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**An exploration of potential conflicts  
and synergies**

Discussion Paper



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## COLOPHON

### **Climate change mitigation policies and social justice in Europe**

An exploration of potential conflicts and synergies

A publication of the King Baudouin Foundation  
Rue Brederode 21, B 1000 Brussels

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#### GRAPHIC CONCEPT LAYOUT PRINT ON DEMAND

PuPiL  
Jean-Pierre Marsily  
Manufast-ABP, a non-profit, special-employment enterprise

This publication can be downloaded free of charge from [www.kbs-frb.be](http://www.kbs-frb.be)

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#### LEGAL DEPOSIT: ISBN-13: EAN: ORDER NUMBER:

D/2893/2009/45  
978-90-5130-679-8  
9789051306798  
1951

November 2009  
With the support of the Belgian National Lottery

## FOREWORD

Climate change has risen to the top of the international and public agenda, with the debate focusing on what targets should be set for reducing greenhouse gas emissions and what measures are needed to meet those targets. Far less attention has been paid to the implications of these measures for different groups in European societies.

The King Baudouin Foundation has launched a unique project which brings together European stakeholders in climate change and social justice to discuss this important but neglected issue, and consider how to develop a joint approach which combines effective measures to fight climate change with social fairness in Europe.

The Foundation commissioned this discussion paper to launch the debate by exploring potential links between social justice and climate change mitigation policies already being implemented or in the pipeline. For this purpose, social justice is broadly defined, including elements such as the quality of jobs, education, health, culture, consumer choice, living conditions, the environment issues, inter-generational justice and gender.

This paper does not aim to be exhaustive, but rather to provide a first analysis of the potential impact of climate change policies on the most vulnerable people in European societies. You may not agree with all of it, but we hope you will find it interesting and thought-provoking. If so, it will have achieved its goal, which is to inform and inspire the debate, and help stakeholders to identify priorities for further discussion.

## ACKNOWLEDGEMENTS

We would like to thank the following for their contribution to this study: Jonathan Armstrong, Nele Bünner, Jane Desbarats, Megan Lewis, Claire Swinton and Carolina Valsecchi from the Institute for European Environmental Policy (IEEP), for the preparation of the case studies which serve as background material for this analysis, and David Baldock for his valuable help. We should also like to thank H el ene Marcelle from IGEAT whose contribution to the development of the sociological bottom-up approach was fundamental to the study.

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## EXECUTIVE SUMMARY

This paper explores the potential conflicts and synergies between climate change mitigation policies and social justice issues in Europe. It identifies EU-level policies and measures likely to play an important role in climate change mitigation over the next three to five years and analyses case studies in selected EU Member States, using a set of indicators to explore their potential implications from a social justice point of view.

The paper evaluates selected policies at EU and Member State level, including:

- the EU's Emission Trading System;
- policies to promote the development and use of renewable energies (including feed-in tariffs in Germany and green certificates in the UK);
- measures to boost fuel economy and the use of biofuels in road transport;
- initiatives designed to improve the energy performance of buildings (including energy performance certificates and financial mechanisms such as the Belgian Fonds de Réduction de Coût global de l'Énergie);
- the use of energy taxes to encourage investments in energy-saving measures (including the planned French carbon tax); and
- initiatives to encourage moves towards less energy-intensive products (including the EU decision to phase out incandescent light bulbs by 2012).

The authors consider the potential implications of each measure for social justice – analysing, for example, their impact on the prices paid by consumers, how the costs and benefits are shared, whether they are likely to create or destroy jobs, what impact, if any, they could have on health – and highlight areas of concern and issues which require further investigation.

Climate change mitigation policy is focused on changing behaviour at all levels of society, from governments through manufacturing industry to households. It may therefore have a wide array of social effects: some relatively direct, others stemming from a series of complex economic adjustments at a global as well as European level. Given the many variables involved over a long timescale, there is a need for monitoring and a programme of active social research to compare their unexpected as well as more predictable impacts.

A common feature of many of the measures reviewed in this paper is that they focus on restructuring the electricity supply industry and some energy-intensive technologies, ultimately at the cost of the consumer rather than the state, with companies passing the costs onto their customers. This will tend to be socially regressive unless it is offset by measures to counter fuel poverty, for example by targeting support at vulnerable households or low-income groups.

While efforts are being made in some cases to compensate for any anticipated negative consequences of climate change mitigation measures on particular social groups and increased attention is being paid to the side-benefits of climate change mitigation policies, the paper argues that much greater efforts are needed to identify synergies between policy domains more systematically and creatively.

This is a critical challenge for climate policy, requiring some synchronisation between measures developed at the European level and the more fine-grained social interventions initiated and managed at the national or local level. It is also linked to EU Cohesion Policy and the use of Structural Funds to finance energy efficiency improvements in the new Member States.

Another issue which merits closer attention and debate is how the “polluter pays principle” is being applied in climate change mitigation policies, amid signs that the costs of some measures are not being shared out in accordance with this principle. A fairer distribution of costs that takes into account the capacity of different sectors of society to absorb those costs is also critical to strengthen the synergies between climate change mitigation and social justice.

The paper concludes that despite the increasing array of policy measures in Europe aimed at curbing greenhouse gas emissions, there has been relatively little debate about the consequences for social justice in Europe, and too little attention paid to the potential benefits of a ‘bottom-up’ approach focused on households. Indeed, the authors found few examples of procedures or processes for integrating social dimensions into the climate change debate.

Does this suggest that politicians attached relatively little priority to social justice at a European level? Or is it related to the more limited EU competence in this area, in contrast to the EU’s central role in climate policy-making, with Member States playing the primary role in this domain? Could it also be linked to the fact that the debate about the three pillars of sustainable development has been too often phrased in terms of trade-offs and much less in terms of win-win opportunities? Or that the link between the social and environmental pillars of sustainable development has not been extensively explored yet.

This paper does not attempt to provide the answers to all these questions. It aims instead to highlight the key issues which require further detailed analysis and debate before developing concrete policy proposals to integrate the climate change mitigation and social justice agendas in Europe.

## SAMENVATTING

Deze tekst verkent de mogelijke conflicten en synergieën tussen het beleid tot matiging van de klimaatverandering en de sociale rechtvaardigheid in Europa. Hij gaat na welke Europese beleidslijnen en maatregelen de komende drie tot vijf jaar vermoedelijk een belangrijke rol zullen spelen in de strijd tegen de klimaatverandering. Ook analyseert hij enkele casestudies in een aantal EU-lidstaten, aan de hand van een aantal indicatoren die helpen nagaan wat de mogelijke gevolgen zijn vanuit het standpunt van sociale rechtvaardigheid.

De analyse evalueert een aantal beleidslijnen op het niveau van de EU en de lidstaten, zoals:

- het Europees systeem voor de handel in emissies;
- beleidslijnen om de ontwikkeling en het gebruik van hernieuwbare energiebronnen te bevorderen (zoals de 'feed-in tariffs' in Duitsland en de groene certificaten in het Verenigd Koninkrijk);
- maatregelen om brandstofbesparingen en het gebruik van biobrandstoffen in het wegverkeer aan te moedigen;
- initiatieven om de energieprestatie van gebouwen te verbeteren (zoals de energieprestatiecertificaten en financiële mechanismen zoals het Belgische Fonds ter Reductie van de Globale Energiekost);
- het gebruik van vormen van energielasting om investeringen in energiebesparende maatregelen aan te moedigen (onder andere de geplande Franse koolstofaks); en
- initiatieven om stappen in de richting van minder energie-intensieve producten aan te moedigen (zoals de beslissing van de EU om tegen 2012 een eind te maken aan de verkoop van gloeilampen).

De auteurs gaan na welke mogelijke gevolgen elk van deze maatregelen kan hebben voor de sociale rechtvaardigheid: zo analyseren zij bijvoorbeeld de impact op de prijzen die de consumenten betalen, de manier waarop de kosten en baten worden verdeeld, de impact voor de werkgelegenheid en hun impact voor de gezondheid. Zij geven ook aan welke terreinen aanleiding geven tot bezorgdheid en welke punten verder onderzoek vergen.

De beleidslijnen voor de strijd tegen klimaatverandering zijn gericht op gedragsverandering op alle niveaus van de samenleving, van de overheid via de producerende nijverheid tot de gezinnen. Daardoor kunnen deze beleidslijnen ook een hele reeks sociale gevolgen hebben: sommige daarvan vrij rechtstreeks, andere voortkomend uit een aantal complexe economische aanpassingen wereldwijd en in Europa. Gezien het grote aantal variabelen dat hierbij over een lange termijn een rol speelt, is er nood aan monitoring en een programma van sociaal onderzoek om de onverwachte en ook meer voorspelbare gevolgen te vergelijken.

Veel van de maatregelen die in dit document geanalyseerd worden, zijn gericht op een herstructurering van de sector van de elektriciteitsproductie en op enkele energie-intensieve technologieën, die uiteindelijk meer ten laste van de consument dan van de staat vallen, omdat de bedrijven de kosten afwentelen op hun klanten. Dit leidt meestal tot een sociale achteruitgang, tenzij er compenserende maatregelen komen om brandstofarmoede tegen te gaan, bijvoorbeeld door gericht steun te verlenen aan kwetsbare gezinnen of lage-inkomensgroepen.

Hoewel in sommige gevallen inspanningen worden gedaan om alle voorziene negatieve gevolgen van de maatregelen tot klimaatmitigatie voor bepaalde maatschappelijke groepen te compenseren en hoewel er meer aandacht is voor de neveneffecten van het beleid tot klimaatmitigatie, stelt de tekst toch dat veel grotere inspanningen nodig zijn om op een meer systematische en creatieve wijze te zoeken naar synergieën tussen de beleidsdomeinen.

Dit is een essentiële uitdaging voor het klimaatbeleid, die een zekere synchronisatie vergt tussen maatregelen die op Europees niveau worden ontwikkeld en de meer specifieke sociale tussenkomsten die op nationaal of lokaal vlak worden opgezet en uitgevoerd. Er zijn ook heel wat verbanden met het cohesiebeleid van de EU en het gebruik van de Structuurfondsen om verbeteringen op het vlak van energie-efficiëntie in de nieuwe lidstaten te financieren.

Een ander punt dat nadere aandacht en meer discussie verdient, is de manier waarop het principe van 'de vervuiler betaalt' wordt toegepast in het beleid tot matiging van de klimaatverandering. Er zijn immers talrijke aanwijzingen dat de kosten van bepaalde maatregelen niet volgens dit principe worden verdeeld. Een eerlijker verdeling van de kosten, die rekening houdt met de capaciteit van de verschillende sectoren van de samenleving om die kosten te dragen, is ook van cruciaal belang om de synergieën tussen klimaat en sociale rechtvaardigheid te versterken.

De auteurs komen tot de conclusie dat er ondanks het groeiende aantal beleidsmaatregelen in Europa om de uitstoot van broeikasgassen te beperken, vrij weinig discussie is geweest over de gevolgen voor de sociale rechtvaardigheid en dat er te weinig aandacht is besteed aan de mogelijke voordelen van een 'bottom-up'-benadering gericht op de gezinnen. De auteurs hebben namelijk weinig voorbeelden gevonden van procedures of processen die de sociale dimensies mee opnemen in het klimaatdebat.

Betekent dit dat de politici op Europees niveau in verhouding weinig voorrang hebben gegeven aan sociale rechtvaardigheid? Of heeft het te maken met het feit dat de EU, in tegenstelling tot haar centrale rol bij het uitstippelen van het klimaatbeleid, op dit terrein een beperktere bevoegdheid heeft en de lidstaten hier de belangrijkste rol spelen? Kan het ook verband houden met het feit dat de discussie over de drie peilers van duurzame ontwikkeling te vaak is geformuleerd in termen van trade-offs en veel minder in termen van win-winkansen?

Deze tekst probeert geen antwoord te bieden op al deze vragen, maar hij tracht wel te wijzen op de belangrijkste punten die een verdere gedetailleerde analyse en bespreking vergen vooraleer concrete beleidsvoorstellen op te stellen, met de bedoeling de agenda's op het vlak van klimaatverandering en van sociale rechtvaardigheid in Europa op elkaar af te stemmen.

## SYNTHÈSE

Ce document explore les conflits et les synergies potentiels entre les politiques de lutte contre le changement climatique et les questions de justice sociale en Europe. Il identifie les stratégies et les mesures européennes susceptibles de jouer un rôle important dans la lutte contre le réchauffement climatique au cours des trois à cinq prochaines années et analyse des études de cas dans plusieurs États membres, en utilisant une série d'indicateurs pour explorer leurs implications éventuelles dans une perspective de justice sociale.

