



CLIMATE POLICY IMPLEMENTATION IN THE CZECH REPUBLIC



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Introduction

The Czech Republic is industrial country with long history of machinery factories but also steelworks or coal and especially lignite mining. Since the beginning of century country belongs to Top 10 of world electricity exporters. Despite industrial decline in 1990's the Czech Republic has very high per capita GHG emissions, actually fourth highest between EU member states.

Czech climate protection policy was prepared by Ministry of Environment and approved by government in 2017. However, it is still very difficult to put particular measures into the practice. Both industrial lobby and unions have very strong influence on decision makers and argue with decline of competitiveness and social impacts. Real implementation of climate protection measures largely depends on public acceptance.

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1. Overview of actual energy situation

Key characteristics of energy balance

The Czech Republic is country with population of 10.6 million inhabitants [1] and area of 78,9 thousand km² located in the middle of Europe. Lignite is still the most important domestic primary energy source using both for electricity and heat production. Czech republic completely depends on the import of oil, natural gas and nuclear fuel. Gross consumption of primary energy sources is actually 1749 PJ, for the structure of primary energy sources consumption see table 1.

Table 1: Structure of primary energy sources in the Czech Republic

Primary source	Share on primary energy consumption in the Czech Republic [%]
Lignite and coal	39.1
Oil	19.5
Natural gas	16.6
Renewable energy sources	10.1
Heat from nuclear fuel	14.7

Source: Czech Republic Energy balance 2016, Czech Statistical Office

In comparison with average of EU countries industry sector has rather high share on the final energy consumption in the Czech Republic. Significant share of manufacturing industry in Czech GDP structure is the main reason. For the structure of final energy consumption see table 2.

Table 2: Structure of final energy consumption in the Czech Republic

Consumption sector	Energy consumption [PJ]
Industry	308
Transport	282
Tertiary	156
Households	290
Overall	1036

Source: Czech Republic Energy balance 2016, Czech Statistical Office

Czech power system is based on lignite and coal power plants (50 % of production) and nuclear power plants (32 % of production). Vast majority of country's coal installed capacity run on lignite: there are 8.5 GWe (85 %) in lignite power plants and only 1.4 GWe (15 %) in hard-coal powerplants. Remaining 18 % is produced mainly in gas, biogas, biomass and hydro power plants, only minor fraction of Czech electricity production (around 3,5 %) falls on wind and PV power plants. Current year production of all renewable sources of electricity (inc. large hydro) is 9.38 TWh [2]. Net electricity consumption in the Czech Republic reached 59.7 TWh in 2016, of which households consumed 14.8 TWh [3]. The Czech Republic is important exporter of electricity since the beginning of century, net export reached 10.8 TWh in 2016 [3].

Renewable energy sources

Renewable energy sources in the Czech Republic produced beside 9.38 TWh of electricity also 92 PJ of heat. Biomass is the most important Czech source of renewable energy - biomass (excluding biogas and liquid biofuels) provides two thirds of renewable energy in the Czech Republic. Households heating by biomass (especially firewood) covers more than 40 % of Czech renewable energy production. Biogas plants operated mostly by agricultural companies represent most important source of renewable electricity in the Czech Republic. For structure of renewable energy production in the Czech Republic see table 3.

Table 3: Structure of renewable energy production in the Czech Republic in 2016

Source	Share on renewable energy production [%]
Biomass – households heating	40,26 %
Biomass – energy industry	25,58 %
Hydro	3,9 %
Biogas	13,62 %
Biological waste	1,94 %
Liquid biofuels	6,75 %
Heat pumps	2,4 %
Solar thermal systems	0,43 %
Wind power plants	0,97 %
Photovoltaic power plants	4,15 %
Overall	100 %

Source: Ministry of Industry and Trade [2]

The potential of domestic renewable sources is estimated on 50 TWh of electricity (confirmed by the Governmental Commission) with respect to using biomass also for heat production (long-term renewable heat potential is 152 petajoules, with 77% of that coming from the combustion of biomass). Large part of this potential is in PV (around 10 TWh from PV systems installed on the buildings) and wind. [4] Support for renewable electricity production is at present very limited in the Czech Republic and development of new installations has stagnated since the end of 2013.

Energy intensity and energy efficiency

The Czech Republic has one of the highest energy intensities in the EU-28. Although energy intensity has decreased since 1990, it still remains well above the EU level. High share of energy intensive industry on GVA is most important reason. [5]

Czech republic has rather successful program for support of energy efficiency improvement in residential buildings. It is called New Green Savings Programme and financed by yields of allowances auctions in EU ETS mechanism.

2. Czech climate policy and government goals

Official domestic climate policy

The Czech Republic is a country with very high GHG per capita emissions (actually 12.4 tCO₂-eq, which means fourth highest value between EU member states) [6].

Czech government adopted document Climate Protection Policy of the Czech Republic in March 2017. This official climate policy was prepared by Ministry of Environment which is also responsible for its implementation. The main goal of climate policy is reduction of GHG emissions by 2020 by at least 32 Mt CO₂-eq in comparison with 2005 and by 2030 by at least 44 Mt CO₂-eq in comparison with 2005. The longterm indicative target is set on 70 Mt CO₂-eq of GHG emissions in 2040 and 39 Mt CO₂-eq of emissions in 2050. [7] For review of plan for emissions reduction see table 4.

