

Discussion Seminar

ENERGY POLICY - GOVERNANCE AND INNOVATION

RES - opened questions of economic support

Jaroslav Knápek

*CTU in Prague, Faculty of Electrical Engineering
Dept. of Economics, Management and Humanities*

Oct. 7, 2013



Content

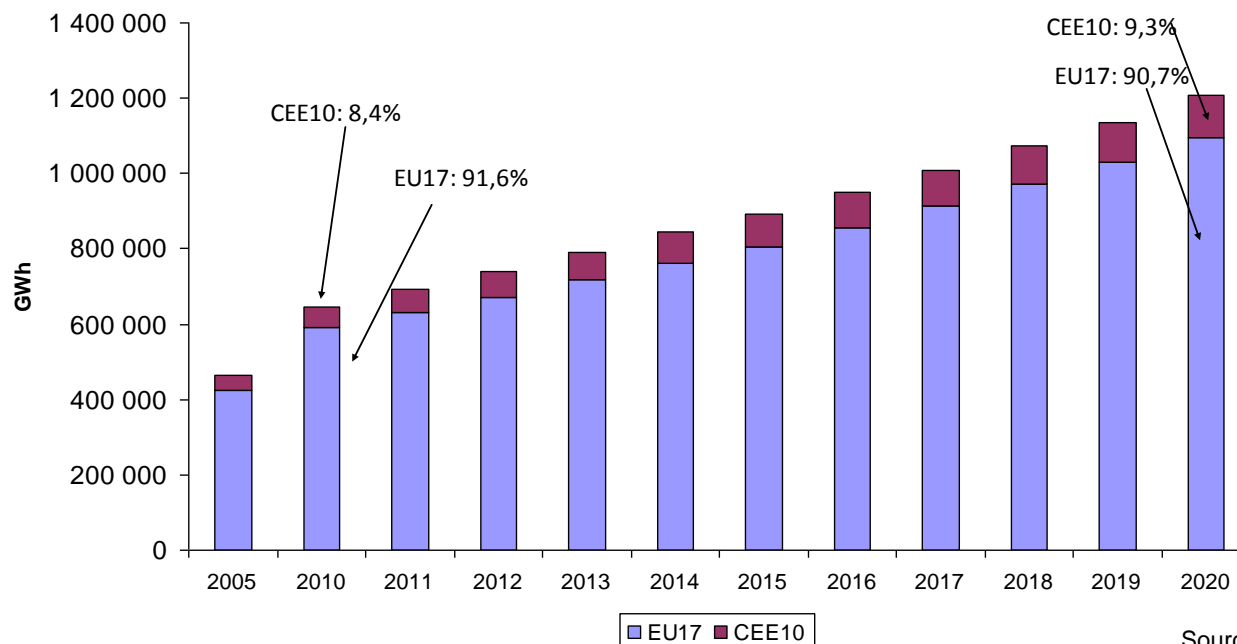
1. RES goals to 2020
2. RES-E support schemes – the logic and their variations
3. Underestimated impact of RES-E development
4. Current situation with RES-E project
5. RES-E project and power market integration
6. Threat and opportunities

RES: EU goals to 2020

EU Directive 2009/28/EC – 20% RES share on gross final energy consumption

National Renewable Action Plans / NREAPs to 2020

RES – E projection



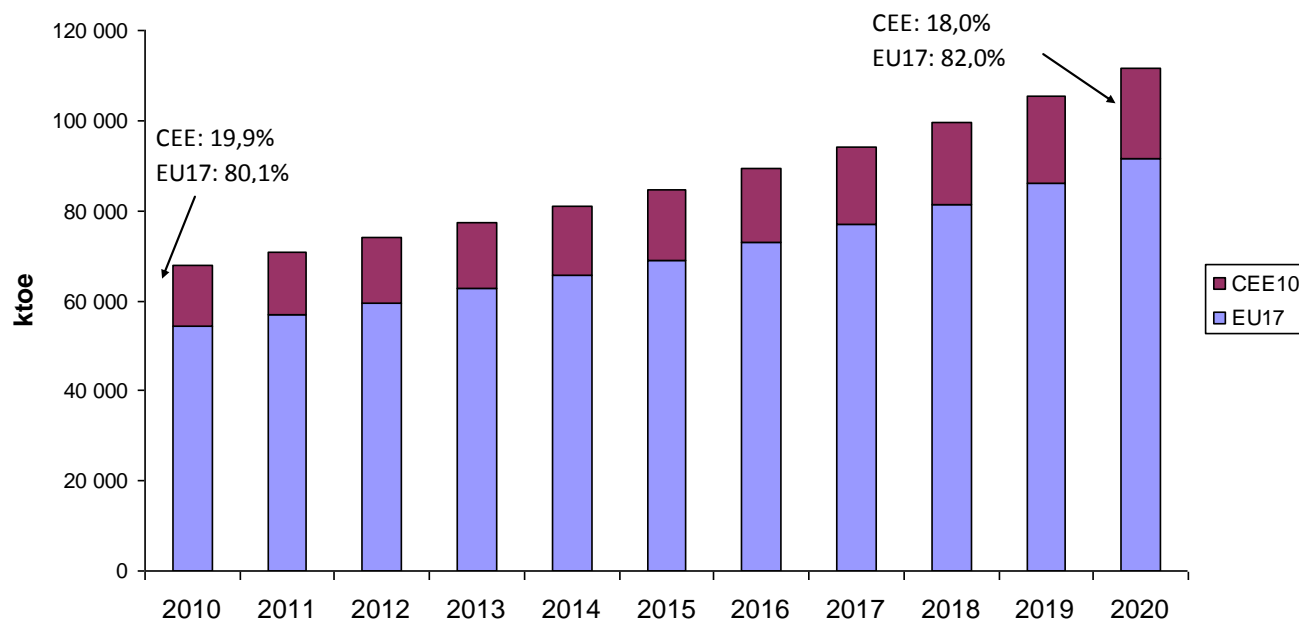
CEE10: 2010 to 2020 growth: 109%, **EU17:** 2010 to 2020 growth: 85%