L'analyse évalue une sélection de stratégies au niveau de l'UE et des États membres, dont:

- le système européen d'échange de quotas d'émission (Emission Trading System);
- des politiques visant à promouvoir le développement et l'utilisation d'énergies renouvelables (y compris les 'feed-in tariffs' en Allemagne et les certificats verts au Royaume Uni);
- des mesures destinées à stimuler l'économie de carburant et l'usage de biocarburants dans le transport routier;
- des initiatives conçues pour améliorer les performances énergétiques des bâtiments (y compris des certificats de performance énergétique et des mécanismes financiers tels que le Fonds belge de Réduction du Coût global de l'Énergie);
- l'usage de taxes sur l'énergie afin d'encourager l'investissement dans des mesures d'économie d'énergie (dont la taxe carbone prévue en France); et
- des initiatives ayant pour but d'encourager l'adoption de produits moins énergivores (comme la décision européenne d'interdire progressivement les ampoules incandescentes d'ici 2012).

Les auteurs étudient les implications potentielles de chaque mesure pour la justice sociale – en analysant, par exemple, leur impact sur les prix payés par les consommateurs, la manière dont les coûts et les bénéfices sont partagés, l'impact sur les emplois, l'impact sur la santé – et mettent en lumière les sujets de préoccupation et les questions exigeant des recherches plus approfondies.

Les politiques de lutte contre le changement climatique visent à changer les comportements à tous les niveaux de la société, depuis les gouvernements jusqu'aux ménages en passant par l'industrie. Elle peuvent de ce fait avoir un vaste éventail d'effets sociaux: certains relativement directs, d'autres résultant d'une série d'ajustements économiques complexes tant au niveau mondial qu'au niveau européen. Etant donné les nombreuses variables en cause sur une longue période, un suivi s'impose, de même qu'un programme de recherches sociales pour comparer tant leurs effets inattendus que leurs impacts plus prévisibles.

Une caractéristique commune à bon nombre des mesures analysées dans cette publication est qu'elles se focalisent sur la restructuration de secteur de production d'électricité et sur quelques technologies énergivores, à charge finalement du consommateur et non de l'état, les compagnies répercutant leurs coûts sur leurs consommateurs. Cette attitude risque d'entraîner une régression sociale à moins d'être compensée par des mesures destinées à contrer la précarité énergétique, par exemple en accordant un soutien ciblé aux ménages vulnérables ou aux groupes à bas revenus.

Si des efforts sont consentis dans certains cas pour compenser les conséquences négatives anticipées des mesures de lutte contre le changement climatique sur des groupes sociaux spécifiques, si les bénéfices indirects des mesures de lutte contre le réchauffement climatique font l'objet d'une attention accrue, les auteurs estiment néanmoins qu'il faudra déployer des efforts plus intenses pour identifier des synergies entre les domaines politiques, de manière plus systématique et plus créative.

Il s'agit là d'un défi essentiel pour la politique climatique, exigeant une certaine synchronisation entre les mesures développées au niveau européen et les interventions sociales plus affinées initiées et gérées au niveau national ou local. Un défi lié aussi à la politique de cohésion européenne et au recours aux fonds structurels pour financer les améliorations de l'efficacité énergétique dans les nouveaux États membres.

Un autre problème méritant attention et débat est la manière dont le principe du 'pollueur payeur' est appliqué dans les stratégies de lutte contre le changement climatique, de nombreuses indications tendant à montrer que les coûts de certaines mesures ne sont pas répartis conformément à ce principe. Une distribution des coûts plus équitable, qui tient compte de la capacité des différents secteurs de la société à absorber ces coûts, est essentielle aussi pour renforcer les synergies entre le climat et la justice sociale.

Le document conclut qu'en dépit du nombre croissant de mesures politiques européennes visant à réduire les émissions de gaz à effet de serre, on a relativement peu débattu des conséquences pour la justice sociale et qu'on a prêté trop peu d'attention aux bénéfices potentiels d'une approche 'bottom-up' axée sur les ménages. Les auteurs ont en effet trouvé peu d'exemples de procédures ou de processus visant à intégrer les dimensions sociales dans le débat sur le changement climatique.

Cela veut-il dire que les politiques ont attaché relativement peu d'attention à la justice sociale au niveau européen? Ou est-ce lié au fait que l'Europe a des compétences plus limitées dans ce domaine, comparativement au rôle central qu'elle remplit dans la politique climatique, les États membres jouant un rôle prépondérant dans ce domaine? Serait-ce dû au fait que le débat relatif aux trois piliers du développement durable a trop longtemps été formulé en termes de trade-offs et beaucoup moins en termes d'opportunités win-win

Cette publication n'a pas l'ambition de fournir les réponses à toutes ces questions. Elle vise à mettre en évidence les problèmes clés nécessitant une plus ample analyse et un débat plus approfondi avant l'élaboration de propositions concrètes permettant de faire du changement climatique et de la justice sociale des priorités indissociables à l'agenda politique européen.

## ACRONYMS

BMU	German Federal Ministry of the Environment
CARE package	Climate Action and Renewable Energy package (of the European Union)
CCPM	Common and Co-ordinated Policies and Measures
CFL	Compact Fluorescent Lamps
CHP	Combined Heat and Power
CO <sub>2</sub>	Carbon Dioxide
DG	Directorate General
EEA	European Energy Agency
EPC	Energy Performance Certificate
EPEE	European fuel Poverty and Energy Efficiency project
ETS	Emission Trading System
EU	European Union
e.g.	exempli gratia (for example)
ETUI	European Trade Union Institute
FRCE	Belgian Fonds de Réduction de Cout global de l'Energie (Fund for the Reduction of Overall Energy Costs)
GDP	Gross Domestic Product
i.e.	id est (that is)
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated pollution prevention and control
km	Kilometre
kWh	Kilowatt hour
LED	Light Emitting Diode
MWh	Megawatt hour
N <sub>2</sub> O	Nitrous Oxide
OECD	Organisation for Economic Co-operation and Development
PCA	Personal Carbon Allowance
RES-E	Electricity produced from Renewable Energy Sources
ROC	Renewable Obligation Certificate
SME	Small and medium-sized enterprises
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value Added Tax





# 1. INTRODUCTION

There is by now a substantial literature addressing the integration of environmental policy objectives into other policy domains (Lenschow, 2002<sup>1</sup>; Jordan and Lenschow, 2008<sup>2</sup>; Nilsson and Eckerberg, 2007<sup>3</sup>). There is also a wider, more theory-driven literature on policy co-ordination (Jordan and Schout, 2006<sup>4</sup>; Metcalf, 1994<sup>5</sup>; Flinders, 2002<sup>6</sup>). Similarly, at the level of more day-to-day policy making there has been a growing interest in considering the wider impact of policies beyond the immediate sectors in which they are normally developed and implemented. Consequently, there is a growing literature on the impact of environmental policy measures on other sectors such as employment and competitiveness. Much less attention, however, has focused specifically on the implication of climate change mitigation policies on social justice, although this is now beginning to emerge (Gough et al., 2008<sup>7</sup>; Degryse and Pochet 2009<sup>8</sup>; Liddle and Latham, 2009<sup>9</sup>; Johnson et al., 2009<sup>10</sup>).

This paper forms part of a project initiated by the King Baudouin Foundation to bring together experts in climate change mitigation policy and in social justice to debate the importance of a joint approach to achieve social fairness in mitigation policies in Belgium and Europe. The starting point for the project was the study commissioned by the European Commission's Directorate General for Employment, Social Affairs and Equal Opportunities: "Addressing the Social Dimensions of Environmental Policy" (Pye et al., 2008). This study considered a broader range of environmental policy domains and was concerned both with the distribution of environmental quality as well as with the distribution of the effects of policy measures on different groups in

- 1 Lenschow, A (ed) (2002), *Environmental Policy Integration Greening Sectoral Policies in Europe*. Earthscan, London.
- 2 Jordan, A and Lenschow, A (eds) (2008), *Innovation in Environmental Policy: Integrating the environment for sustainability*. Edward Elgar, Cheltenham.
- 3 Nilsson, M and Eckerberg K (eds) (2007), *Environmental Policy Integration in Practice*. Earthscan, London.
- 4 Jordan, A and Schout, A (2006), *The Coordination of the European Union: Exploring capacities for networked governance*. Oxford University Press, Oxford.
- 5 Metcalf, L (1994) *International Policy Coordination and Public Management Reform*, *International Review of Administrative Sciences*, Vol. 60, No. 2, pp271-290.
- 6 Flinders, M (2002), *Governance in Whitehall*, *Public Administration*, Vol. 80, No. 1, pp51-7.
- 7 Gough, I et al. (2008) *JESP symposium: Climate Change and Social policy*, *Journal of European Social Policy*, Vol. 18, Issue 4, pp325-344.
- 8 Degryse, C and Pochet, P (2009), *Paradigm shift: social justice as a prerequisite for sustainable development*, *ETUI Working paper 2009.02*, Brussels.
- 9 Liddle, R and Latham, S (2009), *How can the response to climate change be socially just?*, in Giddens, A et al. (2009) *Building a low-carbon future: The politics of climate change*, *Policy Network*, London.
- 10 Johnson, V et al. (2009), *Tackling climate change, reducing poverty*. New Economics Foundation, London.

society. The King Baudouin Foundation wished to focus specifically on climate change mitigation policies and to explore how such policies might link up with social justice issues. To provide a starting point for the discussion, the Foundation commissioned the Institute for European Environmental Policy and the Université Libre de Bruxelles to explore potential conflicts and synergies between climate change and mitigation policies in EU Member States.

Policies and measures at EU level considered likely to play an important role in the mitigation of climate change over the next 3-5 years were identified. 9 case studies were conducted in selected Member States<sup>11</sup> with the aim of having a diversity of policy measures and European contexts<sup>12</sup>. However, given the very limited time available for each case study, we could only really begin to scratch the surface and so we only provide limited reporting on the case studies here. Whilst this aspect of the work could be developed in future, it is also the case that a great deal of Member State climate change mitigation policy is driven by what they have agreed to do together through the so-called Common and Co-ordinated and Policies and Measures (CCPM). A set of indicators was developed permitting an exploration of policy measures from a social justice point of view. These indicators, set out in detail in section 3, were developed by mapping domains of everyday life and exploring where these might intersect with known climate change mitigation policies.

In the report that follows, we first set out the rationale for the policy measures we have explored; secondly, we explain our approach to thinking about potential social justice implications of climate change mitigation policies; thirdly, we apply this methodology to the selected policy measures; fourthly, we provide a short discussion of the integration of social justice concerns into climate change mitigation policy; and finally, we set out the key issues raised by this paper.

We wish you two fruitful days of discussion.

.....  
 11 *The case studies considered: current and planned climate change mitigation policies; the prospects for transposition of each aspect of the CARE package; whether there were any good initiatives started either by civil society or by government emphasising the potential linkage of climate change and social objectives; and finally the extent to which any eventual economic stimulus plan included a climate change component. 9 case studies were conducted within a very restricted time frame.*

12 *Case studies were conducted in Belgium, Bulgaria, Estonia, France, Germany, Italy, Poland, Spain, Sweden and the United Kingdom.*

## 2. KEY CLIMATE CHANGE MITIGATION POLICIES IN THE NEXT 3-5 YEARS

As noted above, European Member State climate change mitigation policy is to a great extent driven by what has been agreed at EU level. This is particularly the case in the EU12,<sup>13</sup> the most recent EU member countries. We have therefore taken as our point of departure an overview of climate change mitigation policies and measures agreed among Member States at EU level.

The objective of EU climate change mitigation policy is to avoid dangerous anthropogenic climate change. Since the Intergovernmental Panel on Climate Change 4<sup>th</sup> Assessment Report, the scientific evidence and political consensus for deep and early cuts in greenhouse gas emissions has grown. It is now accepted by the EU as well as the G20 group of countries that avoiding dangerous climate change means that the overall global annual mean surface temperature must not increase by more than 2°C above pre-industrial levels. This implies a 50-85% reduction in global CO<sub>2</sub> emissions by 2050, with emissions peaking by 2015 at the latest (IPCC 2007, p.39).