Table 4: Plan for GHG emissions reduction in the Czech Republic (excluding LULUCF)

Year	2005	2017	2020	2030	2040	2050
GHG emissions [Mt CO ₂ -eq]	148	131	116	104	70	39

Source: Ministry of Environment [7]

Regarding particular measures Czech Climate Protection Policy depends especially on European wide instruments – EU ETS system of emissions trading and application of IED directive on large combustion plants. Policy also includes two measures which should be very useful but have only small chance on introduction in practice. First one is Czech version of Climate Change Act – Ministry of Environment prepared proposal but didn't propose it into legislation process because of strong resistance of industry and unions. Second mentioned measure which could be effective for GHG reduction is carbon tax planned for non-ETS emitters – Ministry of Finance actually elaborates analysis but its representatives are very skeptical regarding to carbon tax implementation during actual election period.

Main obstacles for efficient climate policy

With respect to actual Czech energy balance it is clear that Czech Republic has to carry out to basic steps for significant reduction of GHG emissions:

- phase-out coal and lignite power plants,
- ensure renewable energy development for replacement of phased-out power production capacity.

Low political will for establishment of new support scheme for new renewable sources is still significant obstacle for ambitious reduction of GHG. The “solar rush” in 2010 with feed-in tariffs for photovoltaics overshoot for more than 100 % was PR disaster for renewable energy promotion in the country. Because of that, mainstream political and media acceptance of renewable energy is poor, considering it corrupt, expensive and unsecure. Ministers and MPs very often repeat argument from industry lobbyists that consumers shouldn't add a single euro to 1.5 billion € they are paying annually for RE support (actual situation: there is no operational support for new renewables since 2013 and there are only negligible number of new installations). Actual proposal of new support scheme for renewable energy prepared by Ministry of Industry can't restart the sector in desirable manner.

So called blackout threat is another major argument against coal/lignite phase-out and renewable energy development. Impact of renewable energy on grid stability is frequently used as argument against further development of wind and solar PV plants.

In the same time the battle about extending lignite mines is ongoing. Grid operator promotes new lignite mines because lignite power plants have good characteristics for system regulation. Grid stability argument is also frequently used in the debate about lifetime extension of lignite and coal power plants. Whole issue was researched by German consultation company Energynautics with following results:

- the Czech Republic can reduce installed capacity of lignite and coal power plants from actual 9500 MW to 2500 MW (CHP plants entirely) in 2030 and develop renewable energy in the same time without risk of instability,
- development of renewable energy can secure the Czech Republic will not become import dependent in 2030. [8]

Czech Republic and international climate policy

By Kyoto Protocol, Czech Republic had to decrease its CO₂ emissions by 8 % Mtons by 2012. It was easily fulfilled – not because of progressive climate policy, but deep decline of industrial production after 1990. Czech Republic is on the track to fill its (very low in comparison with other countries) targets under climate-energy package for 2020. [9] Actual Czech government didn't make destructive steps during key negotiations about European legislation related to "winter package" for 2030. During final EU Council negotiation about recast of EU ETS directive Czech delegation played positive role. Czech government also didn't join to prosecution against Best Available Technologies document in 2018.

3. Role of subsidies in climate policy

The Czech Republic uses direct subsidies as a tool for energy efficiency improvement. Country gained approximately 1 billion € through flexible mechanism of Kyoto Protocol. This amount of money was used for establishment of program for support energy savings in residential buildings – so called Green Savings Program – between 2009 and 2012. Similar scheme continues as New Green Savings Program which is financed by yields of EU ETS allowances auctions. Other programs focused on non-residential buildings are financed through EU funds.

Regarding direct subsidies, there is one negative experience. Operational Programme Environment in the Czech Republic supports exchanging of small combustion heat sources – boilers – in households with aim to reduce air pollution from local heating. Exchanging of old coal boiler by cleaner coal boiler is eligible for support. Programme misses the opportunity to reduce CO₂ emissions together with air pollution and decrease coal dependence. Till the end of 2016 there was used 12 % of whole subsidy package on support of exchanging coal boiler by newer one and 36 % on exchanging coal boiler by combined boiler coal/biomass. Coal burning has got subsidy of 45 millions €. Hnutí DUHA and other NGOs continue in effort to stop this way of coal subsidization for next rounds of Operational Programme Environment.

4. Conclusion

The Czech Republic is an industrial country with very high per capita GHG emissions. Power production structure with 50 % share of coal and lignite power plants is the most important reason of high GHG emissions intensity. Coal and lignite power plants phase-out and significant renewable energy sources development are main challenges of Czech climate policy for next years.

Pressure from the side of European Union is necessary condition for key steps of energy transition in the Czech Republic. Czech contribution to 2030 targets both for renewable

energy share and energy efficiency improvement should be in line with the share on pollution with respect to technical potential.

Strong application of IED directive and related regulatory rules on large combustion plants is actually the most helpful tool for phase-out of fleet of non-efficient lignite power plants which is most important step for reduction of Czech GHG emissions.

Resources:

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