

The Air pollution fee in the Czech Republicⁱ

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Brief summary of the case

The air pollution fee in the Czech Republic is not a new instrument. The first implemented legislation came into force in 1967. However, due to the political and economic system at that time it did not have a serious environmental impact. After the change in system in the early 1990s, the air pollution fee instrument was revised, with the aim of improving the lack of environmental impact. Despite several changes, the instrument was always valuable for the state administration only from the fiscal point of view. The motivation for companies to improve their air protection status was still very low, due to the low level of the fee. The last significant change in the air pollution fee instrument took place in 2012, by implementation of the Act No. 201/2012 on air protection, as amended (hereafter the Air Protection Act).

Following the changes introduced by the new Act, only four polluting substances are subject to a charge, instead of nine main pollutants and two pollutant classes before the change. The air pollution charges currently cover emissions of particulate matter, sulphur dioxide, nitrogen oxides and volatile organic compounds. The charges were increased by about 37% on average, with further yearly increases defined in the Act.

Before the changes were implemented, several projects analysing the status of air pollution fee were carried out by Czech Universities and the Academy of Science. During the legislative process the main industry companies were invited to comment on the proposals, and inputs from NGOs were also considered. Since the Air Protection Act came to force, the instrument is being evaluated and analysed, with the aim of improving it again if necessary.

1 Description of the design, scope and effectiveness of the instrument

1.1 Design of the instrument

In the former Czechoslovakia, charges for air pollution were introduced in 1967. They were largely aimed at raising revenues for the state budget, and were therefore considered as fiscal revenues until 1991. Following the political and economic changes that occurred in the former Czechoslovakia after November 1989, the charges for air pollution were constituted within the new legislative framework (Act No. 389/1991 on state administration in air protection and charges for air pollution), with effect from 1992 (Tošovská et al., 2010).

Since 2002 the system of charges in the field of air protection has been set by the Act on air protection (86/2002), which divided the sources of pollution into stationary and mobile. Since the analysis for this study does not cover transport-related instruments in detail, the stationary sources are relevant. Stationary sources cover devices of internal combustion or other technological processes that pollute or can pollute the air. Stationary sources are divided by size or nominal thermal output into small, medium, large and very large. The classification of sources into appropriate categories is carried out by the payer of the fee. The rate of the fee and the administrator of the fee vary according to the size of the source (Vítek and Pavel, 2008).

National legislation on air quality evaluation in the Czech Republic is harmonised with EU legislation for the protection and improvement of ambient air quality. Act No. 201/2012 Coll. on air protection (hereafter the Air Protection Act), as amended defines among other things the zones and agglomerations for ambient air quality evaluation. The details are specified in Decree No. 330/2012 Coll. on the method of assessment and evaluation of ambient air pollution levels, and on the extent of informing the public on the level of ambient air pollution and during smog situations (Czech Hydrometeorological Institute, 2014).

Historical rates of the Air pollution fee:

1967: Act on measures against air pollution (35/1967)

The fee was calculated individually for each source by the formula: $P = (e - ep) * h * 0.10 + p$, where:

- P - Yearly fee in Kčs (Czechoslovak koruna)¹,
- e - the actual amount of pollutants emitted in kg/h,
- ep - the permissible quantity of pollutants emitted in kg/h,
- h - the number of operating hours per year,
- 0.10 - annual amount of fee for 1 kg of discharged pollutants beyond the permissible level in Kčs,
- p - surcharge according to §2, Sect. 4 (location of the source)

1991: Act on state administration in air protection and charges for air pollution (389/1991)

Basic fees were set up for large and medium sources as:

- Particulate matter (PM₁₀): 3,000 Kčs/t
- SO₂: 1,000 Kčs/t
- NO_x: 800 Kčs/t

These fees were increased by 50% if the emission limits were exceeded.

1994: Amendment of Act No 389/1991, by Act 158/1994

This amendment introduced fees for small sources of pollution, which varied from 0 to 40,000 CZK/year (CZK - Czech koruna), depending on the fuel type and installed power.

