekämpningsmedel"), which is set at a rate of SEK 30 (€3.48) per kilogram of active ingredient. It is suggested that the tax rate be extended to a rate of €5 per kg active ingredient. The suggested transition period is from 2016 to 2018, and following this, the rate is kept constant in real terms. Such a tax, especially if banded according to the potential effects of different active ingredients (as in Norway and Denmark), could be linked to the risk indicators to be developed under the National Pesticide Action Plan.

 Packaging: A small number of Member States have implemented packaging taxes for packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested to apply the following good practice rates to all packaging placed on the market in Sweden:

0	Paper and card	€0.07 per kg
0	Plastic	€1.40 per kg
0	Wood	€0.07 per kg
0	Metallic	€1.69 per kg
0	Glass	€0.25 per kg

- Plastic bag tax: There is currently no tax on single-use plastic bags in Sweden. Plastic bags cause many environmental problems when littered in the environment, especially when then end up in the marine environment. Taxing single-use plastic bags significantly influences consumers purchasing of these bags, by stimulating a switch to reusable bags. Moreover, in 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.⁷⁶² Therefore, it is suggested that Sweden implements a tax on single-use plastic bags at a rate of €0.13 per bag from 2016, and following this to keep the rate constant in real terms.
- Fertilisers: Reintroducing a tax on the use of nitrogen in mineral fertilisers is suggested at a rate of €0.20 per kg N from 2016. This tax rate would reflect relative price levels for Sweden relevant to EU schemes under the CAP, and support the prevention of groundwater contamination, ammonia evaporation, emissions of greenhouse gases and surface water eutrophication.

⁷⁶² DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>



19.2.3 Summary of Revenue Outcomes

Table 19-4 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Table 19-4: Potential Addition	nal Revenue from	n Environmental	Fiscal Reform	n in Sweden,
million SEK (real 2014 term	S) ⁷⁶³			

Тах	2017	2020	2025		
Energy Taxes					
Transport fuels	69	274	477		
C&I / Heating	44	170	289		
Electricity	1,553	1,553	1,553		
Sub-total Energy, million SEK	1,666	1,997	2,318		
Sub-total Energy, % GDP	0.04%	0.05%	0.06%		
Transport Taxes					
Vehicle Taxes	8601	34,421	43,125		
Passenger Aviation Tax	4,219	8,900	10,207		
Freight Aviation Tax	0.67	1.20	1.03		
Sub-total Transport, million SEK	12,821	43,322	53,333		
Sub-total Transport, % GDP	0.32%	1.09%	1.34%		
Pollution and Resource Taxes					
Landfill Tax - Inerts (C&D)	3	2	2		
Incineration / MBT Tax	99	117	124		
Air Pollution Tax	191	399	354		

⁷⁶³ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

Тах	2017	2020	2025	
Water Abstraction Tax	1,099	2,580	2,548	
Waste Water Tax	322	450	450	
Pesticides Tax	43	76	73	
Packaging Tax	335	323	336	
Single Use Bag Tax	1309	278	307	
Fertiliser Tax	0.133	0.244	0.229	
Sub-total Pollution & Resource, million SEK	3,400	4,228	4,194	
Sub-total Pollution & Resources, % GDP	0.09%	0.11%	0.11%	
Total Environmental Taxes				
Total, million SEK	17,886	49,547	59,845	
Total Increase, % GDP	0.45%	1.24%	1.50%	

Table 19-5 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 19-5: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in Sweden, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	137
Increased Cost Recovery for Water Use	1,422
Total	1,559

19.2.4 Environmental Benefits

Table 19-6 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.17.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, SEK 1.8 billion of benefits are anticipated annually by 2025 in real terms.



Table 19-6: Monetised Environmental Benefits from Implementation of Suggested Taxes in Sweden, million SEK (real 2014 terms)⁷⁶⁴

Тах Туре	2017	2020	2025
Energy Taxes	148	155	161
Transport Taxes (excluding transport fuels)	69	143	158
Pollution and Resource Taxes	321	1,267	1,507
Total, million SEK	539	1,565	1,826
Total, % GDP	0.01%	0.04%	0.04%

19.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in Sweden:⁷⁶⁵

- In 2012, environmental taxes generated revenue equivalent to 2.49% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in Sweden. These could generate SEK 17.9 billion in 2017 (EUR 2.0 billion), rising to SEK 59.9 billion in 2025 (EUR 6.6 billion) (both in real 2014 terms). This is equivalent to 0.45% and 1.50% of GDP in 2017 and 2025, respectively.
- The largest single contribution to revenue comes from the suggested increase in vehicle taxes. This accounts for SEK 43.2 billion by 2025 (EUR 4.8 billion) (real 2014 terms), equivalent to 0.93% of GDP.
- The next largest contribution to revenue comes from the proposed passenger aviation tax. This accounts for SEK 10.2 billion by 2025 (EUR 1.1 billion) (real 2014 terms), equivalent to 0.22% of GDP.
- The water abstraction tax would account for SEK 2.5 billion by 2025 (EUR 0.3 billion) (real 2014 terms), equivalent to 0.05% of GDP.
- Revenue potential from the suggested harmonisation of electricity taxes would raise SEK 1.5 billion by 2025 (EUR 0.2 billion) (real 2014 terms), equivalent to 0.03% of GDP.

⁷⁶⁴ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD_P_C

 $^{^{765}}$ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

- A waste water tax has also been suggested. This would contribute SEK 0.5 billion by 2025 (EUR 0.0 billion) (real 2014 terms), equivalent to 0.01% of GDP.
- In addition, a range of more minor taxes on could generate revenue of SEK 1.9 billion by 2025 (EUR 0.2 billion) (real 2014 terms), equivalent to 0.04% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around SEK 1.8 billion by 2025 (EUR 0.2 billion) (real 2014 terms), equivalent to 0.04% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €1.6 billion per annum could be raised in addition to the above.



20.0 United Kingdom

20.1 Country Overview

20.1.1 Key Facts about the Economy and Tax System

- The United Kingdom experienced strong economic growth throughout the period from 2003 to 2007, with GDP increasing by an average of 3.3% per annum in real terms. With the onset of the financial downturn, 2008 and 2009 were both years of negative growth, with 2009 proving the trough of the recession with a 5.2% real terms decrease in GDP on the previous year. There has been muted growth in all years since 2010, with GDP increasing annually by an average of 1.2% in real terms between 2010 and 2013.⁷⁶⁶
- The United Kingdom's overall tax revenue (including social contributions) as a percentage of GDP is just below the EU-28 average of 39.8%, at 37.3% (2012). Overall, this percentage share has increased over the past 10 years—it was 36.3% in 2002—but was at its highest in 2008 at 38.7%.⁷⁶⁷
- Total tax revenue in the United Kingdom is composed of 40.7% direct taxation, 36.8% indirect taxation, and 22.5% social contributions (2012). Over the past 10 years, all three tax revenue streams have fluctuated, with direct taxation experiencing the greatest change, rising from 43% in 2002 to 47% of the total tax take in 2008 before declining to its present share.⁷⁶⁸
- In 2012, environmental taxes amounted to 2.62% of the United Kingdom's GDP. Overall, this percentage share has fallen overall the past 10 years from 2.7% in 2002, but has risen again since 2006 when revenues dipped to a low of 2.38% of GDP.⁷⁶⁹
- In 2012, the United Kingdom derived the majority of its revenue from environmental taxes from the taxation of energy, with these revenues amounting to 1.9% of GDP. In the same year, taxes placed on transport (excluding fuel) amounted to 0.63% of GDP, and taxes placed on pollution and resource 0.09% of GDP.⁷⁷⁰

768 Ibid.

770 Ibid.

⁷⁶⁶ Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 2nd September 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115</u>

⁷⁶⁷ Eurostat (2013) *Main National Accounts Tax Aggregates* [gov_a_tax_ag], Accessed 2nd September 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=GOV_A_T_AX_AG

