Environmental Economics in the Central European Context

Time: Tuesday 4pm
Location: at CERGE-EI, Room # 11

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Reading materials: http://home.cerge-ei.cz/richmanova/Teaching.html

Renewable Energy in CR

The renewable energy sources are generally perceived as a clean and environmentally friendly, because they do not pollute the surroundings as much as the fossil fuel sources during their operation. They are also beneficial in terms of climate change mitigation; mainly they do not contribute to greenhouse gas emissions. Additionally, they are also significant in terms of energy self-sufficiency of the Czech Republic, they do not directly stress the environment and their effects on human health are – compared with other energy sources – minimal. The often discussed issue of renewable resources is the occupation of arable land by photovoltaic power plants and biomass or the disruption of the aesthetic values of the landscape by wind turbines.

State Environmental Policy of the Czech Republic 2012–2020

- reducing greenhouse gas emissions
- securing a 13% share of energy from renewable sources in gross final energy consumption by the year 2020
- securing a 10% share of renewable energy in transportation by the year 2020

State Energy Concept of the Czech Republic

- supporting the production of electricity and heat from renewable energy sources
- developing cost-effective renewable energy sources with the gradual removal of financial support for new sources
- effective support of the state in RES access to distribution network
- streamlining the permitting processes
- promotion of technological development and pilot projects and concurrently the public acceptability of RES development in order to achieve the proportion of RES in electricity production over 15%

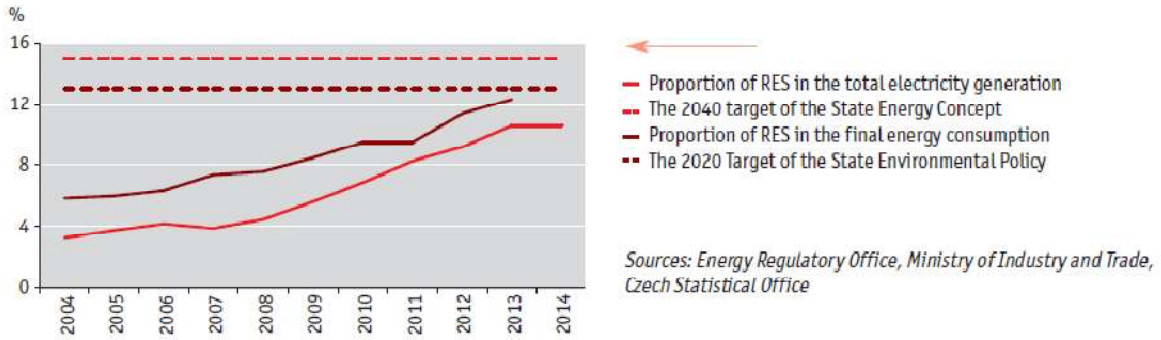
National Action Plan for Energy from Renewable Sources of the Czech Republic

- achieve a 14% share of energy from renewable sources in gross final consumption of energy in the year 2020

Action Plan for Biomass in the Czech Republic for the period 2012–2020

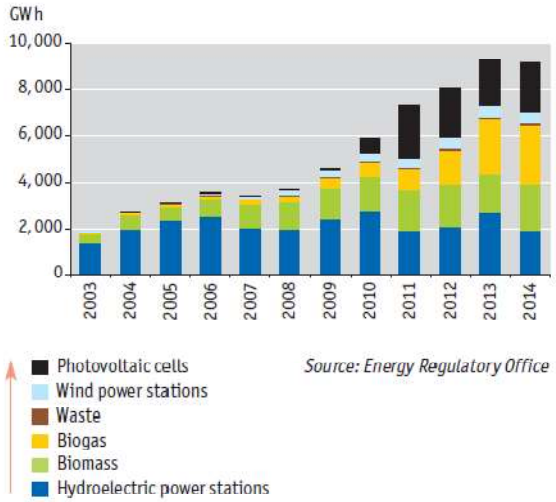
- determining of the potential of various types of biomass in the Czech Republic for efficient energy use while respecting food self-sufficiency of the Czech Republic

Chart 3 → **Targets for RES and the status of their implementation in the Czech Republic [%], 2004–2014 (2013)**