It is the view of the EU that developed countries, including the EU Member States, should take the lead by committing to collectively reducing their emissions of greenhouse gases in the order of 30% by 2020 compared to 1990 levels, and that they should do so with a view to collectively reducing their greenhouse gas emissions by 80% or more by 2050 compared to 1990 levels.<sup>14</sup> The EU has unilaterally committed to a 30% reduction by 2020 compared to 1990 levels as its contribution to a global agreement to follow the expiry of the Kyoto Protocol at the end of 2012. This is on condition that "other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries commit themselves to contributing adequately according to their responsibilities and capabilities" (European Parliament and Council 2009, p.136). The forthcoming United Nations Climate Change Conference, to be held in Copenhagen in December 2009, and, more importantly, how the EU chooses to respond to the outcome of these negotiations will therefore be important factors shaping climate change mitigation policies in the next 3-5 years.

A significant body of policies and measures addressing climate change mitigation dating from the 1980s onwards now exists at the EU level. The recent Climate Action and Renewable Energy package (often referred to as the CARE package) builds on this. The measures in the CARE package are based around a 20% emission reduction target, but with the possibility of increasing this to a 30% target.

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<sup>13</sup> For the EU27, 57% of the policy measures implemented at national level were introduced in response to EU policies and a further 24% have been reinforced by them (European Environmental Agency (2008) Greenhouse gases emission trends and projections in Europe 2008, EEA Report no 5, Denmark: p63).

<sup>14</sup> Informal Meeting of EU heads of state or government (2009) Agreed language for the Pittsburgh G20 Summit, Brussels, [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/110166.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/110166.pdf)

In order to decide which policies to explore in greater detail, we looked first at which policies were likely to be most important from a climate change mitigation point of view over the next 3-5 years. The European Environment Agency (EEA) provides an annual assessment of the progress of European countries towards achieving the objectives of the UNFCCC and their emission targets under the Kyoto Protocol of the Convention. The report includes an assessment of emission reductions from policies co-ordinated at EU level as well as of additional national measures.<sup>15</sup> In its most recent report, the EEA estimates the thirteen most important common and co-ordinated policies in terms of emissions reductions in the EU27 up to 2010 (Table 1). This is based on Member States' estimates of the expected reduction effect of individual policies (EEA 2008, p. 97).<sup>16</sup> We took this as our point of departure.

**Table 1: Estimated reductions from the top 13 CCPMs in the EU27**

<b>Common and Co-ordinated Policies and Measures (CCPMs)</b>	<b>Published in the Official Journal</b>	<b>Estimated reductions (Mt CO<sub>2</sub>-eq.)</b>
Emissions trading Directive	2003	123.5
Directive on the promotion of RES-E	2001	61.8
Directive on the use of biofuels in transport	2003	32.1
Voluntary commitment by car manufacturers	1998/1999	28.6
Directive on the energy performance of buildings	2002	28.2
Directive on energy taxation	2003	17.5
Directive on CHP to promote high efficiency co-generation	2004	15.0
Directive linking the EU-ETS with Kyoto flexible mechanisms	2003	10.5
Landfill Directive (methane recovery)	1999	7.3
Boiler Directive	1992	5.9
Directive on integrated pollution prevention and control (IPPC)	1996	5.6
Directive on energy labelling of energy using appliances	2003	4.3
Motor challenge programme	2003	3.6

Source: EEA (2008): p66.<sup>17</sup>

<sup>15</sup> Although their effect is not always separated out in the data provided to the EEA.

<sup>16</sup> Data was not available for Belgium, Cyprus, Poland and Romania.

<sup>17</sup> European Environmental Agency (2008), Greenhouse gases emission trends and projections in Europe 2008, EEA Report no 5/2008, Denmark.

Although the EEA looked at the significance of different CCPMs to 2010, we have made the assumption that in broad terms this is unlikely to shift much in the period that we are concerned with, i.e. the next 3-5 years, and that at least it gives a good indication of the strategic importance of policies and measures. It was, however, necessary to update the picture in the light of recent policy developments, in particular the CARE package. Given the time constraints of this paper, we have ignored policies where predicted savings were lower, likely to be less pertinent to social justice, or where we had already selected a similar type of policy instrument.<sup>18 19</sup> It was also necessary to 'operationalise' some of the policies at a level that was easier for the evaluation scheme to engage with. For example, targets for renewable energy delivery are set out under the Directive 2009/28/EC. An overall target for the EU of 20% of energy supply to be met by renewable sources by 2020 is shared between individual Member States by specific individual targets based mainly on GDP. While targets were set at the EU level, it is up to Member States to implement suitable policies that deliver their required share.<sup>20</sup>

**Table 2: Overview of the policy measures explored**

	<b>Broad area</b>	<b>Specific instruments</b>
1.	Power generation and energy intensive industry	EU Emissions Trading System (EU-ETS)
2.	Renewable energy	Feed-in tariffs
3.		Green certificates
4.	Low carbon vehicles	Mandatory fleet average fuel economy
5.		Renewables in transport
6.	Energy performance of buildings	Energy performance certificates
7.		Financial mechanisms for insulation, building integrated renewables and micro-generation.
8.	Energy taxation	French carbon tax
9.	Energy consuming products	Phase-out of incandescent light bulbs

18 1. Promotion of CHP. 2. Linking EU-ETS with Kyoto flexible mechanisms. 3. Methane recovery from landfill. 4. Minimum performance standard for boilers. 5. IPPC. 6. Energy labelling of appliances. 7. Motor Challenge Programme.

19 While the Directive on energy labelling of energy-consuming appliances is being recast and the outcome of the recasting is likely to have implications for the coherence of the scheme, this is perhaps less interesting in the present context. Moreover, some of the 'in principle' considerations of labelling/information tools could be considered within the context of energy performance labelling of buildings. Similarly, a minimum performance standard for boilers is now just one example of an evolving policy agenda under the eco-design of an energy-using products Directive which seeks to ensure that performance criteria, including those relating to energy consumption, are taken into account at the design stage through imposing minimum performance standards.

20 The European Parliament and the Council (2009) Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.



### 3. THE EVALUATION SCHEME

To help thinking about the links between climate change mitigation policies and social justice, an evaluation scheme was developed by the Université Libre de Bruxelles. This was broadly informed by a capabilities approach to thinking about human welfare, as developed by Amartya Sen and others from the 1980s onwards (Sen, 2009<sup>21</sup>). Such a perspective encourages us to pay attention to people's real opportunity for living a life they value and thus has a broader scope than, say, income. More specifically, the evaluation scheme draws on existing European Commission Impact Assessment Guidelines<sup>22</sup>, a review of indicators for socio-economic security, social cohesion and social inclusion (Van der Maesen and Walker, 2005)<sup>23</sup>, as well specific studies in the realm of environmental justice (Pye et al., 2008<sup>24</sup>).

Four main dimensions of social justice were identified:

- *Distributional justice*: social and economic inequalities derived from a different distribution of primary goods between different income groups;
- *Fair access*: the ability of vulnerable groups to access social and economic goods and their capacity to transform them into well-being;
- *Intra- and inter-generational justice*: the opportunity for people outside the developed world as well as future generations to live valuable lives; and
- *Environmental justice*: the distribution of the costs (and the opportunities) of climate change mitigation policies, as well as of environmental quality.

In the present context, we are concerned with the links between climate change mitigation and social justice *in Europe* and so the North-South dimension is outside our scope.

Based on the literature and a bottom-up sociological analysis of those domains of daily life likely to be affected by climate change mitigation policies, an initial longlist of fifty indicators was developed. This was then reduced to a more manageable set of 14 indicators. Whilst this list cannot be comprehensive, it at least provides a starting point for thinking systematically about the links between social justice and climate change mitigation policies. Figure 1, below, shows the indicators grouped according to the dimensions of social justice outlined above. Section 4 sets out the results of using this set of indicators to explore the links between climate change mitigation policies and social justice in Europe. Positive (+) or very positive (+ +) values were assigned when the policy measure was considered to promote a reduction in social inequalities

21 Sen, A (2009), *The Idea of Justice*, Allen Lane, London.

22 European Commission (2009), *Impact Assessment Guidelines*, SEC (2009)92, 15.01.2009.

23 Van der Maesen, L J G and Walker, A C (2005), *Indicators of social quality: Outcomes of the European Scientific Network*, *European Journal of Social quality*, Vol. 5, Issue 1-2, pp8-24.

24 PYE, S et al. (2008), *Addressing the social dimensions of environmental policy, A study on the linkages between environmental and social sustainability in Europe*, Study for European Commission – DG Employment, Social Affairs and Equal Opportunities, Brussels.

and negative (-) or very negative (- -) values were assigned when the policy was considered to lead to a worsening in social inequalities. When it was felt that the uncertainty was too great to be able to attribute a value, (?) was assigned. Due to the short timescale of this project, the analysis is necessarily superficial and only a selection of indicators is discussed for each policy measure. Moreover, we have not been able to take account of the fact that policy measures can be deployed alone or in combination with others, and this will of course influence the way in which they impact on social justice.



**Figure 1: Definition of social justice indicators****Distributional justice**

Social and economic inequalities derived from a different distribution of primary goods between different income groups.

1. **Price of essential goods:** Does this climate change policy measure increase (negative impact, -) or decrease (positive impact, +) the price of essential goods such as food, drink or clothing? **Implications for social justice:** Low-income groups use a greater proportion of their income on such essential goods compared to medium- and high-income households. An increase in the price of essential goods, for example, as a consequence of higher energy prices is therefore likely to affect low-income groups more.
2. **Cost of domestic energy services:** Does this climate policy measure increase (-) or decrease (+) heating and electricity costs? Does it increase maintenance costs or require the purchase of new devices? **Implications for social justice:** Increases in heating and electricity costs have a significant impact on the capacity of households to access adequate energy services in the home. Refurbishment, the installation of solar panels or the installation of new energy-efficient equipment all require investment that low-income households are less able to afford without compensation measures.
3. **Transport costs:** Does this climate policy measure increase (-) or decrease (+) transport costs? **Implications for social justice:** Higher daily transport costs as a consequence of e.g. fuel taxes, road pricing, increased cost of parking, will have a negative effect on low-income households, unless there are opportunities for a modal shift to e.g. public transport, cycling or walking.
4. **Employment effects:** Does this climate policy measure result in an overall increase (+) or reduction (-) in employment? **Implications for social justice:** Impacts on employment arise mainly from the economic impact of climate policies, which can be highly uneven between sectors and individual firms, reflecting their competitive market changes, the availability of government support etc. The availability of employment is a key aspect of social justice.
5. **Labour market transition/restructuring:** Does this climate policy measure promote labour market transition? Does it provide adequate compensation measures for workers who lose their jobs (+) or not (-)? **Implications for social justice:** Labour market transitions may have negative consequences for low-skilled workers, because they might lose a job in a sector in which they are skilled but fail to secure employment in a new sector that requires other specific skills.

**Fair access**

The ability of vulnerable groups to access social and economic goods and their capacity to transform them into well-being.

6. **Health:** Does this climate policy measure improve (+) or worsen (-) public health? How are these effects distributed? **Implications for social justice:** Some policy measures, such as those directed at improving the housing stock or promoting a modal shift to cycling and walking can have significant co-benefits in terms of public health.
7. **Consumer access to information:** Does this climate policy measure provide easy access to reliable consumer information (+) or not (-)? **Implications for social justice:** Adequate information is essential to be able to make informed choices. It is also essential to be able to benefit from support mechanisms for energy efficiency or renewable energy installations.

8. **Citizenship:** Does this climate policy measure promote more (+) or less (-) citizen participation in economic, social, civic and political activities? Is the citizen more (+) or less (-) aware of climate change issues? **Implications for social justice:** The ability to participate in the economic, social, civic and political life of society is a useful indicator of social inclusion. It contributes to raising awareness and citizens' responsibility regarding social and environmental issues.
9. **Gender equality, non-discrimination, equal treatment:** Does this climate policy measure increase (+) or decrease (-) social equity, with regard to gender, disability, migrants, low-income households? **Implications for social justice:** Social equity means that people have equal capacity to access social and economic goods, regardless of their social and economic background.

### **Environmental justice**

10. **Distribution of climate policy costs:** Are the costs of these climate policy measures, including taxes, levies and grants, fairly (+) or unfairly (-) distributed among social groups? Do they imply higher costs for low-income households expressed as a share of their income? **Implications for social justice:** Besides the logic of 'the polluter pays', social justice should also take into account a fair distribution of costs among citizens and avoid regressive impacts, which weigh more on low income and other vulnerable groups.
11. **Distribution of environmental quality:** Does this climate policy measure improve (+) or worsen (-) the geographical distribution of environmental damage/improvement across nations, regions, local communities? Does it benefit/affect more rural or urban areas? **Implications for social justice:** Environmental justice theories highlight the connection between environmental degradation and the standard of living. Poor people are more likely to live in low-quality environments than medium- and high-income households due, for instance, to lower housing costs.
12. **Corporate environmental responsibility:** Do these climate policy measures imply more (+) or less (-) corporate responsibility for the environmental consequences of their actions? **Implications for social justice:** If companies have greater legal obligations regarding their environmental footprint, this can improve their sense of responsibility and their willingness to act. It can also increase access to justice for ordinary citizens in terms of their capacity to take action against companies regarding their quality of life (see point 7, citizenship).

