



Forschungsstelle für Umweltpolitik (FFU)
– Environmental Policy Research Centre

Diffusion of the Spanish RES-E support scheme to the Czech Republic? Orientation on European best practise

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Outline:

- Starting position in the Czech Energy policy (Energy Balance, national/international targets and commitments)
- Former RES-E promotion measures
- chronology of the policy formulation process of the new Czech RES-E law
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- Provisions regarding the two pricing options (time limits for the selection of the financial support option, technical and economic parameters for the price calculation, etc.)
- level of tariffs and green bonuses
- Main differences to the Spanish RES-E promotion scheme
- Conclusions & outlook

Starting position in energy policy I

Tab. 1: Structure of the primary energy consumption in 2004 (BP 2005:38)

Energy source	%
Oil	21.3
Natural gas	18.0
Coal	45.9
Nuclear energy	13.5
Hydro	1.3
Total	100.0 (44.5 Mtoe)

Starting position in energy policy II

Electricity Balance 2005 [GWh]

	2005	2004	05/04
Total Gross Production	82 578,6	84 334,7	97,92%
of which: Combustible Fuels (excl. Gas)	52 137,2	52 810,9	98,72%
Gas and Gas Turbines	2 622,5	2 611,5	100,42%
Total Combustible	54 759,7	55 422,4	98,80%
Hydro	3 027,0	2 564,0	118,06%
Nuclear	24 727,8	26 324,6	93,93%
Wind	21,3	9,8	217,74%
Solar	0,0	0,0	0,00%
Geothermal	0,0	0,0	
Other	42,8	13,9	307,91%
Own Use by Power Plants	6 386,8	6 413,4	99,59%
Total Net Electricity Production	76 192,0	77 920,7	97,78%
Imports/Exports Balance	-12 634,0	-15 717,1	80,38%
Net Domestic Consumption	57 664,2	56 390,1	102,26%
Gross Domestic Consumption	69 944,8	68 617,8	101,93%

Data Source: Energy Regulatory Office

Starting position in energy policy III

Gross electricity production by RES in 2004 (MPO 2005: 6)

Typ of RES	2004 (GWh)	% of total RES-E production
Big hydro (without pumped storage)	1,115.9	40.3
Small hydro (< 10 MW)	903.5	32.5
Biomass	592.7	21.4
Biogas	138.8	5.0
Municipal waste (renewable)	10.0	0.4
Photovoltaic	0.1	0.4
Wind	9.9	0.0
Total	2,770.9	100.0
Share in gross electricity consumption	4.04%	-

Starting position in energy policy IV

Expected RES shares between 2005 – 2030 (MPO 2004)

	2005	2010	2015	2020	2025	2030
RES share in primary energy consumption (in %)	5.4	9.0	10.5	12.0	14.9	15.7
RES share in net electricity production (in %)	5.3	9.9	12.2	13.6	16.2	16.9
RES share in total heat production (in %)	17.9	29.0	30.2	33.3	44.3	46.8

**RES-E target for 2010 according to EU-Directive 2001/77/CE:
8% in gross electricity consumption**

Former RES-E promotion measures

1991: 1. CSSR-RES promotion scheme (purchase obligation for electricity and heat)

1991: „State Programme“ of MIT (annual promotion programme based on investment subsidies of 15-30%) administered by CEA

1992: State Environmental Fund (SEF): annual promotion programme based on investment subsidies and soft loans

2000: Energy-Management-Law 406/2000: fixing of a national promotion plan for RES and RUE (National Programme) (every 4 years, to be checked every 2 years)

2000: Energy Law 458/2000: priority grid access for RES-E producers, definition of RES, purchase obligation for RES-E on the part of the TGO

1/2002: REFIT system for RES-E (per decree)

8/2002: New social democratic government (CSSD, Spidla) (together with KDU and US): mention of an ETR and of a RES-E-Law in the coalition agreement

6/2003: Resolutions of Athens (closure of negotiations with the EU-Accession States => 8%-RES-E target for CZ in 2010)