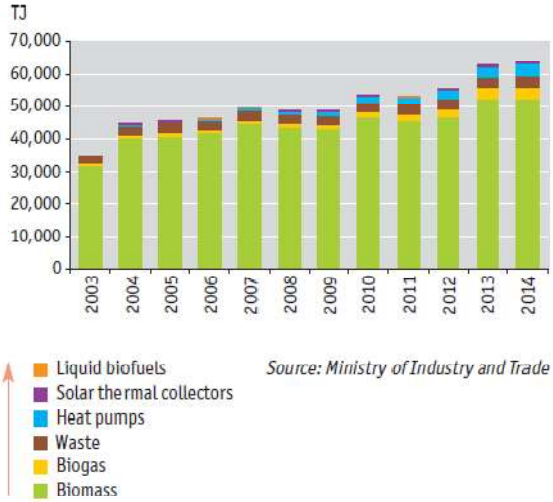
Sources: Energy Regulatory Office, Ministry of Industry and Trade, Czech Statistical Office

Chart 1 → **Electricity generation from RES in the Czech Republic [GWh], 2003–2014**



Source: Energy Regulatory Office

Chart 2 → **Production of heat from RES in the Czech Republic [TJ], 2003–2014**



Source: Ministry of Industry and Trade

In CR, renewable **energy** is supported by

- a guaranteed feed-in tariff, or
- a green bonus paid on top of the market price

➔ Plant operators are free to choose either option.

➔ Operators of hydro power plants may also receive subsidies

Moreover

- Operators of renewable energy plants are entitled to priority connection to the grid.

The **heat** from renewable energy sources is supported by

- subsidies
- real estate tax exemption

Summary of support schemes

- **Feed-in tariff.** A feed-in tariff can only be granted to operators of RES plants with an installed capacity up to 100 kW (30 kWp in case of PV or 10 MW in case of hydro power). PV and biogas plants are only eligible if put into operation before 31 December 2013. Wind, hydro or biomass plants are eligible only if the building permit was issued before 2 October 2013. Responsible for the payment of the feed-in tariffs are the "mandatory purchasers" selected by the Ministry of Industry and Trade.
- **Green bonus.** All producers of electricity from RES are entitled to select the premium tariff option. Operators of renewable energy plants receive this bonus in an annual or hourly mode on top of the regular market price of electricity. Operators generating renewable electricity to cover their own requirements only are also entitled to the payment of a bonus. PV and biogas plants are only eligible if put into operation before 31 December 2013. Wind, hydro or biomass plants are eligible only if the building permit was issued before 2 October 2013.
- **Subsidies.** Operators of hydro power plants may also receive subsidies under the Operational Programme "Business and Innovation for Competitiveness" (OPPIK) which is funded by the ERDF. The detailed conditions for the subsidies will be specified in the call for applications.

Feed-in tariff

From Wikipedia, the free encyclopedia

*A **feed-in tariff** (**FIT**, **FiT**, **standard offer contract**, **advanced renewable tariff**, or **renewable energy payments**) is a policy mechanism designed to accelerate investment in renewable energy technologies. It achieves this by offering long-term contracts to renewable energy producers, typically based on the cost of generation of each technology. Rather than pay an equal amount for energy, however generated, technologies such as wind power and solar PV, for instance, are awarded a lower per-kWh price, while technologies such as tidal power are offered a higher price, reflecting costs that are higher at the moment.*

In addition, feed-in tariffs often include "tariff degression", a mechanism according to which the price (or tariff) ratchets down over time. This is done in order to track and encourage technological cost reductions. The goal of feed-in tariffs is to offer cost-based compensation to renewable energy producers, providing price certainty and long-term contracts that help finance renewable energy investments.

Additional Information on Czech Feed-in tariffs

The generous feed-in tariff system in the Czech Republic together with falling costs of solar cells manufacturing caused in 2009-2011 a race in installation (literally) of new PV capacities. Total installation of 65 MWp was registered at the end of the year 2009, 462 MWp in 2010 and 1952 MWp at the beginning of the year 2011. The boom has peaked in late 2010/early 2011 after the Czech Senate approved a new law of 26% tax on electricity generation from PV over the next three years, as well as 32% tax on carbon credits awarded to solar companies in the next two years to all PV plants that were guaranteed to receive a fixed feed-in tariff for a period of 20 years. The total installed PV capacity could settle somewhere near 2000 MWp. [See the article(s) below]

Despite Czech Republic weather conditions are not the best suitable for PV installations, installed capacity per citizen ratio is one of the highest in the world. Comparison of monthly average electricity generation, under normal conditions, was made between Czech Republic and Italy. Solar panels in Czech Republic generate only 62% of electricity compared to the same installed capacity in Italy.