### **Intra- and inter-generational justice**

The opportunity for people outside the developed world as well as future generations to live valuable lives.

13. **Sustainability of public finance:** How do these climate policy measures affect the overall level of public debt, upwards (-) or downwards (+)? **Implications for social justice:** A long-term expansive budgetary policy in support of a climate change mitigation policy may not be sustainable for public finances and, in certain Member States, it may affect the social protection and health systems if it drains resources from them. Public debt entails inter-generational costs, transferred to the next generations. Present generations have the responsibility not to worsen the conditions of future generations through untenable economic policies.
14. **Inter-generational ecological debt:** Are these climate policy measures environmentally effective? Is their overall impact, both on the climate and other ecological concerns such as natural resource consumption, generally positive (+) or negative (-)? Are there negative effects that will be transmitted to future generations? **Implications for social justice:** As with public finance, the current generation has the responsibility to safeguard the environment without incurring the creation of unreasonable ecological debts that will weigh upon future generations.

## 4. EVALUATION OF SELECTED POLICIES

In this section we explore the social justice implications of selected climate change mitigation policies. In the interest of economy of space, we report only on a selection of indicators for each policy measure. A short summary of the overall results of the evaluation is provided in Appendix A.

### 4.1 EU Emission Trading System

The EU Emission Trading System (EU ETS) is, according to the European Commission (hereafter called the Commission), the cornerstone of the EU's climate change strategy.<sup>25</sup> In spite of the complexity of the system and the rather indirect linkages with experience at household level, we nevertheless felt that an attempt should be made to use the evaluation grid developed to think through any potential links with social justice issues.

The EU ETS covers 40% of the EU's total emissions.<sup>26</sup> It operates by setting a cap (a limit) on overall emissions for the sectors covered, distributing permissions ("allowances") to emit greenhouse gases, and by setting up the legal and institutional framework allowing participants to trade allowances in function of whether they need more allowances or have a surplus to sell. The idea behind such a 'cap and trade' scheme is to set the cap in line with environmental policy goals, but to allow economic actors the freedom to choose whether to invest in emission abatement, in additional allowances, or in a combination of the two. The assumption is that participants will go for the most cost-effective option and in this way ensure that the overall costs to society of reducing carbon emissions in the sectors covered are kept as low as possible. The level of the cap is therefore crucial, as is the initial distribution of allowances and the verification of emissions. A large literature now exists on these issues.

The EU ETS has been operational since 2005 and is the largest emission trading system in the world. The first so-called "trading period" ran from 2005 to 2007 and was mainly about learning-by-doing in order to prepare for the second trading period (2008-2012). During the second trading period the cap was set 6.5% lower than 2005 levels. The third trading period runs from 2013-2020 and is a major part of the CARE package. The starting point for determining the emission cap for the third trading period is a 20% overall reduction of greenhouse gas emissions compared to 1990, and this would have to be adjusted to implement a 30% target if this were agreed after December's negotiations in Copenhagen. A *larger* reduction is required of the sectors covered by the EU ETS because it is cheaper to reduce emissions in these sectors than in other sectors.<sup>27</sup> According to the Commission, the division between sectors that minimises overall reduction costs is a 21% reduction in sectors covered by the EU ETS and about 10% for non-ETS sectors (by 2020 over 2005 levels).

<sup>25</sup> European Commission (2008), *Questions and Answers on the revised EU Emissions Trading System*. MEMO/08/796, Brussels.

<sup>26</sup> European Environmental Agency (2008), *Greenhouse gases emission trends and projections in Europe 2008*, EEA Report no 5/2008, Denmark.

<sup>27</sup> European Environmental Agency, *op. cit.*

The scheme currently covers more than 10,000 installations in the energy and industrial sectors. From the outset it has covered (above certain capacity thresholds) power stations and other combustion plants, oil refineries, coke ovens, iron and steel plants and factories making cement, glass, lime, bricks, ceramics, pulps, paper and board. Aviation will be included from 2012. In the first and second trading period only CO<sub>2</sub> emissions were included in the cap. From 2013 additional sectors and greenhouse gases will be included: CO<sub>2</sub> emissions from the production of petrochemicals, ammonia and aluminium, N<sub>2</sub>O emissions from the production of nitric, adipic and glycolic acid production, as well as perfluorocarbons from the aluminium sector. The capture, transport and geological storage of all greenhouse gas emissions will also be covered.<sup>28</sup>

While in the first two trading periods the scheme was characterised by a series of national caps, for the third trading period there will be an overall EU-wide cap. Another important development is that, in the future, more allowances will be allocated on the basis of auctioning, as opposed to distributed for free. In future this will increasingly become the basis for allocating allowances. In our context it is interesting to note that the Commission considers that this is the option that best complies with the 'polluter pays principle', and avoids giving windfall profits to "certain sectors that have passed on the notional cost of allowances to their customers despite receiving them for free."<sup>29</sup> Full auctioning will therefore be the norm for electricity generators from 2013 onwards. However, Member States that fulfil certain conditions (including in relation to their GDP per capita compared to the EU27 average) have the option, but are not obliged, to delay the full auctioning rule for existing power plants. Even so, the auctioning rate should be at least 30% in 2013 and increase to 100% by no later than 2020. In other sectors auctioning will be phased in gradually. It should be 20% in 2013, 70% in 2020 and 100% in 2027, again with exceptions primarily in relation to sectors that are said to be at risk of "carbon leakage." This much-discussed concept refers to the risk that the EU ETS might increase production costs so much that companies decide to relocate production to areas outside the EU that are not subject to comparable emission constraints. The sectors at risk will be determined by the Commission by 31 December 2009.<sup>30</sup> These sectors would receive 100% of their allowances for free. However, the number of allowances would still be declining year-on-year, in line with the overall cap. The Commission considers that under an international agreement that ensures that other parts of the world bear comparable cost, the risk of carbon leakage may well be negligible. After the Copenhagen conference in December 2009, the Commission will assess the situation of energy intensive industry and the risk of carbon leakage.

Member States are responsible for auctioning allowances and 88% of auctioned allowances will be distributed on the basis of Member States' shares of historic emissions under the EU ETS. However "for the purposes of solidarity and growth", 12% will be distributed taking into account GDP per capita and achievements under the Kyoto Protocol.

Finally, an important dimension from our point of view might also be what happens to the substantial funds likely to be generated by the auctioning of allowances. Governments have agreed that at least 50% of the proceeds from auctioning are to be used for climate-related adaptation and mitigation purposes. In addition, 300 million allowances (1t/CO<sub>2</sub> eq each) have been set aside to help fund up to 12 carbon capture and storage demonstration projects in various parts of Europe.

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28 European Environmental Agency, *op. cit.*

29 European Environmental Agency, *op. cit.*

30 Interestingly the Commission is already quite specific about how it might do this: "the Commission will assess inter alia whether the direct and indirect additional production costs induced by the implementation of the ETS Directive as a proportion of gross value added exceed 5% and whether the total value of its exports and imports as divided by the total value of its turnover and importance exceeds 10%. If the result for either of these criteria exceeds 30%, the sector would also be considered to be exposed to a significant risk of carbon leakage" MEMO/08/796, p. 6.

## Links with social justice

**Price of essential goods:** As power generators are able to pass on the cost of emission allowances or abatement costs, we can expect the EU ETS to affect the price of electricity charged to consumers. Quite how much the electricity price increases is likely to depend on the market structure in Member States. In an early analysis, based on empirical data and modelling, Sijm et al. (2006) indicate a pass-through rate of 60-100% in relation to the German and Dutch wholesale electricity markets. Frondel et al. (2008) estimate that a carbon price of €20 would translate into a €13-19/MWh increase in Germany, €1-5/MWh in France, and €9-11/MWh in the Netherlands.<sup>31</sup> As poorer households spend a greater proportion of their budgets on energy costs, the EU ETS on its own is likely to affect poorer households disproportionately.

Somewhat surprisingly, although free during the first trading period, it appears that at least some power generators passed on the "market price" of their allowances to customers or made windfall profits.<sup>32 33</sup> This is clearly problematic from a social justice point of view. From 2013, all allowances for the power generation sector will be auctioned as noted above. The fact that there was some passing through of the market price of allowances even when allowances had been allocated for free suggests that this issue is worth continuous close scrutiny with the possibility of counteracting measures being examined.

As aviation joins the scheme, the cost of flights is expected to increase, depending on the ability of airlines to pass on the cost of carbon allowances or abatement costs. Again any increase in price will affect low income households proportionally more, and so the capacity of low income households to access air travel and perhaps long distance travel in particular is likely to be reduced.<sup>34</sup> However, this also begs the question of which groups in any given society, and more broadly across Europe, *already* fly and for what purpose.

Some companies participating in the EU ETS may be directly affected by higher electricity costs as well as additional CO<sub>2</sub> costs. Smale et al. (2006) suggest that in the case of energy-intensive firms not exposed to international competition, the pass-through of commodity prices can be significant for consumers. Commodity prices are likely to rise in sectors where firms compete primarily at national level (cement) or European level (steel), while pass-through will be less evident for sectors exposed to international competition (aluminium, which on the contrary could be exposed to carbon leakage due to high electricity prices, even if it is not currently covered by the EU ETS)<sup>35</sup>.

**Employment effects:** Any emission trading system may affect the competitiveness of companies which emit more CO<sub>2</sub> than competitors and, as we have seen, some sectors may be at risk of carbon leakage. In an ex-post analysis of the EU ETS first phase, the International Energy Agency (IEA) observed no significant impact on industries' competitiveness or on carbon leakage. This is hardly surprising given that allowances were given for free within the context of a generous aggregate cap.<sup>36</sup> The question is what will happen as the cap is progressively tightened to 2020 (and beyond that to 2050).

31 Frondel, M et al. (2008), *Emission Trading: impact on electricity prices and on energy-intensive industries*, Ruhr Economic Papers n° 81, Bochum, Dortmund, Duisburg, Essen.

32 Sijm, J et al. (2006), *CO<sub>2</sub> cost pass-through and windfall profits in the power sector*. *Climate Policy* Vol. 6, pp49-72.

33 Point Carbon Advisory Services (2008), *EU ETS II: The potential and scale of windfall profit in the power sector*, Report for WWF, [http://www.wwf.de/fileadmin/fm-wwf/pdf\\_neu/Point\\_Carbon\\_WWF\\_Windfall\\_profits\\_Mar08\\_Final.pdf](http://www.wwf.de/fileadmin/fm-wwf/pdf_neu/Point_Carbon_WWF_Windfall_profits_Mar08_Final.pdf).

34 Ernst & Young (2007), *Analysis of the EC proposal to include aviation activities in the Emission Trading System*.

35 Smale R et al. (2006), *The impact of CO<sub>2</sub> emission trading on firm profits and market prices*, in *Climate Policy*, Vol. 6, No. 1, pp31-48, University of Oxford, England.

36 Reinaud, J (2008), *Issues behind competitiveness and carbon leakage: focus on heavy industries*, IEA Information Paper, International Energy Agency.

Some of the issues are addressed in the amendments to the EU ETS. The distribution of auctionable allowances to Member States takes some account of differences in GDP per capita. Even for the power sector, certain Member States will be able, in part again based on their GDP per capita in relation to the EU average, to implement full auctioning gradually between 2013 and 2020 (as opposed to full implementation from 2013). In other sectors, less able to pass through the costs associated with allowances or abatement options, full auctioning will be phased in over the period 2013-2020. In addition, sectors deemed to be at risk from carbon leakage could have all of their allowances for free, although these would still be declining. Finally, insofar as some companies will also be heavily affected by rising electricity prices due to the pass-through of CO<sub>2</sub> costs, and this may in turn put them at risk of carbon leakage, Member States may grant compensation with respect to such costs. In effect, protective mechanisms for competitive industries are incorporated into the system, although it is not yet clear how they will work in practice.