Policy formulation process of the new Czech RES-E law

9/2003: first draft of the RES-E law (based on a quota model)

8/2004: second, completely revised draft of the RES-E law (maintenance of the REFIT system + fixing of a second remuneration option based on a mixture of market price and green bonuses → **similar to the Spanish RES-E promotion system**)

End of 3/2005: Adoption of the RES-E law by the Czech Parliament

1.8.2005: Coming into force of the new Czech RES-E law (Nr. 180/2005)

11 + 12/2005: Issue/release of the majority of the implementing regulations as laid down in the new RES-E law

First draft of the RES-E law (9/2003)

- from 2006 onwards: RES-E promotion based on a quota model together with TGC and REFITS for small applications
- REFITs for all installations < 200 kW and all PV plants
- all other RES-E producers will obtain TGC for their green electricity
- from 2006 onwards all utilities must reach a certain RES-E quota
- minimum prices for TGCs according to each RES-E technology
- Level of quota & minimum prices of TGCs will be fixed by the Energy Regulatory Office (ERU)
- guaranteed 15 years return of investments (more or less at the same level as the former REFITs)

Second draft of the RES-E law (8/2004)

Target: Achievement of the 8%-RES-E goal for 2010 & promotion of RES-heat

Choice between technology differentiated REFITs with a guaranteed 15 year pay back period of investments and a mixture of (wholesale) market price together with technology differentiated green bonuses (similar to the Spanish model)

Concerning biomass: usage of energy crops mainly for co-combustion in coal fired power plants and use of „classical“ biomass (i.e. wood/wood rests, straw, etc.) for usual biomass plants.

Aim: Division of the two markets

Main provisions at a glance I

- Setting of a concrete target: create conditions for the fulfilment of the 8% RES-E target in 2010, and for further increase of this share after 2010.
- clear definition of RES: „renewable non-fossil natural energy sources, i.e. wind energy, solar energy, geothermal energy, water energy, soil energy, energy of the air, biomass energy, landfill gas energy, energy of sewage treatment plant gas and energy of biogases.” + pit gas
- electricity from wind power plants located over an area of 1 km² with a total installed capacity exceeding 20 MW are excluded
- types and methods of use of the biomass included in the law will be laid down in an implementing regulation
- Preferential connection of RES-E plants to the power grid by TSO or (regional) DSOs

Main provisions at a glance II

- right of choice of the RES-E producers between a technology differentiated REFIT guaranteed for a period of 15 years (from the year of putting the plant into operation) or a technology differentiated green bonus (including the possibility to change between the two option once per year)
- For biomass co-firing the promotion shall be provided only by means of green bonuses
- For RES-E plants put into operation before the coming into force of the RES-E act, the REFITs of 2005 will apply (also for a period of 15 years of operation)
- maximum annual degression of REFITs and green bonuses for new RES-E plants of 5% (for the first time possible in 2008)
- progress reports (with regard of the achievement of the 8% RES-E target for 2010) annually by September 30

Provisions regarding the two pricing options I

- Public Notice 475/2005 (of 30th of November):
 - ⇒ Set certain time limits and other details for the selection of the financial support option as well as the technical and economic parameters for the price calculation
 - 1) RES-E producers for the year 2006 had to notify to the TSO or the relevant DSO until 31 of December 2005 their choice of remuneration (REFIT or green bonuses). For RES-E plants commissioned after 31 of December 2005, the RES-E producer have to notify its choice not later than 1 month prior to the planned start of generation
 - 2) Change of remuneration option (possible always at the beginning of a new calendar year): The RES-E producer must notify it to the TSO or relevant DSO not later than by 30 November of the calendar year preceding the year in which the change is to take place → **very short time period!!**