⁷⁶⁹ Eurostat (2014) Environmental tax Revenues [env_ac_tax], Accessed 2nd September 2014 <u>http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ENV_AC_TAX</u>

Taxes placed on energy made up 72.5% of the United Kingdom's total environmental tax revenue in 2012. Over the past 10 years, this percentage has been steadily falling from 79.3% in 2002.⁷⁷¹

20.1.2 Relative Position within the EU

Expressed as a proportion of GDP, in 2012 the revenue derived from environmental taxes by the United Kingdom was above the EU-28 average of 2.4%. For both energy and transport (excluding transport) taxation as a share of GDP revenue was above the EU-28 respective averages of 1.8% and 0.5%. The GDP percentage share for revenue from taxation of pollution and resource was slightly below the EU-28 average of 0.1% (see Figure 20-1).⁷⁷²

Figure 20-1: Environmental Taxes in the United Kingdom as a % of GDP vs EU-28 Levels (2012)



Comparing the revenue generated by environmental taxation as a percentage share of GDP against the same measure for other Member States, the United Kingdom ranked 12th in the EU-28 for 2012. It also ranked 12th for the GDP share individual tax stream contributions from transport (excluding fuel) taxes and pollution and resource taxes. It ranked slightly lower for the proportion of GDP coming from energy taxes, at 14th place (see Table 20-1).⁷⁷³

771 Ibid.

772 Ibid.

773 Ibid.



Table 20-1: Ranking of the United Kingdom's Position in EU-28 (2012)

Measure	Ranking
Environmental Taxes as a Share of GDP (%)	12
Energy Taxes as a Share of GDP (%)	14
Transport Taxes (excl. transport fuels) as a Share of GDP (%)	12
Pollution & Resource Taxes as a Share of GDP (%)	12

Source: based on Eurostat data

20.1.3 Existing Environmental Taxes

The full structure and rates for each tax, as well as full references, are given in Appendix A.18.0 (see separate document). This section summarises key aspects of the main environmental taxes, and describes, in the case of energy, how the rates compare with European averages, and the minimum rates set out in the existing Energy Tax Directive (ETD) (2003/96/EEC). All exchange rates are annual averages taken from Eurostat, revenue figures are given in nominal terms and % of GDP figures are based upon nominal GDP figures for the same year as the reported revenues.^{774,775}

- > Energy Taxes:
 - The United Kingdom's excise duties on fuels ("Hydrocarbon Oil Duties") are shown in Table 20-2, alongside minimum rates in the existing ETD and the EU-28 average and median rates.

Table 20-2: Standard Rates of Excise Duties on Fuels in the United Kingdom

Excise Duty	Unit	Rate Applied in the United Kingdom	Existing ETD Minimum	EU-28 Average	EU-28 Median
Transport Fuels					
Leaded Petrol ¹	per 1000 litres	GBP 676.70 (€796.81)	€421	€585	€583
Unleaded Petrol ¹	per 1000 litres	GBP 579.50 (€682.35)	€359	€519	€509

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

⁷⁷⁴ Eurostat (2013) *ECU/ECR Exchange Rates versus National Currencies*, Accessed 7th January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugi n=1</u>

⁷⁷⁵ Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

Excise Duty	Unit	Rate Applied in the United Kingdom	Existing ETD Minimum	EU-28 Average	EU-28 Median
Aviation Gasoline	per 1000 litres	GBP 377.00 (€443.91)	-	-	-
Gas Oil (Diesel) ¹	per 1000 litres	GBP 579.50 (€682.36)	€330	€427	€405
Kerosene	per 1000 litres	GBP 579.50 (€682.36)	€330	€440	€405
Liquid Petroleum Gas	per 1000 kg	GBP 316.10 (€372.21)	€125	€209	€180
Natural Gas	per GJ	GBP 5.67 (€6.68)	€2.60	€3.03	€2.66
Motor Fuels – Industry	/ Commercial Use		•		
Gas Oil (Diesel) ¹	per 1000 litres	GBP 111.40 (€137.07)	€21	€221	€163
Kerosene	per 1000 litres	GBP 111.40 (€137.07)	€21	€283	€330
Liquid Petroleum Gas	per 1000 kg	N/A	€41	€126	€125
Natural Gas	per GJ	N/A	€0.30	€1.76	€1.50
Heating – Business Use					
Gas Oil (Diesel) ¹	per 1000 litres	GBP 111.40 (€137.07)	€21	€221	€163
Kerosene	per 1000 litres	N/A	€0.00	€270	€330
Heavy Fuel Oil	per 1000 kg	GBP 107.00 (€125.99)	€15	€70	€25
Liquid Petroleum Gas	per 1000 kg	N/A	€0.00	€82	€40
Natural Gas	per GJ	N/A	€0.15	€1.36	€0.46
Coal and Coke	per GJ	N/A	€0.15	€1.27	€0.31
Heating – Non-Business Use					
Gas Oil (Diesel) ¹	per 1000 litres	GBP 111.40 (€137.07)	€21	€179	€125
Kerosene	per 1000 litres	N/A	€0.00	€279	€330
Heavy Fuel Oil	per 1000 kg	GBP 107.00 (€125.99)	€15	€85	€26
Liquid Petroleum Gas	per 1000 kg	N/A	€0.00	€111	€42



Excise Duty	Unit	Rate Applied in the United Kingdom	Existing ETD Minimum	EU-28 Average	EU-28 Median
Natural Gas	per GJ	N/A	€0.30	€2.04	€0.94
Coal and Coke	per GJ	N/A	€0.30	€1.77	€0.32
Electricity					
Business Use	per MWh	N/A	€0.50	€8.42	€1.03
Non-Business Use	per MWh	N/A	€1.00	€14.53	€2.06

Source: DG TAXUD (2014) Excise Duty Tables (Part II – Energy products and Electricity), Situation as at 1 July 2014,

<u>http://ec.europa.eu/taxation_customs/resources/documents/taxation/excise_duties/energy_products/r</u> <u>ates/excise_duties-part_ii_energy_products_en.pdf</u>

- All of the rates of excise duty shown in Table 20-2 are above the ETD minimum. For transport fuels all of the UK rates exceed the EU-28 average and median, whereas rates on the use of motor fuels are significantly lower. Duties on heating (both business and non-business use) are lower than the average and median for the use of gas oil, but higher for heavy fuel oil.
- The main exemptions to the duty include: oil used in marine craft (except private pleasure craft), oil used as refinery fuel, oil used in blast furnaces, heavy oil used for horticultural purposes and heavy oil used in electricity generation.
- Revenue in 2013 from the Hydrocarbon Oil Duty was £26.7 (€31.4) billion, equivalent to 1.65% of GDP. ⁷⁷⁶
- Coal, coke, electricity and non-propellant uses of LPG and natural gas all fall outside of the remit of the Hydrocarbon Oils Duty. Business use of these products is charged under the Climate Change Levy (CCL), which is made up of two rates, the main rates and the Carbon Price Support (CPS) rates, the latter being introduced in April 2013 as part of the scheme to introduce a Carbon Price Floor (CPF) related to the price of carbon used in power generation.⁷⁷⁷
- Fuels liable to the main rates of CCL are: electricity, natural gas, LPG and solid fuels. Businesses can receive a reduction on the main rates of CCL if they are an energy intensive business and have entered into a Climate Change Agreement (CCA) with the relevant regulatory agency. Exemptions

⁷⁷⁶ Table 2 in HMRC (2014) *Hydrocarbon Oils Bulletin June 2014*, 22 July 2014, Accessed 19th August 2014, <u>https://www.uktradeinfo.com/Statistics/Pages/TaxAndDutyBulletins.aspx</u>

⁷⁷⁷ United Kingdom Government (2014) *Green Taxes, Reliefs and Schemes for Businesses,* Accessed 19th August 2014, <u>https://www.gov.uk/green-taxes-and-reliefs/climate-change-levy</u>

can be claimed if these fuels are: not being used in the United Kingdom, the electricity is generated from renewable sources or they are used in particular types of transport.