(similar problem with too generous tariffs in e.g. Germany or Spain, German system was however much more flexible and they managed to react to a spur of PV in much less controversial way)

CENIA's Report on Renewables (2014):

Advantages of RES:

- contribute to the **reduction of pollutant emissions** and of greenhouse gases.
- they increase the country's **energy security and independence** on the international trade in energy commodities.

Disadvatages:

- considerable dependence on climatic, meteorological and geographical conditions,
- energy production may not be regulated according to the actual demand.

The production of electricity from renewable sources has experienced in the last decade a significant development (Chart 1) as a result of international and national strategies and targets, which have generated significant support for renewable sources.

In the year 2014, total of 9,170 GWh was produced from renewable sources, which represents after 6 years of significant growth for the first time a slight year-to-year decline (by 0.8%). This was caused by the decrease in the production in hydro power plants by 30.2% (due to extremely low level of water courses).

Also wind power recorded a slight decline in production (by 0.8%) also due to meteorological conditions (installed capacity increased by 3.0%).

The largest year-to-year jump in production occurred for the supported sources: for electricity production from **biomass** with a recorded increase of 19.2% and from **biogas** where the production increased by 11.9%.

Shares of RES [energy] in

- biogas (28.0%),
- photovoltaics (23.2%),
- biomass (21.9%).
- hydroelectric (20.8%)
- wind (5.2%) (naturally limited potential in CR)
- biodegradable fraction of municipal solid waste (waste category) 0.9%.

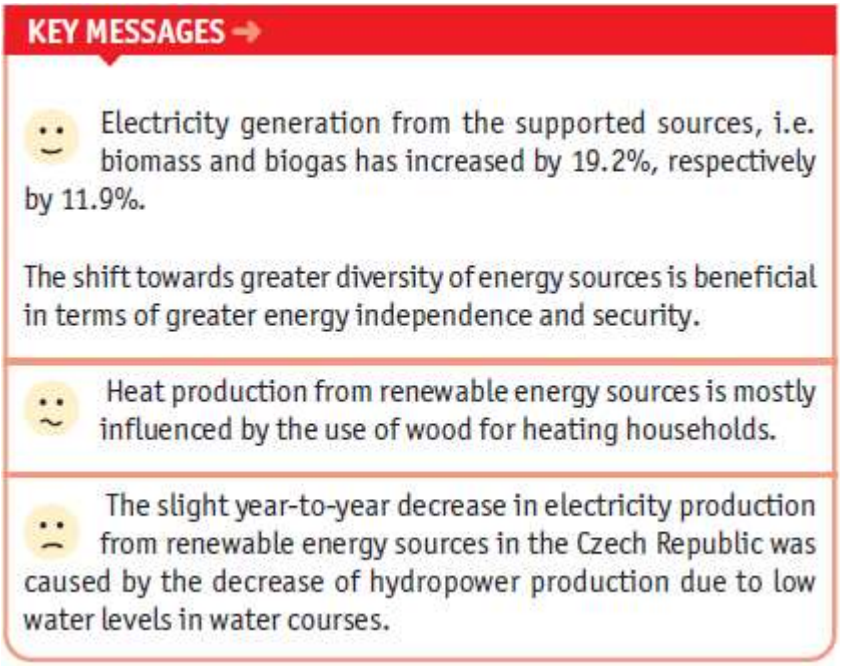
Relatively diverse structure of RES came about only in 2011, when RES received support; before, the largest share were the hydropower stations; other sources were minimal.