Provisions regarding the two pricing options II

- 3) Notification of the expected yearly quantity of RES-E to be generated in the following calendar year (to the TSO or DSO): 31 of August of the present calendar year. In case of new RES-E plants: at least 4 months prior to the planned commissioning of the plant.
- Appendix 3 of Public Notice 475/2005 (indicative values of technical and economic parameters for the price calculations) → for all RES-E technologies relatively ambitious parameters were set
 - 2 examples:
 - Wind plant: expected annual average wind speed of at least 6 m/s at the height of the axis of the rotor, minimum of 1800 hours of operation per year and maximum unit capital expenditure of 36,500 CZK (~1,290 €)/kW_{el}
 - PV plant: expected electricity production of at least 150 kWh/m² of installed PV surface, minimum annual utilisation of installed peak capacity of 980 kWh/kW_p

Level of tariffs and green bonuses I

Feed-in prices and prices of the Green Bonus
for Electricity from Renewable Energy Sources for 2006 (ERU 2005: 2 et sqq.)

RES	Specification	Purchase Price ²⁾ for electricity delivered to the grid in CZK/MWh	Green bonuses in CZK/MWh
Small Hydro Power Plants (installed output up to 10 MW)	commissioned after 2006/01/01 (incl), on new locations	2,340 (~ 82.72 €/MWh)	1,430 (~ 50.55 €/MWh)
	commissioned after 2005/01/01, incl. and reconstructed small hydro power plants	2,130 (~ 75.29 €/MWh)	1,220 (~ 43.13 €/MWh)
	commissioned before 2005/01/01	1,660 (~ 58.68 €/MWh)	750 (~ 26.51 €/MWh)
Small Hydro Power Plants - two tariff bands	commissioned after 2006/01/01 (incl), on new locations	high tariff band: 3800 (~ 134.33 €/MWh) low tariff band: 1610 (~ 56.91 €/MWh)	-
	commissioned after 2005/01/01, incl. and reconstructed small hydro power plants	high tariff band: 3470 (~ 122.66 €/MWh) low tariff band: 1460 (~ 51.61 €/MWh)	-
	commissioned before 2005/01/01	high tariff band: 2700 (~ 95.44 €/MWh) low tariff band: 1140 (~ 40.30 €/MWh)	-
Biomass	combustion of white biomass category O1, installation commissioned after 2006/01/01	2,930 (~ 103.58 €/MWh)	1,960 (~ 69.29 €/MWh)
	combustion of white biomass category O2, commissioned after 2006/01/01	2,600 (~ 91.91 €/MWh)	1,630 (~ 57.62 €/MWh)
	combustion of white biomass category O3, commissioned before 2006/01/01	2,290 (~ 80.95 €/MWh)	1,320 (~ 46.66 €/MWh)

Level of tariffs and green bonuses II

	combustion of white biomass category O1, installation commissioned before 2006/01/01	2,930 (~ 103.57 €/MWh)	1,960 (~69.29 €/MWh)
	combustion of white biomass category O2, commissioned before 2006/01/01	2,600 (~ 91.91 €/MWh)	1,630 (~ 57.62 €/MWh)
	combustion of white biomass category O3, commissioned before 2006/01/01	2,290 (~ 80.95 €/MWh)	1,320 (~ 46.66 €/MWh)
	co-firing of a mixture of biomass category S1 and fossil fuels	-	1,180 (~ 41.71 €/MWh)
	co-firing of a mixture of biomass category S2 and fossil fuels	-	850 (~ 30.05 €/MWh)
	co-firing of a mixture of biomass category S3 and fossil fuels	-	540 (~ 19.09 €/MWh)
	parallel ¹⁾ combustion of biomass of category P1 and fossil fuels	-	1,430 (~ 50.55 €/MWh)
	parallel combustion of biomass of category P2 and fossil fuels	-	1,100 (~ 38.88 €/MWh)
	parallel combustion of biomass of category P3 and fossil fuels	-	790 (~ 27.93 €/MWh)
Landfill gas, sewage gas	commissioned after 2006/01/01	2,230 (~ 78.83 €/MWh)	1,260 (~ 44.54 €/MWh)
Biogas, at biogas plants	commissioned after 2006/01/01	2,980 (~ 105.34 €/MWh)	2,010 (~ 71.05 €/MWh)
Coal Mine Gas from closed mines		2,230 (~ 78.83 €/MWh)	1,260 (~ 44.54 €/MWh)