The very architecture of the EU ETS, insofar as it provides a progressively diminishing overall ceiling for emissions, gives economic actors a direction of travel. This should reduce the cost of abatement options, as it enables long term planning. That said, the volatility of the price of carbon could be an issue; however, the revised system provides measures directed at reducing the volatility of the carbon price. Moreover, a properly working EU ETS should promote cost-effective ways to reduce carbon emissions without affecting sales. Companies, able to sell rather than buy carbon allowances, will be able to create new job opportunities expanding their market base. First movers' action on an international as well as national scale will be beneficial in the long-term. On balance, there are opportunities for new jobs but also the probability of job losses, especially in the context of a declining cap.

**Distribution of climate policy costs:** In the first phase of the EU ETS, advocates of the free distribution of CO<sub>2</sub> allowances claimed that free permits would prevent firms from increasing product prices. As seen above, companies appear to transfer additional CO<sub>2</sub> abatement costs into higher energy prices to customers, leading to consumers and vulnerable groups paying for CO<sub>2</sub> costs in goods and services, without any compensation.<sup>37</sup> Worryingly, these additional costs (in particular electricity costs) affect the living conditions of households while they produce windfall profits for highly-polluting industries. Currently, the EU ETS increases rather than reduces unfair cost distribution. As from 2013, the EU ETS will introduce auctioning of carbon allowances and a gradual phase-out of free allocations. Auctioning will eliminate windfall profits related to free permits, but it will not prevent pass-through of costs to consumers. In economic terms, such an effect is rational (maximisation of profits) and acceptable (higher incentives for low-carbon goods)<sup>38</sup>, as long as consumers have the possibility to choose alternatives, which are limited in the case of electricity at household level (despite the market being liberalised in some Member States). Revenues collected from auctioning should also be invested in improving the living conditions of vulnerable groups such as enforcing and accelerating the mechanisms that improve access to low-carbon goods.

37 Betz, R and Sato, M (2006), *Emission Trading: Lessons learnt from the 1<sup>st</sup> phase of the EU ETS and prospects for the 2<sup>nd</sup> phase*, *Climate Policy*, Vol. 6, pp351-359.

38 Sijm, J P M et al. (2008), *The impact of the EU ETS on electricity prices*, *Energy Research Centre of the Netherlands (ECN)*, *Report for DG Environment*.

## 4.2 Renewable energy

A second major plank of EU climate change mitigation policy is the promotion of renewable energy. Importantly, the CARE package has now introduced binding targets for Member States (through Directive 2009/28/EC) to replace the previous indicative targets (laid out in Directive 2001/77/EC on the promotion of RES-E). In aggregate, renewable energy should make up at least 20% of the EU's total energy consumption by 2020. Targets were determined in a two-step process: all Member States are to increase the share of renewable energy by 5.5% and any additional increases are determined on the basis of GDP, with an adjustment to reward early movers. While the move to binding targets is significant, it is up to Member States how they achieve the targets. Feed-in tariffs, green certificates, green electricity acts, regulation, investment aid, action plans, national strategies, tender systems and other policies and measures implemented at national level are used by Member States to increase the share of renewables in electricity production.

*Feed-in tariffs* and *green certificates* were cited as the most important instruments for this objective across the EU (EEA 2008, p.64). This suggests that they are likely to remain important under binding targets. However there are substantial variations in the approach between Member States, not only in the instruments selected but in the national context. We thus looked at feed-in tariffs in Germany and at green certificates in the UK.

### 4.2.1 Feed-in tariffs in Germany

Established in 1991, the feed-in tariffs system in Germany was the first of its kind in Europe and has helped Germany to become a world leader in wind and solar photovoltaic energies.<sup>39</sup> The German system consists of a legal obligation for energy operators to purchase electricity from renewable energy producers at prices fixed by the government. Tariffs vary between specific sources of renewable electricity and rates drop yearly by a fixed percentage, in order to take into account reductions in production costs over time. The tariffs are guaranteed for a period of 20 years.<sup>40</sup>

In Germany, the share of renewable energy has more than doubled in the period 2000-2007, meeting well in advance the EU target for 2010 established by Directive 2001/77/EC. The additional cost to the energy supplier is passed on to end-users. The additional burden for consumers has been estimated to amount to €0.01/KWh, which would translate to a 5% increase for the average household at an electricity price of roughly €0.20/KWh. On a monthly basis, a three-person household is estimated to pay approximately € 3 more in energy costs.<sup>41</sup> The system has contributed to a reduction of 46.7 million tonnes of CO<sub>2</sub> emissions and of 4.8% in the net share of fossil energy-based electricity production over the period 2000-2005.<sup>42</sup>

### Links with social justice

**Price of essential goods:** The increase in electricity prices due to feed-in tariffs is distributed among all electricity consumers, with disproportionate effects on low-income groups. A simple extrapolation by Lagni et al. (2009) shows that domestic electricity and heating costs for a three-person household will increase by

39 Brown, M et al. (2009), *Qualitative issues in the design of the GB feed-in tariffs*, Report to the Department of Energy and Climate Change (DECC), Annex 1: Germany.

40 Bundestag, Act revising the legislation on renewable energy sources in the electricity sector and amending related provisions, published in the Federal Law Gazette on October 31st, 2008 and entered into force on January 1st, 2009. [http://www.erneuerbare-energien.de/files/pdfs/allgemein/application/pdf/eeg\\_2009\\_en.pdf](http://www.erneuerbare-energien.de/files/pdfs/allgemein/application/pdf/eeg_2009_en.pdf).

41 Lagni, O et al. (2009), *Advanced mechanisms for the promotion of renewable energies – Models for the future evolution of the German renewable energy act*, Energy Policy, Vol. 37, Issue 4, pp1286-1297.

42 Brown, op. cit.

€ 36 per year on average. Prices of other goods may also increase due to higher electricity prices. Production costs vary according to the renewable source used. For instance, the basic tariff for off-shore wind energy is set to 3.5 cents per kWh while for solar radiation the tariff is almost 10 times higher, amounting to 31.94 cents per kWh.<sup>43</sup>

**Employment effects:** By stimulating investment in renewable energy production, feed-in tariffs can contribute to the creation of jobs in the renewable energy sector. Overall, the German Federal Ministry of the Environment (BMU) estimates that the Renewable Energy Act has contributed to creating two thirds of the 280,000 jobs in the renewable energy sector. In a scenario for 2020, the BMU estimates that renewable energy could meet 33% of electricity and 14% of heating needs, and that this could lead to the creation of 800,000-900,000 new jobs (compared to 2008).<sup>44</sup> It is not clear whether this is net of any eventual job losses elsewhere associated with a declining reliance on fossil fuels in the longer term, or how many of those jobs could be transformed into renewable energy-related jobs. Moreover, in a transition to a low carbon society, there will necessarily be a transition away from fossil fuels and this will have implications for the number of jobs in related sectors. This is therefore a systemic issue that has to be discussed and addressed at a broader level than the individual policy instrument.

**Distribution of climate policy costs:** Feed-in tariffs provide a transfer of funds to small- and medium-scale renewable energy producers, while the costs are borne by electricity consumers. As such, they can help stimulate production of renewable energy by guaranteeing a price to producers. However, over the longer term, as the costs of producing renewable energy fall and renewable energy becomes more established in the market, this could constitute an unfair transfer of funds from energy consumers to renewable energy producers unless tariffs are brought down. Feed-in tariffs must be sufficiently high to reduce investment uncertainty, but at the same time should not entail excessive costs to consumers. Moreover, they should not go on for longer than necessary.

#### 4.2.2 Green certificates in the UK

Green certificates are, together with feed-in tariffs, the most widespread policy instrument in Europe to support renewable energy production according to the EEA survey of Member States already cited.

Mitchell and Anderson (2000, p.4)<sup>45</sup> provide a nice definition of green certificates and their relationship with tradable green certificates: *"A green certificate is a 'document' that proves that a unit of electricity has been produced from a renewable source. The generator receives a certificate for each pre-defined unit of electricity produced from their renewable energy scheme that is delivered to the electricity network. Electricity from renewable energy schemes is indistinguishable from other electricity so the certificate is used to represent the "renewable" or the "greenness" of the electricity. A green certificate becomes a tradable green certificate when the mechanism allows the trading of green certificates as a way of meeting the obligation."*

Belgium (Flanders), Sweden and the UK have been early adopters of green certificates.<sup>46</sup> Tradable green certificates are currently used in seven Member States: Belgium, Bulgaria (in combination with feed-in tariffs),

43 Bundestag, *op. cit.*, see part 3, chapter 2: Special provisions regarding tariffs.

44 German Federal Ministry for the Environment, Natural Conservation and Nuclear Safety (2009), *New thinking – New energy, energy policy road map 2020*. [http://www.bmu.de/files/pdfs/allgemein/application/pdf/roadmap\\_energiepolitik\\_en.pdf](http://www.bmu.de/files/pdfs/allgemein/application/pdf/roadmap_energiepolitik_en.pdf)

45 Mitchell, C and Anderson, T (2000), *The implications of tradable green certificates for the UK*. ETSU Contract Number TGC (K/BD/00218). <http://www.berr.gov.uk/files/file15148.pdf>

46 Bergek, A and Jacobsson, S (2009), *Are tradable green certificates a cost-efficient policy driving technical change or a rent-generating machine? Lessons from Sweden 2003-2008*. Expert Group for Environmental Studies of the Swedish Ministry of Finance.



Italy, Poland, Romania, Sweden and the UK.<sup>47</sup> There has been some discussion of introducing a European-wide tradable green certificate scheme. In its proposal for a Directive on the promotion of the use of energy from renewable sources (COM (2008)19), the Commission suggested the establishment of such a scheme.<sup>48</sup> However, under pressure from some governments and the renewable energy industry, which feared a destabilisation of national support schemes for renewable energy, the system was not included in the final Directive 2009/28/EC.<sup>49</sup> Here we focus on the so-called "Renewables Obligation" (RO) in the UK.

The Renewables Obligation system is the main instrument used for promoting renewable energy in the UK.<sup>50</sup> It was first established in 2002, although it did not apply to all counties in the UK from the beginning. The scheme imposes a quota obligation on electricity suppliers to source a certain proportion of electricity from renewable sources. This has increased year-on-year and is currently set to 10.4% by 2010-11 and then 1% every year for the following five years. One Renewable Obligation Certificate (ROC) is issued to the producer by the electricity market regulator, Ofgem, for each eligible MWh of renewable electricity produced.<sup>51</sup> Each year, electricity suppliers have to demonstrate that they have met their obligations by presenting sufficient ROCs to the regulator. A company that generates more than its renewable obligation can sell ROCs to energy suppliers that are unable to acquire sufficient ROCs themselves. Companies can also choose to pay a fine by paying into the so-called "buy-out" fund. The amount paid reflects the shortfall in MWh and the fine per MWh. The "buy-out" price is calculated by Ofgem each year: for the period 2008-2009 this price was £35.76 per MWh.<sup>52</sup> The buy-out fund is recycled within the scheme so that suppliers who *have met* meet their obligations receive a proportion of the buy-out fund equivalent to their total share of ROCs. The price of one ROC is set by the market and reflects the size of the difference between the percentage of renewable energy electricity generated in the UK (currently around 6%) and the renewable obligation percentage (currently 6.7%). The bigger the shortfall, the more expensive each ROC and the more actual and potential green electricity generators are incentivised.<sup>53</sup>

### Links with social justice

The implications for social justice raised by the renewables obligation in the UK are similar to those for feed-in tariffs. The price is passed on to the consumer while the expansion of the renewable electricity sector leads to job creation. However, in the UK most consumers have a choice between electricity suppliers so they can in principle select utilities which offer a high proportion of renewable electricity, paying any price premium that may be involved.

47 European Commission (2008), *The support of electricity from renewable energy sources, Commission staff working document SEC(2008)57, accompanying COM (2008)19, Brussels.*

48 European Commission (2008), *Proposal for a Directive on the promotion and use of energy from renewable sources, COM (2008)19, Brussels. In this proposal, "guarantees of origin" were originally meant to allow cross-border exchange of tradable green certificates within Member States.*

49 Institute for European Environmental Policy (2009), *The manual of environmental policy: the EU and Britain.* London: Maney Publishing

50 Office of the Gas and Electricity Market (Ofgem), *Renewable obligation,* webpage: <http://www.ofgem.gov.uk/sustainability/environment/renewablobl/Pages/RenewablObl.aspx>

51 <http://www.ofgem.gov.uk/sustainability/environment/renewablobl/Pages/RenewablObl.aspx>

52 Ofgem, *Renewable Obligation – Total obligation levels 2008-2009, Information note, 18.08.2009*

53 *The Renewable Energy website (2008), Renewable Obligation Certificates: generate renewable source electricity and get paid twice with ROCs,* <http://www.reuk.co.uk/print.php?article=Renewable-Obligation-Certificates.htm>

### 4.3 Low carbon vehicles

The Directive on the use of biofuels in transport and the voluntary commitment by car manufacturers were the next two most important climate change mitigation policies according to the EEA survey of Member States.