Shares of Renewables in heat production in 2014

- biomass (81.5%) (mostly wood; fuel consumption in households)
- 6.4% heat pumps,
- 6.0% biogas,
- 5.1% waste,
- solar thermal collectors 1.0%

CR has two indicative targets regarding electricity production from RES (Chart 3)

- the share of RES in gross final energy consumption of 13% by the year 2020 (it was 12.4% in 2013)
- to achieve the proportion of RES in electricity production over 15% (in 2014, this proportion was the same as in the previous year, 10.6%)



Czech President approves controversial solar tax

16. DECEMBER 2010 | JAROSLAV DORDA/SHAMSIAH ALI-OETTINGER

The Czech President Vaclav Klaus has approved a retroactive solar tax for solar power plants in the Czech Republic in spite of fears of possible arbitrages and protests by several members of European Photovoltaics Association (EPIA).

The new solar legislation will become fully effective from from January 2011. It will be a really bad Christmas present to majority of solar investors in the Czech Republic. In fact the original FIT revenues generated by the investors will be largely and retroactively reduced. The investors who commissioned plants with an installed capacity over 30 kilowatts-peak in 2009 and 2010 will have to pay a retroactive solar tax. It will vary from 26 percent (FIT for sold power to grid operators) to 28 percent (so-called Green Bonus payments for electricity produced and consumed in the consumption place) and will be valid for three years (2011 – 2013).

The Czech president was aware of the fact that the solar tax would put the Czech Republic into troubles and risks related to solar arbitrages and legal disputes against the country. Just two weeks ago Klaus expressed his doubts in terms of the solar taxation. He was also worried that

without the approval of the solar tax, the prices of electricity could be increased dramatically in 2011 for the final consumers.

For many Czech small and mid-sized investors it will have a detrimental effect on their solar investments. In many cases they will not be able to re-finance their loans. At the beginning of December 2010 (before Klaus ´s decision on the solar tax), members of the European Photovoltaics Industry Association (EPIA) protested against the solar tax to be introduced in the Czech Republic. EPIA has already refused the Czech Government's actions, stressing the retroactivity fundamentally changes the conditions guaranteed to the operators of solar power plants already on the grid in 2009 and 2010.

However, the letter of EPIA had no impact on Czech officials and politicians. The speaker of MPO (Ministry of Industry and Trade) responded to EPIA's letter claiming that they had to take such action in order to prevent electricity prices from rising next year, as a result of the solar boom. According to him, such legislative measures are in the public interest (protection against hook in the electricity prices) that has to be preferred (damaged solar investments).

Nevertheless, the reality is different as without any government intervention, the electricity prices would go up only by three to six percent, as a result of the solar boom. Based on the new price lists issued by the energy distribution companies E.ON and CEZ which have decreased the prices from 2011 so that the impact of PV is negligible (minor one). These companies have waged an intensive media campaign since February 2010 with a clear objective to scare the Czech public (deliberately to change their view) that prices will be increased by well over 20 percent only because of PV." By doing so, they have created a new "PV ghost" which is to blame for high prices of electricity.

It is strange that in 2006-2008 (where there were almost no PV plants in the country) the prices of electricity for households went up by 30%. Surprisingly nobody from Czech politicians or officials was looking for a solution for such dramatic price increase. Apparently it was "also" against the public interest but politicians were absolutely silent and neglected that. The reason is that it was in the interest of the state-owned utility CEZ – monopoly producer of electricity in the country.

Many investors hope the European Commission will soon intervene against such actions of the Czech government against photovoltaics. This is their last chance that Czech politicians will change their opinion. Without the EU intervention, Czech Republic will be facing the biggest amount of international arbitrages resulting in the loss of rating.

The odds are high that lawyers will be very successful in the arbitrages since the new solar tax legislation is not in keeping with both EU and Czech Republic's legislation. The oncoming „solar arbitrages" look like a „time bomb" which is ticking right now and is ready to explode at the beginning of 2011.The results of the arbitrages will impair the credibility of the Czech Republic (a

decrease of its rating and amount of foreign direct investments) in the near future. Well, it seems to be a bitter consequence of the Czech Republic's solar boom in recent years.

Government extends controversial solar tax

26-07-2013 21:30 | Jan Richter

The Czech government has extended the so-called solar tax, introduced in 2010 to balance high buying price of photovoltaic electricity. The 26-percent tax was to end at the end of the year; however, the government decided to extend it for years to come, lowering it to 10 percent. The decision has drawn criticism from owners of photovoltaic plants who say a series of government measures aimed at driving down the costs of solar electricity has greatly diminished the profitability of the industry.