2002: Act on air protection (86/2002)

This Act introduced a new categorisation of air pollution sources; however, the rates for individual categories were not changed, with basic fees for very large, large and medium sources remaining at:

- Particulate matter (PM₁₀): 3,000 CZK/t
- SO₂: 1,000 CZK/t
- NO_x: 800 CZK/t

The basic fee for small sources of pollution remained at 0 to 40,000 CZK/year, depending on the fuel type and installed power.

A new Act on air protection (201/2012) came to force on 1 September 2012, repealing Act no. 86/2002. The 2012 act introduces several major changes e.g. abolition of the previous

¹ NB: Kčs (Czechoslovak koruna) was the currency in the former Czechoslovakia. In the remainder of this case study, CZK (Czech koruna) is the currency currently in use in the Czech Republic. There is no official exchange rate between the two currencies.

categories of air pollution sources (small, medium, large and very large). According to the new law, sources are divided into specified sources and activities listed in Annex no. 2 of the Act, and sources and activities not mentioned in this Annex. Annex no. 2 includes 167 types of stationary source in 11 categories; the significance of each depends on the size of the facility. Air pollution fees are only paid by the operator of stationary sources listed in Annex no. 2, after fulfilment of other conditions specified in the law. The charges are now decided by the 14 regional offices (i.e. regional governments) of the Czech Republic. Until the end of 2016, revenue from the fee goes to the State Environmental Fund; from 2017, it will be shared between the State Environmental Fund, the region in question, and the state budget (see section 1.3).

Table 1 Air pollution fee rates, 2002-2021 (in CZK/tonne)

	2002-2012	2013 - 2016	2017	2018	2019	2020	2021 +
PM₁₀	3,000	4,200	6,300	8,400	10,500	12,600	14,700
SO₂	1,000	1,350	2,100	2,800	3,500	4,200	4,900
NO_x	800	1,100	1,700	2,200	2,800	3,300	3,900

Source: Air Protection Act (2012)

Exemptions from the air pollution fee:

Facilities for which the total amount of fees for the fee period amounts to less than CZK 50,000 are exempt from the fee.

Reductions in the air pollution fee:

The new Act on air protection allows for reductions in the air pollution fee paid to motivate businesses to reduce their emissions. The deductions are based on comparison with emission concentrations relevant for best available technologies (BAT) (see Table 2). From 2017 onwards, the fee will be multiplied by the coefficients of emission levels, according to achieved emission concentrations during the fee period, expressed as a percentage of the upper limit of emission levels associated with BAT, or if the BAT is not specified, the percentage of the specific emission limit. This means that businesses that emit less will pay a reduced fee.

Table 2 The fee reduction coefficients to be applied from 2017 onwards

50 - 60 %	> 60 - 70 %	> 70 - 80 %	> 80 - 90 %	> 90 %
0.2	0.4	0.6	0.8	1

Source: Air Protection Act (2012)

1.2 Drivers and barriers of the instrument

Before 1989, the charge for air pollution did not have any particular environmental rationale. All companies were state-owned and fees were paid into the State Fund for climate protection, although there are no reliable records to assess whether these revenues were indeed used for climate protection. The political changes in 1991 led to some improvement, as society began to realise the need to reduce emissions and to introduce economic instruments to achieve environmental objectives and supported the adoption of the 1991 Act on Air which had a general objective to improve air quality.

The main driver for the original instrument was a political decision by the then Federal Government, followed by inspections carried out by authorities to start to monitor emissions levels more reliably. In economic terms, the charge for air pollution was a good instrument to raise additional revenue, which was later spent on environmental projects and activities.

Throughout the whole time-period, **one barrier to the effectiveness of this instrument** was the very low rate of the fee. The level of the fees was so low that companies had no real motivation to decrease their emissions. In some cases, the costs for administration of the fee were much higher than achieved revenues.