- The CPS rates are applied to businesses and organisations using fossil fuels to generate electricity, to encourage the use of low carbon technology. This is known as the Carbon Price Floor. Fuels liable to these rates are: natural gas, LPG, gas oil, fuel oil, coal and other taxable solid fuels.
- Revenue in 2013 from CCL (including CPF) was £1.06 billion (€1.25 billion), equivalent to 0.07% of GDP. ⁷⁷⁸ Prior to the introduction of CPF in April 2013, electricity was by far the largest component of total CCL declared, accounting for around 70% to 75% of total declared. Solid and other fuels CCL and CPF declarations now make up the highest proportion of CCL and CPF declared, at around 45% because the CPF is charged on fuel use, not on electricity use. At present it is not possible to provide a breakdown of CCL and CPF individually as the amounts are recorded on the same box of the CCL form.
- The CRC Energy Efficiency scheme is a mandatory carbon reporting and pricing scheme operating in the United Kingdom. The scheme, currently in Phase 2 which runs from 2014 to 2019, requires all organisations consuming over 6,000 MWh of qualifying electricity during a qualification year to comply.⁷⁷⁹ Participants must buy and surrender allowances for each tonne of CO₂ emitted. These can be bought either at the beginning of the reporting year (forecast sale), or after reporting (buy to comply).
- The cost of CRC allowances for 2014/15 are as follows:
 - Forecast sale: £15.60 (€18.37) per tCO₂
 - Buy to comply sale: £16.40 (€19.31) per tCO₂

> Transport Taxes (excluding transport fuels):

- Registration tax:
 - Vehicles registered for the first time on the Driver and Vehicle Licensing Agency (DVLA) records are required to pay a fee of £55 (€64.76). The fee is designed to cover the administrative costs associated with the registration of the vehicle throughout its life and thus, strictly speaking, is not an environmental tax. Exemptions include: those first registered and licensed in the disabled exempt

https://www.uktradeinfo.com/Statistics/Pages/TaxAndDutyBulletins.aspx

⁷⁷⁹ United Kingdom Government (2014) *CRC Energy Efficiency Scheme*, 29 July 2014, <u>https://www.gov.uk/government/policies/reducing-demand-for-energy-from-industry-businesses-and-the-public-sector-2/supporting-pages/crc-energy-efficiency-scheme</u>



⁷⁷⁸ Table 2 in HMRC (2014) *Climate Change Levy and Carbon Price Floor Bulletin April 2014,* 28th May 2014, Accessed 19 August 2014,

taxation class, vehicles registered for off-road use only and vehicles previously registered in Northern Ireland. ⁷⁸⁰

- Circulation taxes:
 - Vehicle Excise Duty (VED), also referred to as vehicle tax, is levied on most vehicle types used on public roads in the United Kingdom. For cars registered on or after 1st April 2010, a different rate is applied for the vehicle's first year. This ranges from £0 to £1.090 (€1,283.47), depending on fuel type and CO₂ emissions.⁷⁸¹ Thereafter, the rate of vehicle tax for cars registered on or after 1st March 2001 ranges from £0 to £500 (€588.75). For cars registered before 1st March 2001, the rate is based on engine size (cc) and ranges from £145 (€170.74) to £230 (€270.82). Other VED rates apply to other types of vehicles, including: light goods vehicles, motorcycles, tricycles, heavy goods vehicles, busses, recovery vehicles and haulage vehicles. Exemptions from the duty include: vehicles used by disabled persons, electric vehicles, steam vehicles and vehicles used only for agriculture, horticulture and forestry. Revenue from the VED in 2012 was £5.87 (€6.91) billion, equivalent to 0.36% of GDP.782
 - A road user levy for HGVs weighing 12 tonnes or more was introduced on 1st April 2014. Paid alongside VED, levy amounts range from £85 (€100.09) to £1,000 (€1,177.50) per year according to the vehicle's weight, axle configuration and levy duration.⁷⁸³ The HGV Road User Levy is in part a response to the view that domestic hauliers pay of the upkeep of UK roads whilst foreign hauliers do not. UK based hauliers are paying the levy progressively from 1st April 2014 as they pay VED, and foreign hauliers will pay from 1st April 2015. Uk HGVs will see VED reduced accordingly so that broadly speaking, they are no worse off. As such, the revenue contribution is expected to come only from foreign hauliers, who are not obliged to pay VED.
- Other vehicle taxes:
 - The United Kingdom imposes user charges in some parts of the country in the form of road pricing. In London, Transport for London has imposed a charge per weekday on most vehicles being used in

⁷⁸⁰ United Kingdom Government Website: *Vehicle Registration,* Accessed 15th August, <u>https://www.gov.uk/vehicle-registration/new-registrations-fee</u>

⁷⁸¹ United Kingdom Government (2014) *Vehicle Tax Rate Tables,* Accessed 20th August 2014, <u>https://www.gov.uk/vehicle-tax-rate-tables</u>

⁷⁸² European Commission (2013) *Taxes in Europe Database*, Accessed 19th August 2014, <u>http://ec.europa.eu/taxation_customs/tedb/taxDetail.html?id=576/1388754985&taxType=Other+indirect+tax</u>

⁷⁸³ United Kingdom Government (2014) *Vehicle Tax Rate Tables,* Accessed 20th August 2014, <u>https://www.gov.uk/vehicle-tax-rate-tables</u>

Central London. The charge for entering the zone is £11.50 (€13.54) per vehicle per day, and the charge generated revenue of £235 (€276.71) million in 2013/14, equivalent to 0.01% of GDP. ^{784 785} In Durham, a similar scheme has been put in place by the Council. The charge for entering the designated zone is £2.00 (€2.35) per vehicle. ⁷⁸⁶ Thirdly, the M6 motorway toll road in the West Midlands region charges motorists for its use, with tolls depending on the class of vehicle and time of day.⁷⁸⁷

- It is also notable that the Mayor of London has proposed an Ultra Low Emissions Zone (ULEZ) in the capital, on top of the existing scheme, to tackle the problem of air pollution. Under the scheme, which has been proposed to come into force by 2020, almost all the vehicles running during the operating hours would be either zero or low emission. A public consultation on the ULEZ is due to take place in autumn 2014.⁷⁸⁸
- Aviation taxes:
 - Air Passenger Duty (APD) is due on aircraft that depart from airports in the United Kingdom and carry passengers. The amount is related to the number of chargeable passengers, the classes of travel on offer and the destination. Rates range from £13 (€15.31) to £388 (€456.87) per flight in 2014, though the 4-band scheme which exists at present will be reduced to a 2-band scheme in 2015.⁷⁸⁹ Exemptions include: emergency or public service flights, short pleasure flights and NATO flights. In 2013, this tax generated revenue of £2.96 (€3.49) billion, equivalent to 0.18% of GDP.⁷⁹⁰

Pollution and Resource Taxes:

In the United Kingdom, a landfill tax applies to all waste disposed of by way
of landfill at a licensed site. The tax is charged by weight, and there are
two rates: a standard rate of £80 (€94.20) per tonne and a lower rate of
£2.50 (€2.94 per tonne which is levied on 'inert' waste falling under the

⁷⁸⁴ TfL (2014) Congestion Charge, Accessed 20th August 2014, <u>https://www.tfl.gov.uk/modes/driving/congestion-charge</u>

⁷⁸⁵ TfL (2014) Annual Report and Statement of Accounts, Accessed 20th August 2014, <u>http://www.tfl.gov.uk/cdn/static/cms/documents/annual-report-2013-14.pdf</u>

⁷⁸⁶ Durham County Council (2014) *Durham Road User Charge Zone*, Accessed 20th August 2014, <u>http://www.durham.gov.uk/pages/Service.aspx?ServiceId=6370</u>