Level of tariffs and green bonuses III

Biogas	commissioned between 2004/01/01 and 2005/12/31	2,520 (~ 89.08 €/MWh)	1,550 (~ 54.79 €/MWh)
	commissioned before 2004/01/01	2,620 (~ 92.61 €/MWh)	1,650 (~ 58.33 €/MWh)
Wind Power	commissioned after 2006/01/01	2,460 (~ 86.96 €/MWh)	2,020 (~ 71.41 €/MWh)
	commissioned between 2005/01/01 and 2005/12/31	2,700 (~ 95.44 €/MWh)	2,260 (~ 79.89 €/MWh)
	commissioned between 2004/01/01 and 2004/12/31	2,830 (~ 100.04 €/MWh)	2,390 (~ 84.49 €/MWh)
	commissioned before 2004/01/01	3,140 (~ 111.00 €/MWh)	2,700 (~ 95.44 €/MWh)
Geothermal Energy	commissioned after 2006/01/01	4,500 (~ 159.08 €/MWh)	3,640 (~ 128.67 €/MWh)
	commissioned before 2006/01/01	3,640 (~ 128.67 €/MWh)	2,780 (~ 98.27 €/MWh)
Solar Energy	commissioned after 2006/01/01	13,200 (~ 466.62 €/MWh)	12,590 (~ 445.06 €/MWh)
	commissioned before 2006/01/01	6,280 (~ 222.00 €/MWh)	5,670 (~ 200.43 €/MWh)
1) combustion in separate boilers 2) According to item 1.10 of the price decision, purchase prices of installations put into operation after January 1, 2006 - with exception of biomass - in 2007 will not be lower than in 2006.			Exchange rate as of 05/06/05: 1 CZK = 0.03535 €

Main differences to the Spanish RES-E promotion scheme

- No (percentage) coupling of the RES-E prices with the yearly average electricity tariff (AET)
- No obligation of RES-E generation forecasts for intermittent RES-E sources (small hydro, solar, wind) within the fixed tariff option (for all other RES-E technologies, REFITs will be lowered by 20% in case of a deviation of the real RES-E production (for each day of the calendar month) more than 10% higher or more than 15% lower as the former production forecasts)
- Biomass co-firing included in the RES-E law (but only green bonuses apply) (in Spain biomass co-firing will be included during 2006)
- 15-year guarantee of remuneration with stable prices for existing plants (Spain: (plant) life long remuneration with stepped depression on the one side, annually increasing AET on the other side)

Conclusions & outlook I

- ➔ Principal (design) element (choice option between REFITs and mix of market price + green bonuses) is the same in the Czech and the Spanish RES-E promotion schemes (the only 2 countries in the EU-25 with such an promotion approach), but ...
- ➔ each system also has its own particularities, and ...
- ➔ there have been no direct contacts between the responsible Spanish and Czech institutions (energy regulatory offices, ministries, etc.) regarding the formulation of the new Czech RES-E scheme, even though the Czech side (mainly ERU) was well informed about the success and effectiveness of the Spanish system (at least concerning wind power), therefore ...
- ➔ it was **not** a kind of **direct diffusion or transfer of policy**, *but rather an orientation on European best practise*

Conclusions & outlook II

- It remains to be seen if a sustained **use of biomass** as the main RES source in the Czech Republic will start now (mainly because of competing possibilities of usage (for electricity, heat or transport purposes), even though a first step to stimulate the different uses of biomass was done with the new RES-E act (application of green bonuses as the only remuneration option for biomass co-firing as to divide the markets for small decentralized biomass plants and large sources for co-firing).

- wind energy: Despite attractive level of remuneration (~ 8.7 €/ct/kWh in the case of REFITs), the main obstacle remains: best sites are located in protected (Natura 2000, etc.) or relative densely populated areas (NIMBY effect)

- Even the coming into force of the RES-E act is a big step for a higher use of RES in the Czech Republic, the main restriction remain: market power of the dominant player (CEZ), over capacities and relatively cheap domestic coal resources.

Thank you very much for your attention!

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