Since the introduction of the 2012 Act on air protection, **the drivers of the instrument** were supported by new measures – an increase in the fee, with further increases planned for future years (see Table 1), and the possibility to significantly reduce the fee through the implementation of best available technologies (Table 2).

In comparison to other EU Member States, air quality in the Czech Republic improved slightly in terms of absolute levels of NOx and PM10 between 2008 and 2013 (Eurostat, 2016) - see Table 3.

Table 3 Ranking of the Czech Republic in the table of the biggest air polluters in the EU28 in absolute figures (1.-biggest polluter; 28-smallest polluter)

	2008	2009	2010	2011	2012	2013
PM ₁₀	13.	16.	16.	18.	16.	17.
SO _x	11.	11.	11.	11.	11.	11.
NO _x	12.	12.	12.	12.	13.	14.

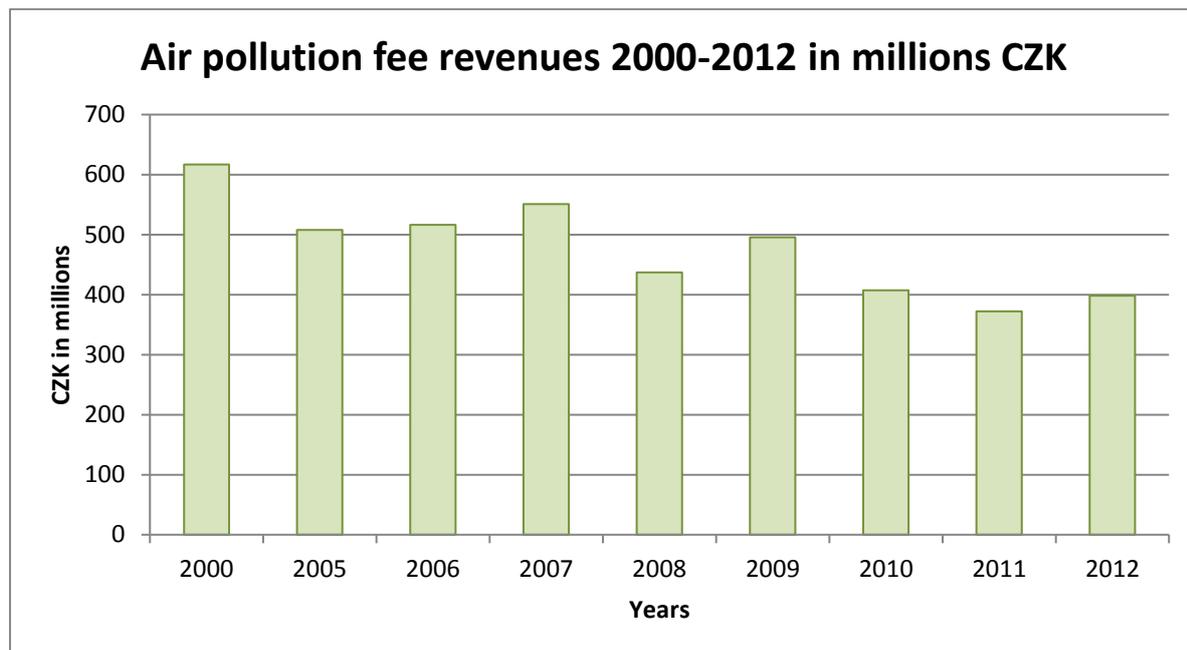
Source: Eurostat (2016)

1.3 Revenue collection and use

The payers and collectors of the charge have changed several times in the instrument's history. Every change influenced the amount of collected revenue, making it difficult to compare collected revenues over time. However there are two other main reasons for the relatively low amount of fees collected from the charges:

- Legal emission limits and penalties if exceeded (which provided the motivation to reduce emissions and therefore resulted in decreasing revenues); and
- A significant decrease of industrial production after 1990.