⁷⁸⁷ M6toll Website (2014) *Pricing Guide*, Accessed 21st August 2014, <u>http://www.m6toll.co.uk/pricing/pricing-guide/</u>

⁷⁸⁸ TfL (2014) Ultra Low Emissions Zone, Accessed 24th September 2014, <u>https://www.tfl.gov.uk/modes/driving/low-emission-zone/ultra-low-emission-zone</u>

⁷⁸⁹ HMRC (2014) *Air Passenger Duty*, Accessed 20th August 2014, <u>http://www.hmrc.gov.uk/rates/apd.htm</u>

⁷⁹⁰ From Table 2 in HMRC (2014) *Air Passenger Duty Bulletin June 2014*, Accessed 20th August 2014, <u>https://www.uktradeinfo.com/Statistics/Pages/TaxAndDutyBulletins.aspx</u>

Landfill Tax (Qualifying Materials) Order 2011. ^{791, 792} Exemptions exist for: dredging, mining and quarrying waste, pet cemeteries and waste from visiting forces. In 2013, this tax generated revenue of £1.20 (€1.40) billion, equivalent to 0.07% of GDP. ⁷⁹³

- An aggregates levy is levied on the on the commercial exploitation of rock, sand and gravel, due from any business that quarries, dredges or imports these products in the United Kingdom. The rate is £2 (€2.35) per tonne of aggregate. ⁷⁹⁴ Material that remains exempt from the levy includes soil and other organic matter. The levy is under examination by the European Courts at present because some of the exemptions applied have been identified as, potentially, a form of State Aid (so these exemptions have been suspended for the time being most notably, in Northern Ireland, the Aggregates Levy Credit Scheme (ALCS), which allowed for an 80% relief from the full rate of the levy for aggregate extracted from 1st April 2004 to 30th November 2010, has been suspended until further notice). The tax generated revenue of £287 (€338) million in 2013, equivalent to 0.02% of GDP.⁷⁹⁵
- A single use plastic bag charge currently applies in Wales and Northern Ireland at a rate of £0.05 (€0.06) per bag. Small and medium-sized enterprises will be exempt from this charge. A similar charge is soon to be introduced in Scotland (October 2014) and England (October 2015) at the same rate.⁷⁹⁶
- In the United Kingdom, water abstraction charges vary by nation, with the Environment Agency (EA), Natural Resources Wales (NRW), the Scottish Environment Protection Agency (SEPA), and Northern Ireland Environment Agency (NIEA) each setting out different rates and exemptions. Strictly speaking, these are not taxes, but charges designed to cover the costs to the regulator of regulating access to the water resource. Further details on the different schemes can be found in Appendix A.18.0.
- Water discharge activities require a specific permit, dependant on the nature of the activity. These permits and the rates vary by nation and are controlled by each of the enforcement bodies mentioned above.

⁷⁹¹ HMRC (2014) Landfill Tax, Accessed 20th August 2014, <u>http://www.hmrc.gov.uk/rates/landfill-tax.htm</u>

⁷⁹² The Landfill Tax (Qualifying Material) Order 2011, Accessed 24th September 2014, <u>http://www.legislation.gov.uk/uksi/2011/1017/pdfs/uksi_20111017_en.pdf</u>

⁷⁹³ Table 2 in HMRC (2014) *Landfill Tax Bulletin April 2014*, Accessed 20th August 2014, <u>https://www.uktradeinfo.com/statistics/pages/taxanddutybulletins.aspx</u>

⁷⁹⁴ Table 6 in HMRC (2014) *Aggregates Levy Bulletin April* 2014, Accessed 20th August 2014, <u>https://www.uktradeinfo.com/statistics/pages/taxanddutybulletins.aspx</u>

⁷⁹⁵ Table 2 in HMRC (2014) *Aggregates Levy Bulletin April 2014*, Accessed 20th August 2014, <u>https://www.uktradeinfo.com/statistics/pages/taxanddutybulletins.aspx</u>

⁷⁹⁶ United Kingdom Government (2014) *Reducing and managing Waste: Charging for single use plastic carrier bags*, Accessed 20 August 2014, <u>https://www.gov.uk/government/policies/reducing-and-managing-waste/supporting-pages/charging-for-single-use-plastic-carrier-bags</u>

20.2 Illustrative Potential of EFR

In this section we first give a synopsis of the current status of Environmental Fiscal Reform in the United Kingdom. This is followed by a summary of suggested changes to existing tax rates and/or suggested applications of new taxes, used as the basis for the calculation of revenue potential. Out-turns from the model regarding revenue projections are then presented, followed by a summary of the monetised environmental benefits.

20.2.1 Current Status of EFR

A 'statement of intent' was made by the previous Labour government shortly after coming to power in 1997 to "explore the scope for using the tax system to deliver environmental objectives" and to "shift the burden of tax from 'goods' to 'bads'". Despite this statement, the share of receipts from environmental taxes fell under Labour from 9.5% in 1997 to 7.9% in 2009. This is despite the fact that a number of taxes were introduced during this period, including the Climate Change Levy and the aggregates tax, and despite significant increases in fuel duties and in the landfill tax.

The Coalition Government's record on environmental taxation has been somewhat mixed. In opposition, the Government had been keen to ensure that the ETS would be more effective, and had considered the case for a carbon price floor. This was duly introduced, and the CPS rates now generate significant revenue for the Treasury as part of the CCL (see above). Furthermore, another instrument which had been widely consulted upon before the Coalition came to power, and which was intended to complement the ETS by targeting emissions which did not fall under the EU-ETS, was the CRC Energy Efficiency Scheme. Not long after coming into office, in 2011, the Government announced that it would no longer be refunding revenue generated from the sale of allowances back to industry, but that it would be using the revenue to support the public finances. In essence, therefore, both measures have enabled some degree of fiscal consolidation in respect of environmental taxes.

On the other hand, where fuel duty has been concerned, the Coalition has been much less willing to raise duty rates further, and to raise additional revenues. The issue of fuel duty has led to significant protests in the past and perhaps mindful of these, but also with the view that higher fuel prices might impact upon growth and competitiveness, the Coalition Government has postponed and cancelled most of the fuel duty escalators which the previous Government had proposed out to 2016. This is clearly illustrated in Table 20-3.

In April 2013, the Treasury noted:797

"...the fuel duty increase that was planned for 1 September 2013 was cancelled to support motorists and businesses – <u>fuel duty will have been frozen for nearly 3</u> and a half years, with pump prices 13p per litre lower from April 2013 than under previously announced plans."

That differential has widened further with the postponement, and then cancellation, of increases that had initially been planned for April 2014.

⁷⁹⁷ HM Treasury (2013) *Policy: Creating a Simpler, Fairer Tax System*, 24 April 2013, <u>https://www.gov.uk/government/policies/creating-a-simpler-fairer-tax-system</u>.



Dates uprating due before Budget 2011	Budget 2011	As 2011	June 2012	As 2012	Budget 2013	As 2013
April 2011	Jan 2012	Aug 2012	Jan 2013	Cancelled	Cancelled	Cancelled
April 2012	Aug 2012	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled
April 2013	April 2013	April 2013	April 2013	Sept 2013	Cancelled	Cancelled
April 2014	April 2014	April 2014	April 2014	Sept 2014	Sept 2014	Cancelled
April 2015	April 2015	April 2015	April 2015	Sept 2015	Sept 2015	Sept 2015
April 2016	April 2016	April 2016	April 2016	April 2016	April 2016	April 2016

Table 20-3: Deferrals and Cancellations of Increases in Fuel Duties

Source: James Browne, Autumn Statement Policy Measures: IFS Autumn Statement Briefing, December 2013

The simplest summary of current policy on tax is found in the 2013 statement around creating a simpler, fairer tax system:

"The government's principles for the tax system are:

- > Taxes should be efficient and support growth
- > Taxes should be certain and predictable
- > Taxes should be simple to understand and easy to comply with
- The tax system should be fair, reward work, support aspiration and ask the most from those who can most afford it".