Reducing emissions from transport and in particular from road transport is a key element in achieving EU emission reductions. After power generation, road transport is the second biggest source of greenhouse gas emissions in the EU. Moreover, it is one of the few sectors where emissions are still rising rapidly. Passenger cars alone are responsible for around 12% of EU CO<sub>2</sub> emissions.<sup>54</sup> A Community strategy on passenger car CO<sub>2</sub> emissions from cars was adopted in 1995 (COM(95)689). This set out a four-pronged approach including:

- a voluntary agreement with car manufacturers;
- a fuel economy labelling scheme;
- a CO<sub>2</sub> monitoring mechanism for cars; and
- the incorporation of CO<sub>2</sub> emissions as an objective of future transport tax reforms.

#### 4.3.1 Mandatory fleet average fuel economy

In part as a result of lack of progress with a voluntary approach, a revised strategy was set out in February 2007, signalling the move away from a voluntary to a mandatory approach in the area of car fuel economy. Regulation No. 443/2009, introduced as part of the CARE package, imposes an average target for each car manufacturer, group or holding company, differentiated according to a function of the average weight of the new cars that it sells. This is intended to provide some leeway for producers of larger and more luxurious cars, particularly the German manufacturers.<sup>55</sup> Another key feature is that the Commission proposes to levy fines on manufacturers who exceed their targets. The regulation sets an average CO<sub>2</sub> emissions limit for new cars of 130g/km. This target will be gradually phased in; it will apply to 65% of the new fleet in 2012 and increase annually to cover 100% of the fleet by 2015. Additional measures will also be implemented to contribute a further reduction of 10g/km. The new legislation includes longer-term average emissions of 95g/km by 2020, although details on this target will only be discussed during the review of the legislation in 2013. The Regulation includes a set formula for calculating the fines to be levied on manufacturers who exceed their targets between 2012 and 2018; from 2019. The formula for calculating the premium is as follows: (excess emissions x € 95 per g/km) x number of new passenger cars. The instrument is thus a combination of mandatory energy performance standards and negative incentives in the shape of fines linked to the fuel consumption and sales of non-complying cars.

#### Links with social justice

**Transport costs:** Given how long a target of this nature has been under discussion, 130gCO<sub>2</sub>/km for a 100% of new cars going on the market is unlikely to present an insurmountable challenge for producers. For the original voluntary agreement, the Council had in fact agreed 120gCO<sub>2</sub>/km by 2005 (or 2010 at the latest). By 1998 this had been amended to 140gCO<sub>2</sub>/km by 2008. However, the Commission's impact assessment for the new regulation still suggests that there could be a small increase (about 6%) in the retail price of new cars.<sup>56</sup> This could be an issue for low-income families, although some may not own a car, even a second hand

<sup>54</sup> European Commission (2007), *Questions and answers on the EU strategy to reduce CO<sub>2</sub> emissions from cars*. MEMO/07/46.

<sup>55</sup> Institute for European Environmental Policy (2009), *The manual of environmental policy: the EU and Britain*. London: Maney Publishing

<sup>56</sup> European Commission (2007), *Proposal for a Regulation to reduce CO<sub>2</sub> emissions from passenger cars, Impact Assessment SEC (2007)1723*, Brussels.

car. Moreover, it is likely that this would affect the larger and more energy-consuming cars. It looks unlikely, therefore, that low income families will be much affected by this measure.

**Employment effects:** As the regulation applies to all manufacturers it is unlikely that there will be job losses due to loss of competitiveness and there may be competitive advantages to early movers. If, however, European manufacturers were less able to meet these targets compared to manufacturers outside Europe, their market position might be weakened.

#### 4.3.2 Renewables in transport

Subject to much debate regarding their impact (e.g. on biodiversity, food security and food prices), biofuels are nevertheless considered by many to be another important source of future emissions reduction. In 2003, the *Directive on the promotion of the use of biofuels or other renewable fuels for transport* (2003/30/EC) set the objective of replacing 2% of vehicle fuel supply by 2005 and 5.75% by 2010. The 2005 target was not met and, according to the EEA, it is unlikely that existing 2010 targets can be reached.<sup>57</sup> Nevertheless, on the basis of the survey of Member States expectations referred to earlier, this Directive emerged as the third most important EU level policy measure for reducing emissions. In 2007, the target was increased to 10% by 2020, under the conditions of production being sustainable and second generation technologies being commercially available. The new renewable energy Directive (2009/28/EC), introduced as part of the CARE package, sets a 10% binding target for the proportion of renewable energy in fuel consumption in all forms of transport. Biofuels are likely to be a significant part of this. At the beginning of 2008, the EEA's Scientific Committee called on the EU to abandon its 10% target for biofuels in transport, arguing that this would exceed the available land in the EU even if a significant contribution of second generation biofuels were assumed, and that the consequences of the intensification of biofuel production would put increasing pressures on soil, water and biodiversity. In addition, the Committee warned that a 10% target would require large amounts of additional imports of biofuels and observed that the accelerated destruction of rainforest due to increasing biofuel production can already be witnessed in some developing countries.<sup>58</sup> Several commentators (Doornbosch R., Steenblik R. (2007), Schmidhuber, J. (2007) and Vannini, L. et al (2008)<sup>59</sup>) have expressed concerns about the impact on food supply and therefore on food prices, as a result of using increasing areas of land for energy crops. The Directive contains provisions on the sustainability of biofuel production, such as a minimum greenhouse gas emission savings (35% by 2013 to 60% by 2018), criteria for biodiversity protection, for sustainable agriculture and for social and labour protection. Nevertheless, concerns remain about continued expansion in the use of biofuels in relation to all of these dimensions.<sup>60</sup>

#### Links with social justice

**Price of essential goods:** The main sources for first-generation biofuels are vegetable oil and rape

57 European Environment Agency (2008), *Suspend 10 % biofuels target, says EEA's scientific advisory body*, Press Release from 10 April 2008, <http://www.eea.europa.eu/highlights/suspend-10-percent-biofuels-target-says-eeas-scientific-advisory-body>

58 European Environment Agency (2008) *op. cit.*

59 Doornbosch, R and Steenblik, R (2007), *Biofuels: Is the cure worse than the disease?*, OECD, Round Table on Sustainable Development, Paris; Schmidhuber, J (2007) *Biofuels: an emerging threat to Europe's food security? Impact of an increased biomass use on agricultural market prices and food security: a long term perspective*, Notre Europe; Vannini, L et al. (2008) *The competition between food crops and non food crops for energy*, Dipartimento di Economia ed Ingegneria Agraria (DEIAGRA), European Parliament, AGRI Committee, Brussels.

60 Ernsting, A. (2009), *Biofuel and Biomass in the Renewable Energy Directive*, Report for Biofuelwatch, <http://www.biofuelwatch.org.uk/docs/RenewableEnergyDirective.pdf>

seed for biodiesel, and sugar cane for bioethanol.<sup>61</sup> In this case, competition between food and fuel crops could lead to higher food prices, with potential consequences on the capabilities of vulnerable groups to buy essential goods. Second- and third-generation biofuels move away from materials that are in themselves either food sources or inputs to food production (the inputs derive from ligno-cellulosic biomass or from algae oil), but they may still take up significant areas of land. This will depend on the resource in question.

**Transport costs:** In addition, the economic effects of biofuels can vary according to the way in which they are introduced into the fuel market: for instance using blending obligations, mandating that fuel suppliers mix conventional fuels with a certain amount of biofuels, could result in a price increase at the pump, affecting low-income groups insofar as they own and drive a car; on the other hand, using tax exemptions for biofuels, the market price would be more competitive, but the cost would be transferred to the public finances.

**Employment effects:** The employment benefits of the EU biofuel policy depend on the origin of the raw materials used. Effect on employment in Europe will be negligible if all are imported. If, on the other hand, all biofuel required to achieve the 10% target is produced in the EU, this could contribute to the creation of some 150,000 new jobs, in particular in the agricultural sector.<sup>62</sup>

#### 4.4 Energy performance of buildings

Energy savings in the building sector are considered a source of significant, early and cost-effective savings. The existing Directive 2002/91/EC is currently being recast and it is expected that a new Directive will be adopted towards the end of the year. A Commission proposal for a new Directive on the energy performance of buildings was tabled at the end of 2008.<sup>63</sup> The original Directive brought in energy labelling (referred to as energy performance certificates) for both domestic and non-domestic buildings and these are now mandatory in Member States. The Directive also required Member States to put in place minimum energy performance standards for all new buildings and those existing undergoing major renovations; a system of inspection for air-conditioners and boilers was also put in place. The Commission is seeking to enlarge the scope of the Directive to include the large stock of smaller buildings, e.g. by lowering significantly the current threshold of 1000m<sup>2</sup> for meeting the minimum performance requirements when a building undergoes major renovations, or installation of components such as windows. A number of other measures are also under discussion, including improved financing. Some of the ideas on the table include an EU energy efficiency fund based on contributions from the budget to finance energy efficiency improvements in buildings; requiring Member States to introduce at least two from a list of seven financing instruments (VAT reductions, direct subsidies, loan and grant schemes for energy products and efficiency measures) and compulsory smart meters for all new buildings. Energy performance certificates may be more relevant to evaluate from a social justice perspective than national energy minimum performance standards, as the latter applies only to new buildings and major renovations. Financing mechanisms for energy efficiency or insulation can also have direct impacts on social justice. We therefore focus on these two mechanisms here.

61 International Energy Agency (IEA) (2008), *From 1<sup>st</sup> to 2<sup>nd</sup> generation biofuel technologies: an overview of current industry and RD&D activities*.

62 Commission Staff Working document (2009), *The renewable energy progress report, SEC (2009)503, Brussels*.

63 European Commission (2008), *Proposal for a Directive on the Energy Performance of Buildings (recast), COM(2008)780, Brussels*.

#### 4.4.1 Energy Performance Certificates

The purpose of Energy Performance Certificates (EPCs) is to provide some much needed transparency in the property market in relation to the relative energy performance of different comparable properties. It is required to be made available whenever a property is constructed, sold or rented. In addition to the by now familiar A-G rating also known from domestic appliances and cars, the EPC must contain a report which explains what cost-effective measures could be taken to enhance the energy efficiency of a given property. This will, at least in principle, allow property users adequate information and thereby a choice. And it will, perhaps more importantly, allow some property owners to profile themselves with respect to the energy performance of their portfolios. It will also provide owners with ideas for how their property can be improved. In principle this information could serve as a bargaining chip in the context of negotiating the sale of a property. A lot could be said about EPCs as they apply both to the commercial and the residential property markets, as well as to new and existing properties. Here we will mainly concentrate our remarks on the residential sector.

#### Links with social justice

**Consumer access to information:** The rationale for EPCs is that they should serve to correct an information market failure. This is exactly the same as in the case of other energy labelling schemes developed since the early 1990s. In this respect energy performance certificates improve levels of information. After that, much depends on the way in which the scheme will be implemented within a given Member State context. While the Directive came into force in 2006, there is in practice much to do before the average man on the street is presented with the certificate relating to a given rental property. Indeed, there seems to be a lack of awareness of the existence and purpose of energy performance certificates outside the commercial sector.<sup>64</sup> Social justice implications of EPCs in relation to consumer access to information could be similar to those relating to other labelling schemes, such as the way in which a label will interact with existing educational inequalities, and also, at least as important, with the capacity to actually implement a preference for a more energy efficient building. This will of course be highly dependent on financial resources and so it will again be those with more financial room for manoeuvre who are more able to express their preferences.

**Employment effects:** The introduction of EPCs has created a potentially large work stream, first of all to create the certificates. New jobs for certifiers (and inspectors) have been estimated by the Commission at 20,000 units.<sup>65</sup> In addition, in its impact assessment, the Commission estimated that increased demand for refurbishment and related work could create up to 40,000 new jobs in the construction sector for low-skilled workers.