Figure 1 Total revenues from the air pollution fee for 2000-2012



Source: Interviewee 1, based on the Statistical yearbooks of the environment
NB Data from 2001-2004 are not considered reliable/comparable due to differing methodologies in data collection; they are therefore not included here.

Since 1991, revenues from the air pollution fee (and other environmental charges) have been paid into the State Environmental Fund of the Czech Republic, and used for environmental projects and activities. These revenues are then allocated either together with EU funds (to the Operational Programme – Environment, e.g. for landfill rehabilitation, flood resilience and sewage systems) or to National programs (for non-EU funded projects e.g. smaller projects on boiler replacements, car scrappage and nature protection). The Fund also collected other environmental taxes and fees and distributed the money according to actual environmental protection needs in various areas. The money-flow within the Fund was also heavily influenced in the 1990s when approximately CZK 6 billion from privatisation of state-owned companies were used for environmental measures in the field of air protection (mainly the refurbishment of old heating plants and a switch from solid fuels to natural gas). Due to these massive investments, most Fund resources were used for purposes other than air issues (e.g. waste, water, etc.).

The amendment of the Act on air protection has also introduced some changes to the system of revenue collection and distribution. Until 2016 (inclusive) 100% of revenues go into the State Environmental Fund. From 2017 the revenues will be distributed as follows:

- 65% of revenues to the State Environmental Fund;
- 25% of revenues to the Region where the source of pollution is located; and
- 10% of revenues to the state budget.

The Air Protection Act states that revenues allocated to the Regions can only be used to finance measures in the field of environmental protection, whilst revenues allocated to the state budget can only be used to finance Ministry-organised activities related to assessing and

evaluating pollution levels, the Air Quality Information System, smog monitoring and disclosure of information.

The amount of revenues raised from different air pollution fees in 2014 can be seen in Table 4.

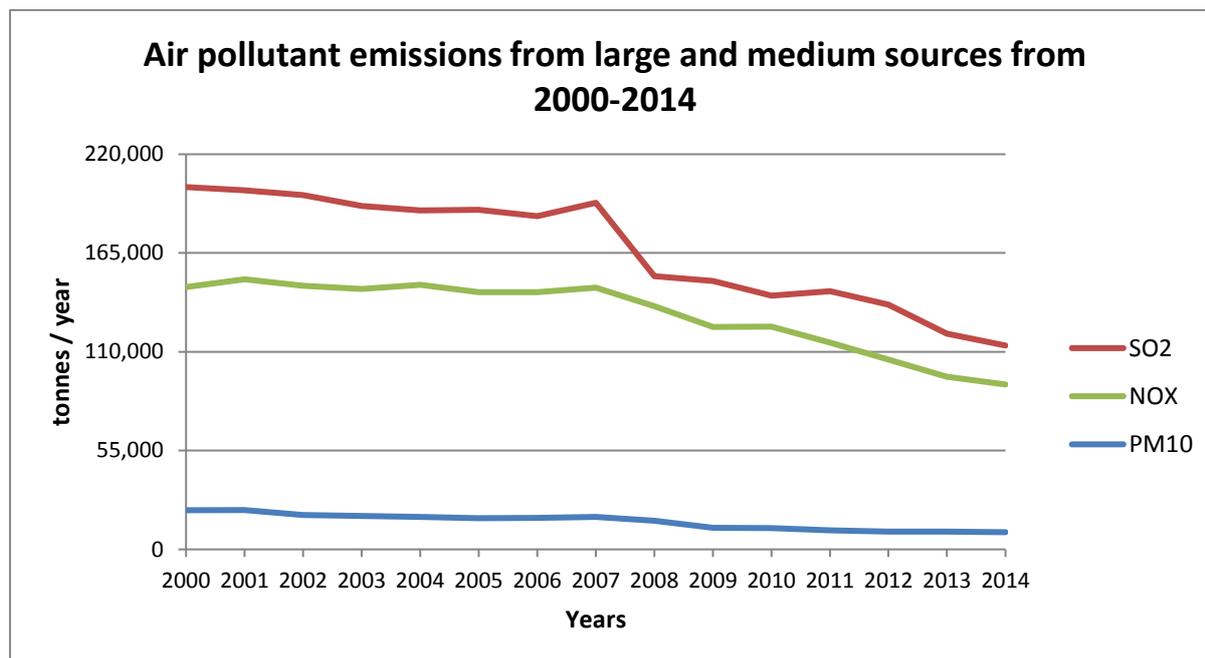
Table 4 Emissions and related revenues from the air pollution fee in 2014