The extent to which a place remains for further shifts in taxation from 'goods' to 'bads' remains to be seen. The Coalition Government has already reduced a range of taxes, notably corporation tax, to low levels, whilst significant numbers of people have been taken out of income tax altogether as a result of changes in the tax free allowances available to those on high incomes.

In the most recent budget, in April 2014, considerable emphasis was placed upon making sure that energy supplies would be secure and affordable for businesses, reflecting employers' concerns regarding rising input prices. As a result, a ceiling was placed on the carbon price support (CPS) rates from 2016/17 to 2019/20 so as to limit the potential impact on competitiveness. A further review of CPS rates beyond this period is planned once more is known about the nature of the reforms to the EU-ETS. In addition, the Government announced a number of measures to help *"tackle the energy costs faced by the most energy intensive industries to ensure they are as competitive as possible"*, including compensation for the energy intensive industries for the costs of the CPF and ETS to 2019-20. The Budget report noted:⁷⁹⁸

⁷⁹⁸ HM Treasury (2014) *Budget 2014*, 19 March 2014.

"...this package means that EIIs will be compensated for all government policy designed to support low carbon and renewable investment up until 2019-20, saving the average EII up to $\pounds 19$ million by 2018-19".

A new CPF exemption was also introduced for fuel use in CHP plants used to supply electricity to manufacturing firms. Alongside this, the Government reaffirmed its commitment to low carbon energy.

As announced at Budget 2013, from 1 April 2014 the government will reduce and restructure VED rates for HGVs within the HGV Road User Levy scheme, as set out in 'Overview of Tax Legislation and Rates 2014'. Information on United Kingdom bound HGVs will be drawn from the Freight Targeting System to support enforcement of the Levy scheme (Finance Bill 2014).

The coalition agreement contained a pledge to *'increase the proportion of tax revenue accounted for by environmental taxes'*. Having set this target, the Treasury announced, in a July 2012 Press Release, that is was adopting its own definition of environmental taxes, against which it expected its pledge to be measured:⁷⁹⁹

"Environmental taxes are defined as those which meet all of the following three principles:

- 1. the tax is explicitly linked to the government's environmental objectives
- 2. the primary objective of the tax is to encourage environmentally positive behaviour change
- 3. the tax is structured in relation to environmental objectives, for example: the more polluting the behaviour, the greater the tax levied

Applying these principles, the Treasury has identified the following taxes as environmental, and these will comprise the baseline against which the government's commitment to increase the proportion of environmental tax revenue will be measured.

The independent Office of Budget Responsibility currently forecasts the proportion of revenue from these taxes doubling by 2015-16.

- Climate Change Levy
- > Aggregates Levy
- Landfill Tax
- > EU Emissions Trading System (EU ETS)
- > Carbon Reduction Commitment Energy Efficiency Scheme
- > Carbon Price Support

Announcing the definition, Economic Secretary to the Treasury Chloe Smith said:

Today's announcement is an important step in meeting the government's commitments on environmental tax, and our broader determination to be the greenest government ever. By setting out a clear, usable definition of what a green tax actually is, people will be able to judge us against the Coalition Agreement pledge. Indeed, through ambitious policies such as the Carbon

⁷⁹⁹ <u>www.gov.uk/government/news/definition-of-environmental-tax-published</u> (from 16 July 2012)



Price Floor, this Government is already on track to double the proportion of environmental tax revenue by the end of the Parliament.

We want a clear approach that delivers a positive environmental impact without adding burdens onto business or households.

The government will also continue to explore opportunities to further green the tax system through the course of the Parliament in a way that is consistent with the aims of tax simplification and deficit reduction".

In the 'Notes for Editors' attached to this definition, the Treasury noted: 800

- 1. "The government recognises that other taxes can deliver environmental benefits, but their aim is not environmental but revenue raising. These are specifically excluded from the Treasury definition and include taxes such as Vehicle Excise Duty, Fuel Duty and Air Passenger Duty.
- 2. The Coalition Agreement pledged to increase the proportion of revenue raised from environmental taxation by the end of this Parliament. This definition will provide a baseline against which to measure delivery".

Some have been critical of this approach since it effectively includes, within the measure, taxes which were not in place when the Coalition came to power, and excludes taxes, such as Fuel Duty, which were already in place, but which the Government has allowed to be eroded by inflation through postponing, and then cancelling, increases that had been announced by the previous Government. The Institute for Fiscal Studies showed that if more widely accepted measures of environmental taxes were used (including fuel duty), then the Government would probably be falling short of its own commitment.⁸⁰¹

One possible view of Coalition policy in respect of environmental fiscal reform is that decisions made in the early years were made for reasons of fiscal consolidation. The decision not to refund the CRC Energy Efficiency Scheme revenues to business, for example, was criticised by industry, yet Government is now seeking to minimise the burden of energy taxes on heavy energy users. There appears to have been a shift, over time, from a pragmatic application of instruments already in development / in discussion to help plug a hole in the public finances to one where the emphasis is on stimulating growth, with a key element of this being to keep energy and fuel prices down. More generally, the Government that set out to be 'the greenest government ever' has attracted a variety of criticism on the basis of the patchiness of its green credentials.

The above considerations reflect the country specific recommendation made as part of the 2012 European Semester:

Recommendation 3: [...] Reduce the effective tax and social security burden on labour for low-income earners in a budget-neutral way by relying more on other sources of taxation less detrimental to growth, such as recurrent property taxes.

⁸⁰⁰ <u>www.gov.uk/government/news/definition-of-environmental-tax-published</u> (from 16 July 2012)

⁸⁰¹ IFS (Institute for Fiscal Studies) (2012) 'A defining issue? The government's pledge to raise the share of revenue from green taxes',http://www.ifs.org.uk/publications/6491

The shift towards environmental taxes is part of the reforms described below.

20.2.2 Suggested Reforms to the Tax System

On the basis of the information presented in the sections above, the following suggestions are made in relation to the adjustments of existing taxes and/or the introduction of new environmental taxes in the United Kingdom. The suggested changes to taxation are part of the cross-country common approach which has been adopted in this study and are based on application of the 'good practice' rates outlined in Section 5.0. This approach allows for comparable results across the Member States to be generated. It is important to reiterate that the principle aim of this study was to review the *potential* for revenue generation through EFR in each country, and that each Member State will have its own views as to the desirability of the taxes suggested, and the levels at which they should be applied (which could be higher, or lower, than suggested here):

Energy Taxes:

 It is suggested that energy taxes are harmonised based upon the highest level of tax per unit of energy content for each of the different groups of fuels, assuming that the existing duties are based on a €20 per tonne CO₂ price. Transport fuels are equalised using the energy content on petrol (€19.4 per GJ), whereas motor fuels used for commercial and industrial purposes are equalised based upon the existing rate for kerosene (€2.3 per GJ). Finally, the rates for heating fuels are equalised using the minimum rate for gas oil of €2.2 per GJ.



- Table 20-4 shows the differentials in tax rates (using ETD units) for the various fuels by use. For a description of how the proposed rates are derived see the good practice section on energy taxes (Section 5.1). The proposed rates are reached (in real terms) by 2018 or 2023 depending on whether all of the existing rates are below €0.15 per GJ or not.
- The UK has the narrowest differential in tax rates between diesel and petrol with the rates being the same, on a per litre basis, at present. Harmonisation in line with the proposed ETD still, however, implies an increase in rates for diesel, though of only 8%. The uplift in the rate for kerosene is more or less the same. The largest increases are for LPG and for natural gas, these being 156% and 200%, respectively.
- For commercial and industrial motors, there are significant increases in rates for natural gas and LPG, neither of which are taxed at present.
- There are major increases in the taxes applied to some of the heating fuels, principally because the UK does not currently tax a number of key heating fuels. New taxes would need to be introduced for kerosene, LPG, natural gas and coal. Evidently, such changes could have political and distributional ramifications in the absence of measures designed to target lower income households.