#### 4.4.2 Financial mechanisms for improving the energy performance of buildings

Financing for energy efficiency is likely to be a crucial aspect of climate change mitigation. This is particularly the case in the building sector, in which, as noted, there is a great cost-effective potential for reducing energy consumption and carbon emissions. Towards the end of 2008, the Commission set out its so-called Energy Efficiency Package<sup>66</sup>, paying specific attention to the issue of financing. Funds are likely to come from a mix of international, EU, national and sub-national levels of government and to consist of a mix of public and private sources of funding. Moreover, much of the discussion is around energy efficiency in general without separating

64 *Ibid.*

65 European Commission (2008), *Impact Assessment, SEC (2008)2864, Brussels.*

66 European Commission (2008), *Energy Efficiency: delivering the 20% target, COM (2008) 772, Brussels.*

out buildings in particular.<sup>67</sup> However, as it is increasingly recognised that a large proportion of early cost-effective emission reductions can be found in this sector and that there are significant social co-benefits, it is not unreasonable to expect that a substantial part of any funding will be heading in this direction.

Some of the existing EU-level funding referred to include regional policy funding through the Cohesion and Structural Funds, the 7th Research Framework Programme and Intelligent Energy Europe. In a separate communication from the Commission to the European Council: *A European Recovery Plan* (adopted by Council in December 2008), quite a lot of attention was directed at various measures related to buildings, among them a € 1 billion public-private partnership to radically reduce energy consumption in buildings.<sup>68</sup> More recently a draft version of the revised Energy Efficiency Action Plan has been circulating in the press. According to press reports, the Commission will be proposing a European Building Initiative, supported by the European Investment Bank, which will aim to stimulate major renovation of 15 million buildings by 2020.<sup>69</sup> It is somewhat difficult to get an overview of all of these different current and potential future financing initiatives.

In order to explore the social justice implications of financial mechanisms for improving the energy performance of buildings, we have chosen to focus on the Belgian Fonds de Réduction de Cout global de l'Énergie (FRCE – Fund for the Reduction of Overall Energy Costs). This kind of measure is oriented more towards addressing poverty, but it has positive co-benefits for climate change mitigation, as demonstrated in other Member States, such as Germany, Austria and in the Scandinavian countries in which similar measures already apply.

A federal initiative, the FRCE was established in 2006. Its purpose is to promote investment in energy efficiency in private dwellings. It does so by giving lower-income households access to credit at preferential rates. The law specifies what kind of vulnerable groups can obtain funding from the FRCE: in general terms, low income households (gross annual income below € 11.763) or people on state benefits, such as the CPAS (Centre Publiques d'Action Sociale).<sup>70</sup> Individuals can access the funding through local authorities (municipalities and other territorial organisations) which allocate the money on behalf of the FRCE. Local authorities are required to refurbish at least four dwellings for each 1,000 inhabitants or a minimum of 200 dwellings for municipalities with more than 50,000 inhabitants.<sup>71</sup> The maximum amount an individual can get from the fund is € 10,000, which is refunded by the beneficiary within 5 years. The idea is that a low cost loan allows low income households get over the first cost barrier to accessing energy efficiency savings and that the savings made from installing e.g. double-glazing, ceiling and wall insulation, boiler replacements, or even renewable energy installations, will also help the beneficiary to pay back the borrowed amount.

### Links with social justice

**Costs of domestic energy services:** One of the most obvious effects of a scheme like the FRCE is to bring down the cost of adequate space and water heating by improving the energy performance of the building fabric, components and installed systems. This means less energy is required to provide the same level of

67 While it is important to note, that such funding should be integrated into a strategic set of measures to transform the building stock at a given scale, in the present context we can only assess the implications for social justice of financing as a separate measure. Further work could, for example, consider the impact of policy packages and the consequences of social justice of policy fragmentation as a result of the political process.

68 *Ends Europe (2008), EU economic rescue plan puts focus on efficiency, Ends Europe Wednesday 26 November 2008.*

69 *Reuters, EU boosts builders with green renovation plans, 9.10.2009.*  
<http://www.reuters.com/article/GCA-GreenBusiness/idUSTRE5981CG20091009>

70 *Moniteur Belge (2006), Arrêté royal portant définition du groupe cible des personnes les plus démunies du Fonds de réduction du coût global de l'énergie, 02.06.2006.*

71 *FRCE website. More information can be found on <http://www.frce.be/>*

service, over time yielding a reduction in the cost of living once the loan has been paid back or, in the case of households in fuel poverty, enabling adequate energy services for heating.

**Health:** The improvement of home energy efficiency will bring significant co-benefits in term of health. An adequate heating system reduces the risk of contracting humidity- and cold-related illness by elderly people and children, and of increased mortality related to excessive cold temperatures.

**Consumer access to information:** By providing access to cheap credit, the scheme *enhances* the capacity of low income households to make choices *as consumers*. Although not the case in the FRCE, since such schemes work via a loan, other schemes may require participants to meet certain criteria to demonstrate credit worthiness. This would certainly exclude some people. Moreover, low income households may also be more risk averse than households with more of a financial cushion. If, in addition, employment prospects are looking uncertain, it would be a significant step to take on a five-year loan. Finally, as for any measure like this, there is the issue of the extent to which groups to whom it is targeted are aware of it.

**Sustainability of public finances:** There are cost implications of this policy, over the medium term during which the funds are paid back, with some defaulting probably inevitable. It would be interesting to explore in a more quantitative way, what the potential benefits could be in terms of improved health and the consequent reductions in cost to the health service. At the same time, as with any significant reduction in energy consumption, there would be a reduction in excise duty.

#### 4.5 Energy taxation

A draft proposal for a new Directive as part of a 'green tax package' of measures is currently being developed by the Commission, but is on hold. The original Directive 2003/96/EC established an EU framework for the taxation of energy products including electricity while contributing to the objectives of employment, environment, energy and transport policies across the EU. In essence, the Directive specified minimum duty rates for energy products with certain exemptions. Stakeholder consultations on the draft proposal are expected in late 2009. The draft proposal aims to bring the Energy Taxation Directive more closely in line with EU energy and climate objectives and introduce an 'explicit' environmental element into the tax, by associating a price signal to CO<sub>2</sub> emissions caused by energy consumption. In practice, from 1 January 2013 Member States would have to impose a levy of minimum €0.03 per kg of CO<sub>2</sub> on heating and motor fuels, on the basis of the CO<sub>2</sub> emission factors developed under the EU ETS. The CO<sub>2</sub>-related element would not be applied to taxes on electricity or other energy uses regulated under the ETS. Biomass and biomass-derived products such as biofuels would also be exempt as noted above. The proposal also provides for a transitional exemption from CO<sub>2</sub>-related taxation, between 2010 and 2020, for businesses (outside the ETS) investing in low carbon technologies and reducing their emissions by at least 20%.<sup>72</sup> A carbon tax could be complementary to the EU ETS (together they could cover up to 97% of CO<sub>2</sub> emissions in the EU)<sup>73</sup>, but the carbon tax and EU ETS could compete in the determination of the future CO<sub>2</sub> prices (fixed for the former, market-based for the latter).

<sup>72</sup> Furthermore, nine new Member States (Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia) would be allowed to delay the introduction of CO<sub>2</sub> taxation until 2021.

<sup>73</sup> Rocard, M (2009), *Rapport de la conférence des experts et de la table ronde sur la contribution climat et énergie*, [http://www.contributionclimatenergie.fr/docs/rocard\\_rapport.pdf](http://www.contributionclimatenergie.fr/docs/rocard_rapport.pdf).

There is a long-standing debate about the regressive impacts of consumption taxes. Ekins (1999)<sup>74</sup> argued that environmental taxes can impose higher costs on low-income groups relative to their income (regressive distributional effects). Empirical evidence is now available from a number of places including Denmark (Weir et al., 2005)<sup>75</sup> and Ireland (Callan et al., 2009).<sup>76</sup> Tiezzi (2005)<sup>77</sup> and Hourcade et al. (2009)<sup>78</sup> have argued that such regressive effects can be addressed by compensatory measures.

As it may take some time for a decision to be reached on the taxation Directive, and as the *French Carbon Tax* is currently receiving a lot of attention, we explore the latter below.

#### **4.5.1 Carbon taxes: the case of France<sup>79</sup>**

In France, the Contribution Climat Energie (CCE) will be included in the Financial Law 2010 and is expected to enter into force by January 2010. The French Carbon Tax consists in levying a fixed amount of €17 t/CO<sub>2</sub> on fossil fuel energy such as diesel, petrol, domestic fuel oil, coal and gas. This equates to just more than half of the proposed EU-wide carbon tax. As with the Commission's proposal, electricity production is not included as the sector is subject to the EU ETS.

The French government has estimated the average yearly cost for households to be €74, notably through transport and heating expenses. The Carbon Tax is meant to increase progressively in time.<sup>80</sup> It is conceived as part of a fiscal shift from existing taxes to environmental tax. As compensation measure, households will receive a yearly fixed amount of €46 per adult + €10 per dependant (for households in areas supplied by public transport facilities) or €61 per adult + €10 per dependant (for households in areas not supplied by public transport facilities) in the form of income tax reduction, for working households, or as "green cheques" for non-taxable households. SMEs and the self-employed will be compensated by a reduction in their "taxe professionnelle."

#### **Links with social justice**

**Cost of essential goods:** Consumers are affected both directly by energy prices and indirectly by higher retail and distribution costs.

74 Ekins, P (1999), *European environmental taxes and charges: recent experience, issues and trends*, *Ecological Economics*, Vol. 39, No. 1, pp39-62.

75 Weir, M et al. (2005), *Are CO<sub>2</sub> taxes regressive? Evidence from the Danish experience*, *Ecological Economics*, Vol. 52, Issue 2, pp239-251.

76 Callan, T (2009), *The distributional implications of a carbon tax in Ireland*, *Energy Policy*, Vol. 37, Issue 2, pp407-412.

77 Tiezzi, S (2005), *The welfare effects and distributional impacts of carbon taxation on Italian households*, *Energy Policy*, Vol. 33, No. 12, pp1597-1612.

78 Hourcade, J C et al. (2009) *Need a carbon tax be socially regressive? True challenges and wrong debates*, *CIREN (Centre international de recherche sur l'environnement et le développement, France)*.

79 *This piece of legislation is currently under discussion. Details could be defined during the legislative process. The content of this measure refers to Présidence de la République Française, Stratégie de la France dans la lutte contre le réchauffement climatique, Dossier de presse, Septembre 2009.*

80 *Ministère de l'Ecologie, de l'Energie, du Développement Durable et de la mer (2009), Dossier Taxe Carbone, France, [http://www.developpement-durable.gouv.fr/rubrique.php?id\\_rubrique=1190](http://www.developpement-durable.gouv.fr/rubrique.php?id_rubrique=1190)*



### **Cost of domestic energy services**

As noted above, carbon taxes tend to be regressive, although adequate compensation measures could to some extent ameliorate this.<sup>81</sup> In France, the yearly lump-sum payment allows a fixed credit to households independently from energy consumption. The French government estimates that this scheme will have cumulative positive effects for the five poorest deciles of the French population. But the compensation may not be able to protect households that, due to financial constraints, cannot afford basic energy needs. According to the EPEE (European Fuel Poverty and Energy Efficiency) project<sup>82</sup>, in 2005 in France 6.2% (or 1.5 million) of households were unable to pay for adequate heating. Just under half of them live in urban areas where buildings are older (and less efficient) and the cost of living is higher.

**Transport costs:** The other half of France's fuel poor live in rural and intermediary areas and are likely to be more affected by additional transport costs. Inequalities in disposable income and energy poverty are therefore likely to increase.

**Employment effects:** The idea of "double dividends" suggests that when it is part of a wider ecological tax reform, a carbon tax could stimulate the economy and contribute to creating new employment, in addition to improving the environment. Nevertheless, a carbon tax could impact negatively on export-oriented sectors and sectors particularly dependent on fossil fuels such as transport, agriculture and fishing (the latter two sectors benefiting from preferential treatments in the French case). On the upside, firms could react to the price signal introducing product and process innovation. This, in turn, could help create jobs. In the French case, it is not easy at the moment to measure whether jobs created would compensate for jobs lost.

**Distribution of climate policy costs:** Compensation measures apply to all households according to their size and location. No differentiation is based on income or housing conditions. As a basic example of direct effect – using the average cost reference data – a couple without children living in an urban area would obtain €18 as a compensatory benefit, while a single mother with two children in an urban area will pay €8 despite revenues on average being already sensibly lower. High-income households, better able to invest in insulation and energy efficiency, are more likely to benefit more from the measure than low-income households, which live in poorer housing. As the EPEE project found, 75% of energy poor in France live in pre-1975 buildings, while 12.2% (3 million) of French households face problems of humidity, mould and other heating-related problems in their dwelling. A study from the French Environment Agency shows that in 2006 the poorest 20% of the population pays 2.5 times more for heating, in relative terms, than the richest 20% of the population.<sup>83</sup> As regards transport, compensation is not likely to be adequate support for vulnerable groups living in rural and peripheral areas, raising the issue of unfair distribution between urban and rural populations.