PM ₁₀		SO ₂		NO _x		VOC		Total
tonnes	000 CZK	tonnes	000 CZK	tonnes	000 CZK	tonnes	000 CZK	000 CZK
7,083	29,750	109,142	147,342	82,407	90,648	7,336	19,811	287,551

Source: Ministry of the Environment (2014)

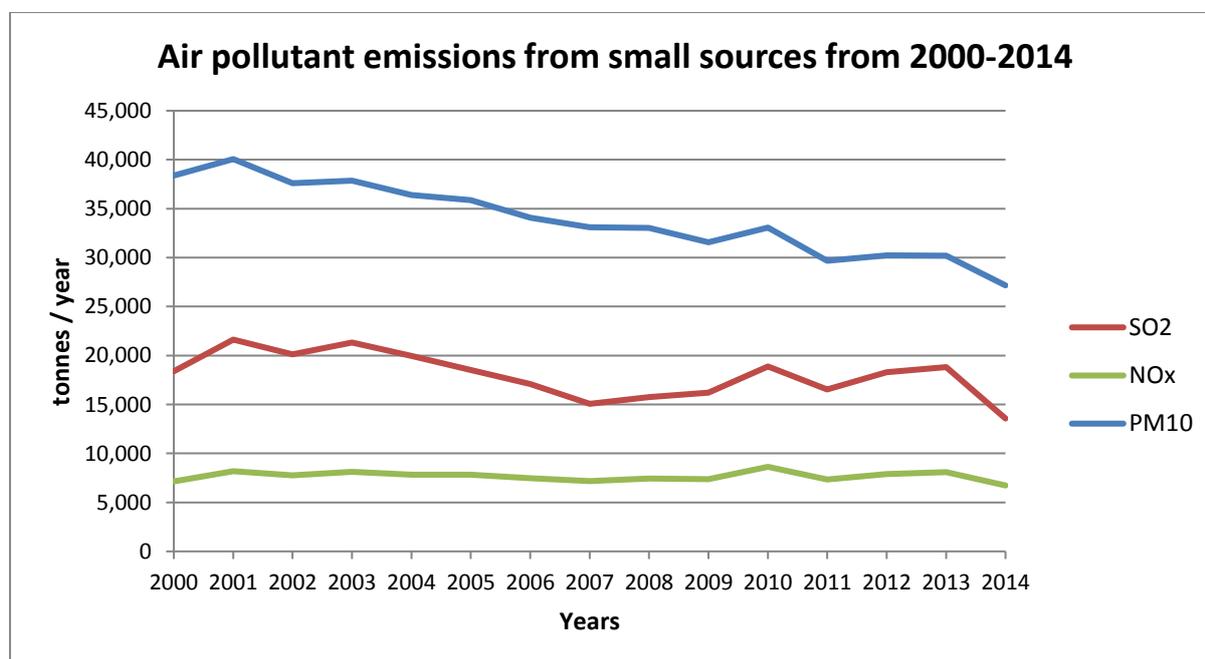
1.4 Environmental impacts and effectiveness

Figure 2 Air pollutant emissions from large and medium sources from 2000-2014.