Energy Tax	Units	Suggested Rates	Existing Rates
Transport Fuels	•		
Motor spirit (petrol)	€ per 1000 litre	713	713
Light fuel oil (diesel)	€ per 1000 litre	769	713
LPG (propellant)	€ per 1000 kg	995	389
Kerosene	€ per 1000 litre	774	713
Natural gas (prop)	€ per GJ	21	7
Industry and Commercial Motors			
Gas oil	€ per 1000 litre	137	137
Kerosene	€ per 1000 litre	137	137
LPG	€ per 1000 kg	170	0
Natural gas	€ per GJ	4	0
Business Heating			
Gas oil	€ per 1000 litre	137	137
Heavy fuel oil	€ per 1000 kg	158	132
Kerosene	€ per 1000 litre	137	0
LPG	€ per 1000 kg	169	0
Natural gas	€ per GJ	3.53	0.00
Coal	€ per GJ	4.30	0.00
Non-Business Heating	1		
Gas oil	€ per 1000 litre	137	137
Heavy fuel oil	€ per 1000 kg	158	132
Kerosene	€ per 1000 litre	137	0
LPG	€ per 1000 kg	169	0
Natural gas	€ per GJ	3.53	0.00
Coal	€per GJ	4.30	0.00
Electricity			

Table 20-4: Existing and Suggested Rates Based upon Proposed Revisions to the ETD



Energy Tax	Units	Suggested Rates	Existing Rates
Electricity - business use	€ per MWh	0.54	0.00
Electricity - non-business use	€ per MWh	0.54	0.00

> Transport Taxes:

- Vehicles: The taxes on transport in the UK are higher than average in the EU-28 (0.63% of GDP compared to of 0.50% of GDP). In addition, taxes on transport fuels are increased as a consequence of the suggestions above. However, it is suggested that additional revenue of 0.27% GDP could still be generated. There is increasing concern, in urban areas of the UK, that levels of air pollution are excessive, and that this is due to the increasing tendency to purchase diesel vehicles, partly as a result of the tax differentials favouring vehicles with lower CO₂ emissions per kilometre (which tend to favour diesel powered vehicles). In addition, the UK HGV Road User Levy does not differentiate charges by emissions intensity (according to EURO class), and applies only to vehicles weighing above 12 tonnes. This could be extended further, and externality charges implemented in line with Directive 2011/76/EU. The increase in revenue is phased in over the period from 2015 to 2020.
- Aviation: Although aviation was included in Phase III of the ETS, trade in EUAAs was suspended in 2012 pending the development by the ICAO of a market based instrument in the aviation sector. This might not, however, be implemented until 2020. The UK already has its APD, which essentially forms the basis for recommendations for other countries. NO further change is recommended for this, therefore.⁸⁰² It is suggested, however, that a tax on air freight is introduced. The suggested air transport tax rate is €1.25 per tonne of freight. The year of implementation is taken to be 2015 with rates gradually increasing to the maximum level in 2017. As noted in the good practice section, the way in which the picture unfolds concerning the proposals from ICAO might influence future levels and / or design of this tax (see Section 5.2.2).

Pollution and Resource Taxes:

Waste – incineration / MBT tax: There are more than 40 incinerators operating in the UK, and there is no tax on incineration. Studies funded by Government have shown in the past that the externalities from landfill and incineration are similar, yet the tax differentials are enormous (approx. €100 per tonne for landfill, and €0 per tonne for incineration). Moreover, there are several MBT plants used to prepare wastes for subsequent energy recovery and / or for stabilising wastes before landfilling. There

⁸⁰² Deloitte (2014) Air Passenger Duty, Accessed 24th September 2014, <u>www.ukbudget.com/2014-measures/air-passenger-duty.aspx</u>

remains considerable scope for further recycling of both local authority collected wastes and commercial wastes. In order to ensure that wastes are not simply shifted from landfill to other forms of residual waste management (such as incineration and MBT), it is suggested that an incineration tax of €15 per tonne is introduced, with an equivalent rate implemented for MBT facilities. These rates are below the highest levels in the EU (in Denmark), and the intention is to ensure management of waste is focused on the upper tiers of the waste hierarchy, in line with the Roadmap to A Resource Efficient Europe.²⁹⁷

 Packaging: A small number of Member States have implemented taxes for all packaging placed on the market in order to stimulate waste prevention initiatives in the packaging industry, and reduce the demand for raw materials. It is suggested that the following rates could be applied to all packaging placed on the market in the UK:

0	Aluminium	€197 per tonne
0	Plastic	€64 per tonne
0	Steel	€54 per tonne
0	Paper and card	€20 per tonne
0	Glass	€18 per tonne
0	Wood	€13 per tonne

These rates are conservative in that they cover only the embodied CO_2 savings associated with materials use. The rationale is to encourage prevention of packaging (as opposed to recycling). It is suggested that these rates be applied from 2016 and be kept constant in real terms.

Single-use carrier bag tax: There is currently a minimum charge on single-use plastic carrier bags in Wales, Northern Ireland and Scotland of £0.05 (€0.06). A similar charge is due to be introduced in England in October 2015 at the same rate.⁸⁰³ Of these bags, plastic bags in particular cause many environmental problems when littered in the environment, especially when they are transported to, or littered in the riverine, or marine, environment. Moreover, in countries with high level of tourism, littered plastic bags can deter visitors. A wide body of experience suggests that the taxation of single-use plastic bags significantly influences consumers' purchasing of these bags, by stimulating a switch to reusable bags. In 2013, the Commission adopted a proposal for a Directive to reduce the consumption of lightweight plastic bags in the EU.⁸⁰⁴ Consequently, it is suggested that the UK increases the tax rate on single-use carrier bags to

⁸⁰⁴ DG Environment (2013) *Proposal to Reduce Plastic Bag Consumption*, Accessed 22nd January 2014, <u>http://ec.europa.eu/environment/waste/packaging/legis.htm#plastic_bags</u>



⁸⁰³ UK Government (2014) *Reducing and managing Waste: Charging for single use plastic carrier bags,* Accessed 20 August 2014, <u>https://www.gov.uk/government/policies/reducing-and-managing-waste/supporting-pages/charging-for-single-use-plastic-carrier-bags</u>

a rate of 0.11 per bag from 2016, and maintains the rate constant in real terms thereafter.

- Air pollution: The Directive on Ambient Air Quality and Cleaner Air for Europe (Directive 2008/50/EC) sets a number of air quality targets which Member States are obliged to achieve (emission target values are presented in Annexes XI and XIV of the Directive). Air pollution taxes stimulate emitters to install abatement technologies and therefore improve local air quality and the health of the population. Although air quality in the UK has improved over recent years, it is still a significant issue, especially in urban areas.⁸⁰⁵ According to Airbase (EEA), 73.1% of the urban population in the UK was exposed to PM₁₀ concentrations exceeding the daily limit value (50 µg per m³) for 8 to 35 days of the year in 2011.806 Vehicles that run off diesel fuel are a major cause of this (see above), and recent calls to increase the duty on diesel, and reduce the extent to which VED encourages purchase of diesel vehicles, are touched upon in the discussion around energy taxes above. The UK does not currently have a system of air pollution taxes in place, though there has been some interest in the use of damage costs to establish Best Available Techniques in the context of the IPPC Directive, now superseded by the Industrial Emissions Directive. It is suggested that an air pollution tax could be implemented in order to generate improvements in air quality as follows:
 - SOx €1,000 per tonne
 - o NOx €1,000 per tonne
 - PM₁₀ €2,000 per tonne

Given the magnitude of the recommended tax rates it is suggested that there is a transition period from 2015 to maximum levels by 2020. The rates are then held constant in real terms.