81 Hourcade J C et al (2009), *Need a carbon tax be socially regressive? True challenges and wrong debates*, CIREN (Centre international de recherche sur l'environnement et le développement, France).

82 EPEE, *Evaluation of fuel poverty in partners' country. National analysis in France*, Project co-funded by the EU under the Intelligent Energy Europe Program, Intelligent Energy Europe, <http://www.fuel-poverty.org/files/D6%20France%20final.pdf>

83 ADEME (Agence De l'Environnement et de la Maîtrise de l'Energie) (2008), *Regard sur le Grenelle*.

## 4.6 Energy consuming products

The revised eco-design Directive, adopted by the Council in September 2009, extends the scope of the old Directive 2005/32/EC by including, in principle, all energy-related products. The original Directive was only concerned with energy-*using* products. The recast Directive now also includes products such as windows and insulation materials and even some water-using products such as showerheads. Minimum standards can be adopted either as mandatory standards or as voluntary agreements. Directive 2005/32/EC put in place a process through which minimum performance standards could be defined for energy consuming products. It did not introduce directly binding requirements, but defined a process, conditions and criteria for setting requirements regarding environmentally-relevant product characteristics to be met for products to be placed on the market (such as energy consumption). In addition to products already in process, a number of additional product groups have been identified: air-conditioning and ventilation systems; electric and fossil-fuelled heating equipment; food-preparation equipment; industrial and laboratory furnaces and ovens; machine tools; network, data processing and data storing equipment; refrigerating and freezing equipment; sound and imaging equipment; transformers; water-using equipment. A broader consideration of minimum standards in general and the eco-design Directive in particular would have been useful context. However in order to provide sufficient specificity for the evaluation scheme we need to focus on a specific measure and we have chosen phase-out of incandescent light bulbs.

### 4.6.1 The European phase-out of incandescent light bulbs

In December 2008, Member State experts on the eco-design regulatory committee endorsed proposals by the European Commission to phase out incandescent light bulbs by 2012. This is important because lighting is an important source of energy consumption with a large savings potential. The regulation imposes their substitution (Class E in the EU energy label system) with Compact Fluorescent Lamps (CFLs, Class A) or efficient halogen lamps (Class B and C). New LED (light emitting diode) technology, which competes with CFLs, is not yet available on the market. Phasing-out the incandescent light bulbs could produce cost savings of €5 billion in 2020<sup>84</sup>. The Regulation also covers lamps employed for non-household use (such as street lighting) but here, we focus on the effects on households.

#### Links with social justice

**Costs of domestic energy services:** The phase-out will reduce the cost of meeting household lighting needs. Net cost savings for an average European household have been estimated to amount to €22 per year by 2020<sup>85</sup>. However, while this includes the significant price difference between incandescent light bulbs (€0.60) and their alternatives (between €2-10<sup>86</sup>), these estimates do not take into account the fact that households may need to buy new luminaries, to fit the new bulbs. However, with the decrease in size and the increasing range of shapes and tones available for CFLs, this should be a declining problem.

84 Commission Staff Working Document (2009), *Full Impact assessment – Commission Regulation implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for non-directional household lamps*, SEC (2009)327, Brussels.

85 Commission Staff Working Document, *op. cit.* SEC (2009)327.

86 *Ibid.*

**Health:** There are also some indications that energy-efficient CFLs might have negative health impacts on people suffering from light-related medical diseases such as epilepsy and migraine.<sup>87</sup> Additional health issues are linked to the electromagnetic emissions from CFLs, which may cause neurological (and other) problems.<sup>88</sup> A study commissioned by the DG SANCO (Health & Consumers) shows that under a worst-case scenario this could concern 250,000 people in the EU. It could, however, be mitigated by using double-envelope bulbs<sup>89</sup>. Environmental concerns have been raised as regard with toxic material (mercury) contained in CFL bulbs, which would require additional regulation or improved enforcement mechanisms on waste disposal and recycling.

**Consumer access to information:** Consumer associations have raised concerns with regard to reduced consumer choice and limited consumer protection. The ban on incandescent light bulbs will force consumers to buy alternative bulbs, which may not satisfy their lighting needs, at least not in the short term, perhaps because they may not fit with existing equipment, or because only poor quality CFLs are available.

**Employment effects:** The Commission has estimated that 2000-3000 jobs will be lost in the bulb production sector, because many CFLs are imported. In addition, luminary producers could face additional production costs from adapting to new bulbs.<sup>90</sup>

87 Havas, M and Hutchinson, T (2008), *Environment and health concerns associated with Compact Fluorescent Lights. Environmental and resource studies*, Trent University, Peterborough, ON, Canada.

88 Havas and Hutchinson, *op. cit.*, p8-10.

89 SCENIHR (Scientific Committee on Emerging and Newly-Identified Health Risks) (2008), *Light sensitivity*, Commissioned by the Directorate-General Health and Consumers, [http://ec.europa.eu/health/ph\\_risk/committees/04\\_scenihr/docs/scenihr\\_o\\_019.pdf](http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_019.pdf).

90 Commission Staff Working Document, *op. cit.* SEC (2009)327.



## 5. INTEGRATING MITIGATION AND SOCIAL POLICY OBJECTIVES

There is a long-standing concern with the integration of environmental concerns into other policy domains.<sup>91</sup> However, the debate about an integration of the concerns of other policy domains into the environmental policy domain appears to be less mature. At one level, of course, this is not new and constitutes another iteration of the debate about the relationship between the three pillars of sustainable development.

An important ambition of the research was to identify good examples of “procedures, processes and/or debates that integrate the social dimensions into the climate change debate” on the basis of a series of case studies in 9 Member States. In fact, we were able to identify very little material of direct relevance to this question. It may be that with more time, more material could have been identified.

However, even on the basis of the relatively modest material collected, we might still distinguish different dimensions to this debate. On the one hand there is a concern to compensate for any anticipated negative consequences of climate change mitigation policies and measures on particular social groups. Thus, as we have seen in France, attempts are being made to avoid the regressive effects of a carbon tax by putting compensatory measures in place. A carbon tax can also be introduced as part of a more systematic shift away from taxing ‘goods’ (e.g. labour) to taxing environmental ‘bads’ e.g. consumption of natural resources (including the capacity of the atmosphere to absorb greenhouse gases).

On the other hand, increasing attention is being paid to the co-benefits of climate change mitigation policies in particular in the area of energy efficiency. So, for example, the health benefits of well-insulated buildings and more generally the potential for addressing issues of fuel poverty through climate change mitigation measures relating to the building stock. In the UK there exists long-standing concern over fuel poverty and the UK is apparently the only country in the EU which has an official definition of fuel poverty. In other Member States, such as France and Belgium, increasing attention is being paid to fuel poverty.

However, what we have so far not seen is an attempt to more systematically and creatively identify synergies between policy domains. Perhaps the debate about the three pillars of sustainable development has been too often phrased in terms of *trade-offs* and much less in terms of win-win opportunities. It has therefore been interesting to watch the proliferation of green stimulus

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<sup>91</sup> Adelle, C et al. (2009), *Climate change and energy security in Europe – Policy integration and its limits. Report No. 4, Swedish Institute for European Policy Studies.*

packages which seek, in part at least, to stimulate a more sustainable recovery than would have otherwise been the case by strategically placing at least some of the funds in initiatives for green growth.

A significant intellectual task remains to systematically articulate the potential co-benefits of climate change mitigation policies on the one hand, and the opportunities for policies addressing various forms of social exclusion to at the same time contribute to climate change mitigation objectives on the other. While some of the emerging aspects of this landscape are to do with the employment, thermal comfort, health and mobility benefits of climate change mitigation policies, a systematic assessment of the different dimensions of everyday life would be likely to yield further ideas. Conversely, a systematic assessment of policies and measures addressing social exclusion in its various dimensions may well yield interesting possibilities for meeting emission reduction goals.

## 6. KEY ISSUES RAISED

Evaluating climate change mitigation policies in terms of their implications for social justice has brought to the surface a number of issues that need to be further discussed.

It is striking that there is an increasing array of policy measures in Europe aimed at curbing emissions of greenhouse gasses, several of which have potentially significant macroeconomic impacts, but with relatively little debate about the consequences for social justice in the sense understood here. There are a number of studies of the economic costs of meeting mitigation targets, which may consider employment impacts but even these are not plentiful. The more bottom-up approach focused on the experience of households has received less attention, with some exceptions such as the long-standing fuel poverty debate in the UK. Does this suggest a relatively low political priority attached to social justice at a European level? Or is it related to the more limited EU competence in this area, leaving the primary role for Member States, contrasting with the central role of the EU in the making of climate policy?

Climate policy is focused on changing behaviour at all levels of society, from governments through manufacturing industry to households. In so doing, it opens up a wide array of potential social effects. Some are relatively direct, others stem from a series of complex economic adjustments at a global as well as European level. Many of these are difficult to forecast, precisely since there are so many variables involved over a long timescale. This suggests the need for monitoring and a programme of active social research to compare the unexpected as well as more predictable impacts of a new policy environment.

A common feature of many of the measures reviewed here is the restructuring of the electricity supply industry and a number of energy-intensive technologies, such as private cars, ultimately at the cost of the consumer rather than the state. The predicted rise in electricity prices in most Member States reflects the outcome of this effort. This will tend to be socially regressive unless it is offset by measures which counter fuel poverty, for example by support targeted at vulnerable households or low income groups. This would appear to be a critical challenge for climate policy, requiring some synchronisation between measures developed at the European level and the more fine-grained social interventions generally initiated and managed at national or more local level. However, there is also a connection to be made with cohesion policy and the active debate on the use of Structural Funds to finance improved domestic sector energy efficiency in the new Member States.

There are some policy initiatives which raise a large number of uncertainties. One of these is the promotion of biofuels, usually either through reduced excise duties or mandatory blending requirements for fuel suppliers. Consumers may find it difficult to interpret precisely in which senses biofuels can be considered to be “green” or in conflict with long term food supply. It is unclear how far biofuels and other sources of bioenergy will be produced in Europe or imported, with consequences for the scale and location of employment as well as skills.

The way in which the “polluter pays principle” has been applied in this sector, should be debated. It appears that the cost distribution of a given policy is in many cases different from what it should be according to this principle. The possibility for certain sectors to pass-through costs to final consumers implies more questions about “who pollutes and who actually pays”. A more just distribution of costs that duly takes into account the capacity of different sectors of society to absorb the costs of change would be critical to any strengthening of synergies between climate and social justice.

Ultimately policy may move towards a system of individual carbon budgets based on a sense of equity between citizens in different nations within and beyond Europe. This might appear to be an approach which reflected social justice priorities more than some of the “top down” policy measures addressing energy infrastructure which are prevalent today. On closer examination however, it raises many new questions which are worth debating well in advance of concrete policy proposals, not least of which would be the capacity of low-income groups to express their preferences in a market-based system. The policy integration agenda has some way to go.



## APPENDIX A: OVERVIEW OF EVALUATION

		Broad areas of intervention	Power generation/energy intensive industry	Renewable energy		Low-carbon vehicles		Energy performance of buildings		Energy taxation	Energy-consuming products
				Feed-in tariffs (GE)	Green certificates (UK)	Mandatory fleet average fuel economy	Renewables in transport	Energy performance certificates	Financial mechanisms for buildings		
<b>Social justice domains</b>		<b>Indicators</b>									
<b>Distributional justice</b>											
	1	Price of essential goods	-	-	0	-	0	0	0	-	0
	2	Cost of domestic energy services	-	-	0	0	0	-/+	++	-	-/+
	3	Transport costs	0	0	0	-	0	0	0	-	0
	4	Employment effects	?	+	?	(+)	?	+	+	?	-
	5	Labour market transition / restructuring	?	?	?	?	?	?	?	?	?
<b>Fair access</b>											
	6	Health	+	+	+	?	?	?	+	+	-/?
	7	Consumer access to information	0	0	0	-/?	+	+	?	0	-
	8	Citizenship	0	0	0	0	0	+	0	+/?	0
	9	Gender equality, non-discrimination, equal treatment	0	0	0	0	0	0	-	-	0





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