Source: Czech Hydrometeorological Institute (2000-2014)

Figure 3 Air pollutant emissions from small sources from 2000-2014



Source: Czech Hydrometeorological Institute (2000-2014)

The overall improvement in air quality in the Czech Republic in the 1990s was mainly due to decreased production in heavy industry and also due to the changed Act on air protection, which influenced the reduction of SO₂ emissions and other pollutants generated by large and medium pollution sources. Improvements were achieved mainly through desulphurisation of

power plants, more efficient treatment of exhaust gases and the introduction of unleaded petrol and catalytic converters in the automotive sector. Total emissions from small sources (especially mobile sources) were not affected by the Act on air protection, which was due to the fact that the legal pollution limits that were set can be effectively used only for major sources (Posolda, 2002).

The environmental impact of the air pollution fee was very limited, if any, until 2012. As already mentioned, in some cases the administrative burden was higher than the revenue raised. An analysis (Vítek and Pavel, 2008) presented a study focused on the system of the air pollution fee in the 1990s concluded that the system:

- Did not optimise the costs for decreasing emissions;
- Was not efficient enough;
- Did not create motivation for polluters; and
- Favoured pollution before cleaning.

The impact of air pollution fees on emission reductions in the Czech Republic has to be considered in combination with emission limits and penalties for exceeding them, together with a decline in production and changes in production processes/technologies.

The environmental impact of the air pollution fee since 2013 is difficult to evaluate, as there is not enough data available. According to the explanatory report of the new Act, the: “increase of charges for air pollution should motivate operators to reduce emissions of major pollutants. This should contribute to reducing the environmental burden by substances harmful to human health, ecosystems and vegetation and also to contribute to protect the Earth's climate system. The level of the positive impact will also depend on the development of production of major polluting industries.” No analysis has been done yet, due to the short time period (two years). Data for 2015 will become available only at the end of year 2016.

1.5 Other impacts

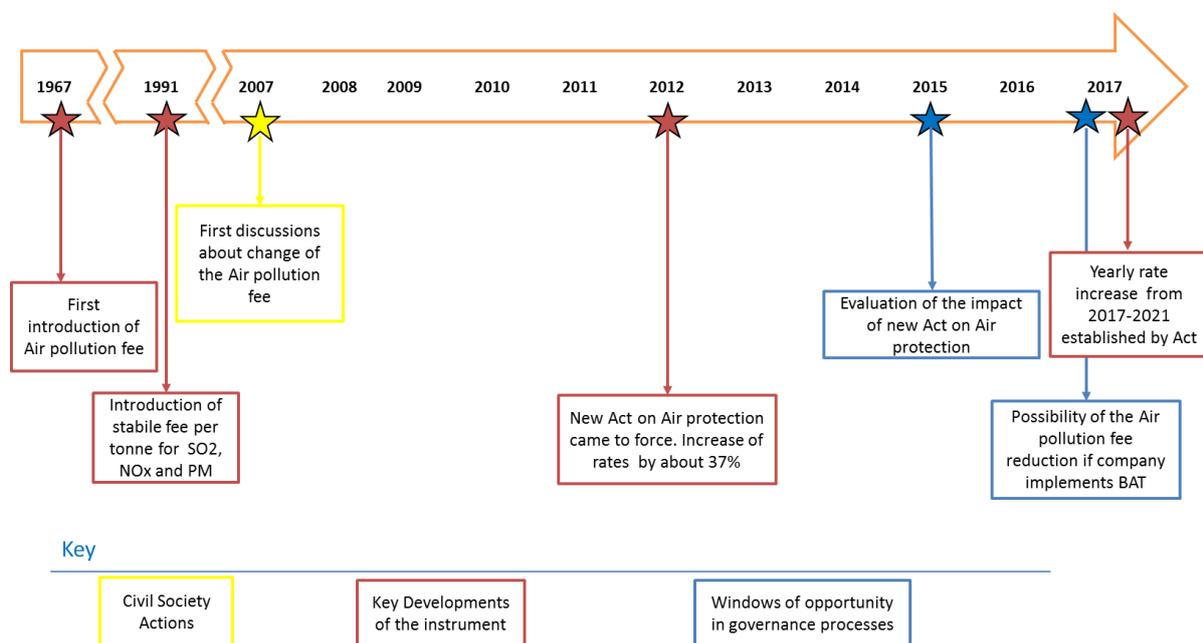
The first attempts to assess the impact of fees on selected economic indicators in the Czech Republic were made in the early 1990s in connection with the preparation of new legislation aimed at individual environmental issues. The analysis concluded that the charges essentially did not have a significant impact on the financial results of most of the major polluters. A much more extensive analysis of the impact of fees on business administration in the Czech Republic was carried out in 2008. This analysis aimed, inter alia, to quantify the proportion of fees on waste, air and water in selected economic indicators of enterprises in 2006. Input data were based on official statistics. It analysed 1,719 payers of fees for discharging pollutants into the air, namely the very large and large pollution sources. The basic finding was that the share of fees in revenues amounted to a maximum of 0.5 % in nearly 99.7 % of enterprises in 2006. The proportion of these fees on consumption from operations was on average around 0.02%, and was below 1% for almost 100% of respondents in 2006 (Tošovská et al., 2010), suggesting that the fees did not provide enough of a financial incentive to companies to change their practices to reduce emissions.