• Water abstraction: A key element of the Water Framework Directive (Directive 2000/60/EC) is the concept of cost recovery for water services. Article 9(1) of the Directive states that "Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs". Currently, although there are abstraction charges and user charges in place in the UK, the former are in place to recover costs of the management of the resource, and the latter are used to cover the costs of water supply: there are no taxes on abstraction in the UK. Consideration has been, and continues to be, given

⁸⁰⁵ EEA (2013) Air pollution fact sheet 2013 UK. Accessed 14th October 2014, http://www.eea.europa.eu/themes/air/air-pollution-country-fact-sheets/united-kingdom-air-pollutantemissions/view

⁸⁰⁶ Eurostat (2014) Resource Efficiency Scoreboard: EU Urban Population Exposed to PM10 Concentrations Exceeding the Daily Limit Value %, Accessed 21st January 2014, <u>http://epp.eurostat.ec.europa.eu/tgm/refreshTableAction.do?tab=table&plugin=0&pcode=t2020_rn200&</u> <u>language=en</u>
to the use of trading schemes to allocate water efficiently across consumers. It is suggested that appropriate levels of taxation would be of the order €290 per 1,000 m³ for the public water supply, €180 per 1,000 m³ for manufacturing purposes and €25 per 1,000 m³ for agriculture. We have assumed that the additional revenue which such rates may generate will accrue to the central budget. A transition period from 2015 to 2020 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. The rates are then held constant in real terms.

- Waste water: Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21st May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.⁸⁰⁷ The UK has a system of charges in place to cover the costs of discharges into surface waters, but there is no tax on the discharge of waste water tax. To improve the scope for prevention of water pollution it is suggested that a waste water tax is implemented in line with good practice (see Section 5.3.6). With relative price levels in the UK this would imply, for BOD, a rate of €2.44 per kg of the pollutant. For fresh-water discharges, it would be preferable to also tax phosphorus discharges. Given the magnitude of the increase in rates a transition period from 2015 to 2018 is suggested, whereby the rates are increased gradually from an introductory rate to maximum levels. Existing exemptions should be reviewed and adjusted accordingly. It is suggested that rates should be held constant in real terms once they reach the 2018 levels.
- **Pesticides:** Article 4 of the Directive on Establishing a Framework for Community Action to Achieve the Sustainable Use of Pesticides (Directive 2009/128/EC) speaks of the requirement for National Action Plans on pesticides. In particular the Article includes the following:

"...timetables and targets for the reduction of [pesticide] use shall also be established, in particular if the reduction of use constitutes an appropriate means to achieve risk reduction with regard to priority items identified under Article 15(2)(c). These targets may be intermediate or final. <u>Member States shall use all necessary means</u> <u>designed to achieve these targets</u>".

The UK's Action Plan outlines a series of statutory and voluntary measures to achieve the sustainable use of pesticides (for example, training inspections of equipment and the monitoring of water bodies), without any mention of taxation.⁸⁰⁸

The UK gave consideration to the introduction of a pesticides tax in the late 1990s / early 2000s, and discussions around the tax gave rise to a

www.gov.uk/government/uploads/system/uploads/attachment_data/file/221034/pb13894-nappesticides-20130226.pdf



⁸⁰⁷ DG Environment (2014) Urban Waste Water Directive Overview, Accessed 29th January 2014

⁸⁰⁸ Defra (2013) *UK National Action Plan for the Sustainable Use of Pesticides*, February 2013, Accessed 15th October 2014,

voluntary agreement with the crop protection industry. Elsewhere there is a trend towards banding taxes to reflect the level of hazard associated with them, and we would suggest that such an approach, which was considered at the time the tax was under discussion, is suitable in the UK. Our calculations assume that the country implements a pesticides tax and, in the absence of data regarding the types of active ingredient used, we model revenues as though the tax is applied at a rate of €10 per kg active ingredient. The suggested transition period is from 2016 to 2018, and following this the rate should be kept constant in real terms.

 Fertilisers: The UK does not currently implement a tax on nitrogen (or other) fertilisers. It is therefore suggested that a tax on the use of nitrogen in mineral fertilisers is implemented as a means of driving efficiencies in the application of fertilisers to land. It is suggested that at a rate of €0.2 per kg N be implemented from 2016 with rates gradually increasing to the maximum level in 2018.

20.2.3 Summary of Revenue Outcomes

Table 20-5 below shows the estimated additional revenue that could be achieved by introducing the changes suggested above. When calculating revenue potentials, an estimate of the change in the level of demand for the material / product / service is made reflecting the nature of the suggested changes. It is worth noting that the negative revenues calculated under the single-use bag tax is the result of the fact that it has been suggested above that the tax be increased to ± 0.11 – that is, above the existing baseline rate of ± 0.05 . This will cause a further reduction in the number of single-use plastic bags being purchased, and thus an erosion of the tax base over time.

Revenue figures are calculated by using the projected rates and data relating to the tax bases for each of the different taxes (see Section 6.1 for more details of how these figures were calculated).

Тах	2017	2020	2025	
Energy Taxes				
Transport fuels	439	1,748	3,047	
C&I / Heating	4	17	30	
Electricity	0	0	0	
Sub-total Energy, million GBP	443	1,765	3,077	

Table 20-5: Potential Additional Revenue from Environmental Fiscal Reform in the United Kingdom, million GBP (real 2014 terms)⁸⁰⁹

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 $^{^{809}}$ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

Тах	2017	2020	2025
Sub-total Energy, % GDP	0.03%	0.11%	0.19%
Transport Taxes			
Vehicle Taxes	877	3,510	4,395
Freight Aviation Tax	1.22	2.41	2.49
Sub-total Transport, million GBP	878	3,513	4,397
Sub-total Transport, % GDP	0.05%	0.21%	0.27%
Pollution and Resource Taxes	· · · · · · · · · · · · · · · · · · ·		
Incineration / MBT Tax	157	255	258
Air Pollution Tax	190	347	249
Water Abstraction Tax	651	1,479	1,372
Waste Water Tax	256	358	358
Pesticides Tax	78	143	134
Packaging Tax	344	353	403
Single Use Bag Tax	270	-7	-8
Fertiliser Tax	0.073	0.133	0.125
Sub-total Pollution & Resource, million GBP	1,946	2,926	2,766
Sub-total Pollution & Resources, % GDP	0.12%	0.18%	0.17%
Total Environmental Taxes			
Total, million GBP	3,268	8,204	10,240
Total Increase, % GDP	0.20%	0.50%	0.62%

Table 20-6 shows the additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services.

Table 20-6: Potential Additional Revenue from HGV Externality Charges and Increased Cost Recovery for Water Use in the United Kingdom, million EUR (real 2014 terms)

Revenue Type	Revenue Per Annum, million EUR
HGV Externality Charge	844
Increased Cost Recovery for Water Use	3,205



Revenue Type	Revenue Per Annum, million EUR
Total	4,049

20.2.4 Environmental Benefits

Table 20-7 shows the monetised environmental benefits from reduced tax bases due to increases in the tax rates. The methodology for the calculation of these numbers is summarised in Section 6.2 (projections of how the tax bases change over time as a result of the proposed changes can be found in Appendix A.18.0). It is important to note that the coverage of environmental benefits is not fully comprehensive. Even so, GBP 328 million of benefits are anticipated annually by 2025 in real terms.

Table 20-7: Monetised Environmental Benefits from Implementation of Suggested Taxes in the United Kingdom, million GBP (real 2014 terms)⁸¹⁰

Тах Туре	2017	2020	2025
Energy Taxes	4	18	30
Transport Taxes (excluding transport fuels)	30	61	61
Pollution and Resource Taxes	69	250	236
Total, million GBP	104	328	328
Total, % GDP	0.01%	0.02%	0.02%

20.2.5 Summary

Based upon the analysis presented in this report the following outcomes might be achieved in the United Kingdom:⁸¹¹

 In 2012, environmental taxes generated revenue equivalent to 2.62% of GDP. The headline figures suggest that there is considerable potential for additional revenue from environmental taxes in United Kingdom. These could generate GBP 3.3 billion in 2017 (EUR 4.1 billion), rising to GBP 10.2 billion in 2025 (EUR 12.7

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⁸¹⁰ % GDP calculated using the following source: Eurostat (2014) GDP and Main Components - Current *Prices* [nama_gdp_c], Accessed 5th August 2014,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C

⁸¹¹ % GDP calculated using data from Eurostat (2013) GDP and Main Components - Current Prices [nama_gdp_c], Accessed 29th November 2013,

http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=NAM_GD P_C and projecting GDP forwards based upon the last real GDP growth rate available in the following source: Eurostat (2014) *Real GDP Growth Rate - Volume*, Accessed 21st January 2014, http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&plugin=1&language=en&pcode=tec00115

billion) (both in real 2014 terms). This is equivalent to 0.20% and 0.62% of GDP in 2017 and 2025, respectively.