2 Stakeholder engagement

Stakeholder engagement is still not very common in the Czech Republic. The implementation of new legislation is usually managed in a few steps, as was the case during the implementation of new Act on air protection. The main stakeholders in the process are underlined in the text below:

1. **Evaluation phase.** The evaluation phase started around 2007, when analysis of the current situation was requested from the University of Economics in Prague, by the Ministry of the Environment of the Czech Republic. Other professional stakeholders included the Technical University in Ostrava, or the Czech Academy of Sciences.
2. **Analysis phase.** After evaluation of the current status, discussions took place between the Ministry of Environment, represented by various Commissions, and the biggest companies (including the biggest polluters, e.g. power plants, ironworks, etc.). Companies could intervene as individuals, or represented by the Confederation of Industry of the Czech Republic. The discussions were focused on the new rates and how to motivate emission reductions by companies. According to stakeholders interviewed, the companies were against any kind of fee increase and some proposed to cancel the fee and replace it by some kind of tax deduction. This proposal was not accepted.
3. **Preparation of draft.** After the evaluation and analysis phases, the draft of the new legal document was prepared. After the draft was published, anyone could challenge the document; this is the stage when some NGOs became interested in the draft document. The environmental NGOs in Czech Republic are united under the platform “Zelený kruh” (Green circle), an association of 26 important ecological NGOs. Some NGOs are also active on air protection topics, e.g. the NGOs Arnika and “Čisté nebe” (Clear Skies).
4. **Finalisation of the document.** The above-mentioned stages of the process took approximately 4 years and finished in 2011, when the amended draft document was handed over to the legislation process. The final document was approved after approximately 1 year.

Timeline of Key Developments in Air pollution fee



3 Windows of opportunity

Policy formulation: When it was observed that the instrument was inefficient/not working well, the need for change was recognised, which allowed for discussion of a revised instrument.