- The largest single contribution to revenue comes from the suggested increase in vehicle taxes. This accounts for GBP 4.4 billion by 2025 (EUR 5.5 billion) (real 2014 terms), equivalent to 0.23% of GDP.
- The next largest contribution to revenue comes from a the proposed harmonisation of taxes on transport fuels with the rates set out in the proposed ETD. This accounts for GBP 3.0 billion by 2025 (EUR 3.8 billion) (real 2014 terms), equivalent to 0.16% of GDP.
- The suggested water abstraction tax would account for GBP 1.4 billion by 2025 (EUR 1.7 billion) (real 2014 terms), equivalent to 0.07% of GDP.
- Revenue potential from the proposed packaging tax would raise GBP 0.40 billion by 2025 (EUR 0.50 billion) (real 2014 terms), equivalent to 0.02% of GDP.
- A waste water tax has also been suggested. This would contribute GBP 0.36 billion by 2025 (EUR 0.44 billion) (real 2014 terms), equivalent to 0.02% of GDP.
- In addition, a range of more minor taxes on could generate revenue of GBP 0.67 billion by 2025 (EUR 0.84 billion) (real 2014 terms), equivalent to 0.03% of GDP.
- It has not been possible to identify all the likely environmental benefits from the suggested taxes. However, those that have been identified amount to around GBP 0.33 billion by 2025 (EUR 0.41 billion) (real 2014 terms), equivalent to 0.02% of GDP.
- Additional revenue potential from two discreet analyses carried out for the study, on externality charging for HGVs and increasing the level of cost recovery under the provision of water services, have shown that an additional €4 billion per annum could be raised in addition to the above.



21.0 Cross-Country Comparative Results

All figures are given in real (2014) terms. For the group as a whole, additional revenue generated in 2017 is estimated to be around €38 billion, or 0.48% of the estimated GDP for the 14 countries combined, rising to €111 billion in 2025 (in real 2014 terms), or 1.39% of the combined GDP.

Table E-1-1, Table E-1-2 and Table E-1-3 below show the split of revenue generation by the different types of environmental taxes which are suggested to be implemented in the 14 Member States. The majority of the overall increase comes from additional taxes on transport (excl. transport fuels) (0.80% of GDP). Additional revenue generated from increasing energy excise duties amounts to 0.35% of GDP. Finally, an increase of 0.24% of GDP is estimated from increased taxes on pollution and resources.

Table E-21-1: Revenue Generated from Energy Taxes by the 14 Member States in 2025, % GDP and € billion (real 2014 terms)

Energy Tax	% GDP	€, billion
Energy Excise Duties - Transport fuels	0.24%	19.37
Energy Excise Duties - C&I / Heating	0.07%	5.66
Energy Excise Duties - Electricity	0.03%	2.62
Total Energy Taxes	0.35%	28

Table E-21-2: Revenue Generated from Transport (excl. transport fuels) Taxes by the 14 Member States in 2025, % GDP and € billion (real 2014 terms)

Transport Tax	% GDP	€, billion
Vehicle Taxes	0.57%	45.46
Passenger Aviation Tax	0.23%	18.58
Freight Aviation Tax	0.00013%	0.010
Total Transport (excl. transport fuels) Taxes	0.80%	64

Table E-21-3: Revenue Generated from Pollution and Resource Taxes by the 14 Member States in 2025, % GDP and € billion (real 2014 terms)

Pollution/Resource Tax	% GDP	€, billion
Landfill Tax - Non-haz (excl. C&D)	0.01%	0.88
Landfill Tax - Inerts (C&D)	0.0006%	0.04
Incineration / MBT Tax	0.01%	0.92

Pollution/Resource Tax	% GDP	€, billion
Air Pollution Tax	0.03%	2.06
Water Abstraction Tax	0.11%	8.81
Waste Water Tax	0.02%	1.34
Pesticides Tax	0.02%	1.58
Aggregates Tax	0.02%	1.53
Packaging Tax	0.02%	1.61
Single Use Bag Tax	0.01%	0.42
Fertiliser Tax	0.00001%	0.001
Total Pollution and Resource Taxes	0.24%	19

Revenue generated by the 14 Member States from increasing environmental taxes is given in Table E-1-4. The size of the economies in the different countries clearly influences the amount of revenue that is estimated to be generated.

Table E-21-4: Revenue Generation by Member State for Selected Years, € billion (real 2014 terms)

Member State	2017	2020	2025
Bulgaria	528	921	946
Cyprus	212	379	425
Denmark	851	1,585	1,809
Finland	1,502	2,581	3,110
Germany	14,278	33,821	41,375
Greece	1,239	2,326	2,889
Ireland	701	1,680	2,010
Latvia	250	485	642
Malta	93	212	280
Netherlands	2,815	6,779	9,405
Slovenia	134	228	299
Spain	9,667	23,550	28,390
Sweden	1,967	5,450	6,583



Member State	2017	2020	2025
United Kingdom	4,065	10,207	12,743
Total	38,301	90,204	110,908

Expressed as a proportion of GDP, the revenues are shown in Table E-1-5. In the year 2025, the estimated additional revenue generation from the environmental taxes lies between 0.62% of GDP (United Kingdom) and 3.68% GDP (Malta). The estimated increases for the other 12 countries considered all lie within the range 0.69% GDP to 2.7% GDP.

The environmental benefits associated with these changes have been estimated, though this analysis does not capture all the external benefits associated with the changes.

Table E-1-6 indicates that these benefits lie between 0.02% GDP (UK, NL, DK) and 0.81% GDP (Latvia) in 2025. The patterns of the benefits reflect the sources of the additional tax revenue.

Member State	Total Environmental Taxes in 2012, % GDP	Total Additional from Environmental Taxes in 2025, % GDP
Bulgaria	2.82%	2.19%
Cyprus	2.67%	2.64%
Denmark	3.87%	0.69%
Finland	3.07%	1.52%
Germany	2.18%	1.43%
Greece	2.85%	1.53%
Ireland	2.49%	1.15%
Latvia	2.42%	2.47%
Malta	2.98%	3.68%
Netherlands	3.56%	1.51%
Slovenia	3.82%	0.85%
Spain	1.57%	2.70%
Sweden	2.49%	1.50%
United Kingdom	2.62%	0.62%
EU-average	2.29%	

Table E-21-5: Revenues Generated from Environmental Taxes by Member State, % GDP

Member State	Total Environmental Taxes in 2012, % GDP	Total Additional from Environmental Taxes in 2025, % GDP
EU-Maximum	3.87%	

Table E-21-6: Estimated Indirect Benefits from Reduced Environmental Impacts, 2025, % GDP and € millions (real 2014 terms)

Member State	% GDP	€, million
Bulgaria	0.71%	392
Cyprus	0.31%	59
Denmark	0.02%	67
Finland	0.06%	164
Germany	0.10%	3,487
Greece	0.45%	891
Ireland	0.05%	96
Latvia	0.81%	268
Malta	0.27%	26
Netherlands	0.02%	189
Slovenia	0.09%	35
Spain	0.14%	1,557
Sweden	0.04%	201
United Kingdom	0.02%	408



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All appendices have been prepared as a separate document

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