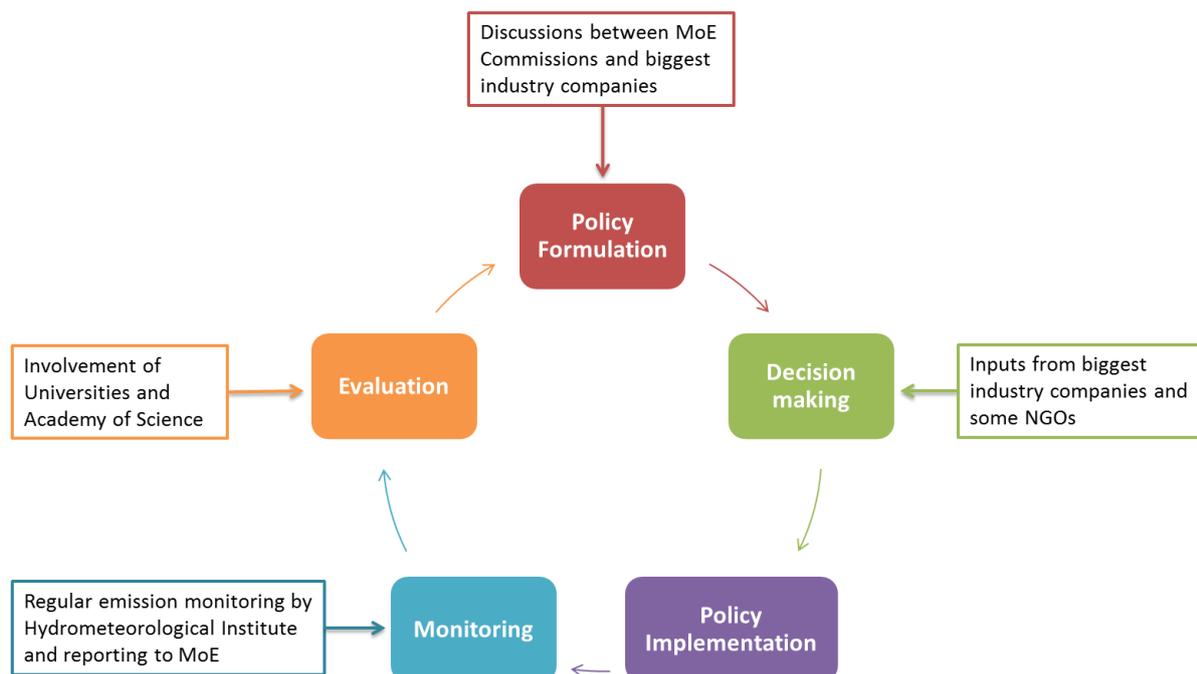
Decision making: The decision making process involved the Ministry of Environment and Ministry of Finance. Some stakeholders (academic institutions and the biggest industry companies) were included in the discussions. At the beginning of the process, the industry didn't support the increase of the charge. Some NGOs also participated [in discussions, although their inputs were limited in the decision making phase.

Policy Implementation: As the actual version of the instrument is quite new, some of the provisions of the Act on air protection are still in the transition period. However, most of the obligations and principles were implemented in the same or very similar way already before.

Monitoring: This is the main task at the present time. Monitoring of air quality is carried out by the Czech Hydrometeorological Institute and the data are analysed by the Ministry of Environment. After some years of data collection, evaluation of the instrument will be possible.

Evaluation: As the previous version of the instrument was not cost efficient and did not motivate the companies to implement the corrective measures, evaluation through numerous projects took place. The evaluation was carried out mainly by experts of Czech Universities and the Czech Academy of Sciences.

Civil society engagement with Air pollution fee



4 Insights into future potential/reform

4.1 Actual planned reforms and stakeholder engagement

There are no current plans for reforms, as the current version of the instrument was only implemented in 2012. Due to the short time period, there is not sufficient data and the efficiency of the instrument is still under evaluation.

4.2 Suggestions for future reforms – instrument design and civil society engagement

There are three possible points for improvements which could be considered for future reforms of the instrument:

1. Deeper engagement of civil society. This includes the system of information, probably driven by an NGO;
2. Distribution of the resources from the Fund more towards air protection projects; and
3. A system of EU funding for measures that would lead to a decrease in emissions.

It is also worth noting that there are occasional discussions in the Czech Republic on the possible introduction of a carbon tax; however there are currently no direct steps planned to implement this.

4.3 Suggestions for replicability

Due to the relatively recent introduction of the current version of the instrument, there are no suggestions for replicability.

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ⁱ This case study was prepared as part of the study 'Capacity building, programmatic development and communication in the field of environmental taxation and budgetary reform', carried out for DG Environment of the European Commission during 2016-2017 (European Commission Service Contract No 07.027729/2015/718767/SER/ENV.F.1) and led by the Institute for European Environmental Policy (www.ieep.eu). This manuscript was completed in December 2016.