CEE10: „new“ Central and Eastern EU member states

RES: EU goals to 2020 (2)

National Renewable Action Plans / NREAPs to 2020

RES for heating and cooling projection

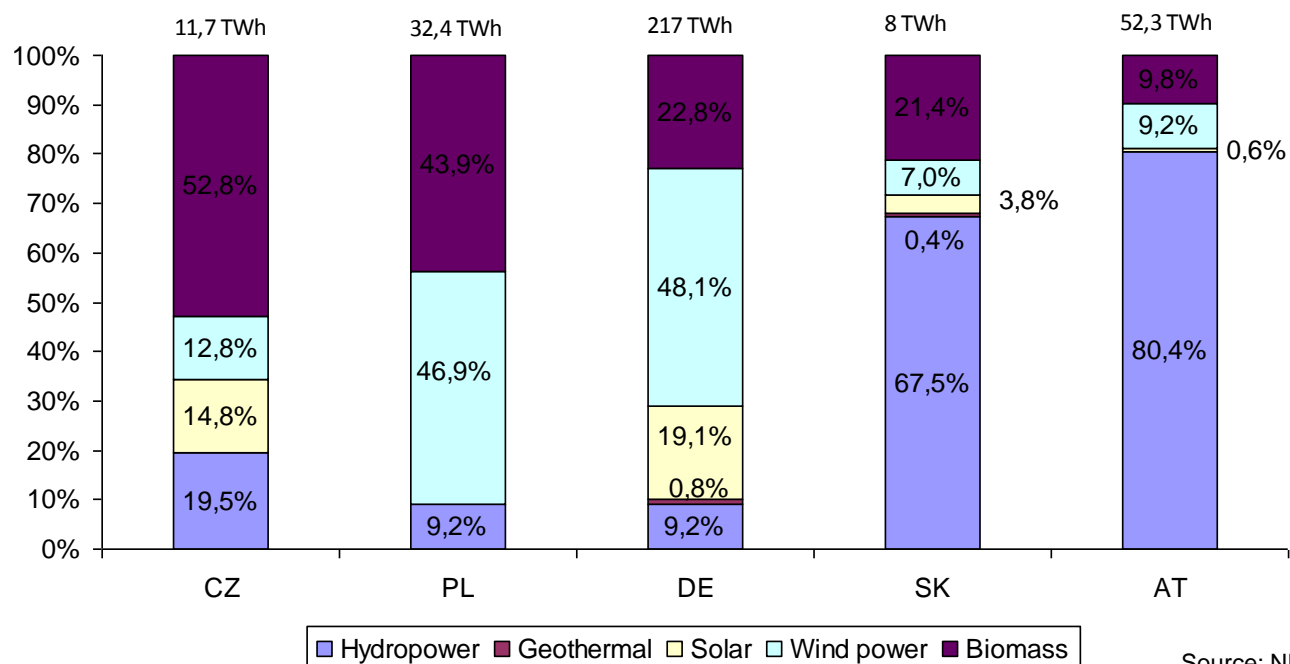


Source: NREAPs

CEE10: 2010 to 2020 growth: 48%, EU17: 2010 to 2020 growth: 68%

RES: EU goals to 2020 (3)

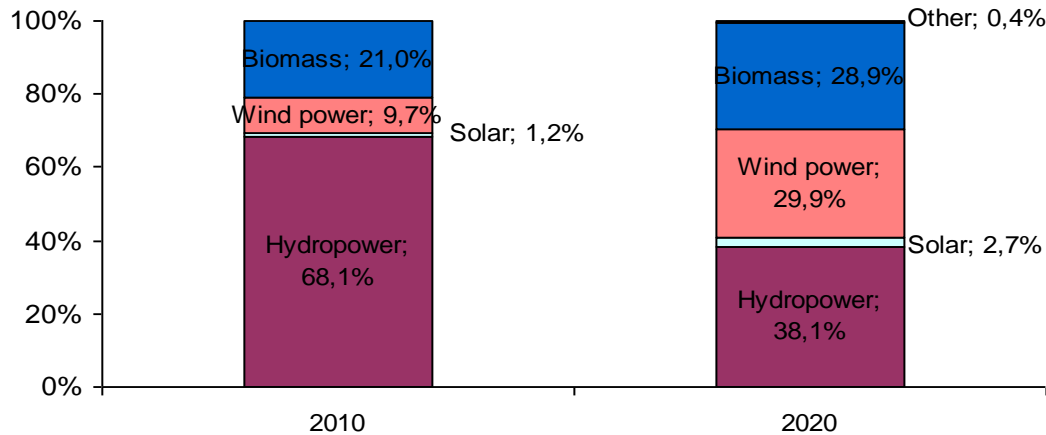
Great differences in the structure of expected RES-E generation in 2020



Source: NREAPs

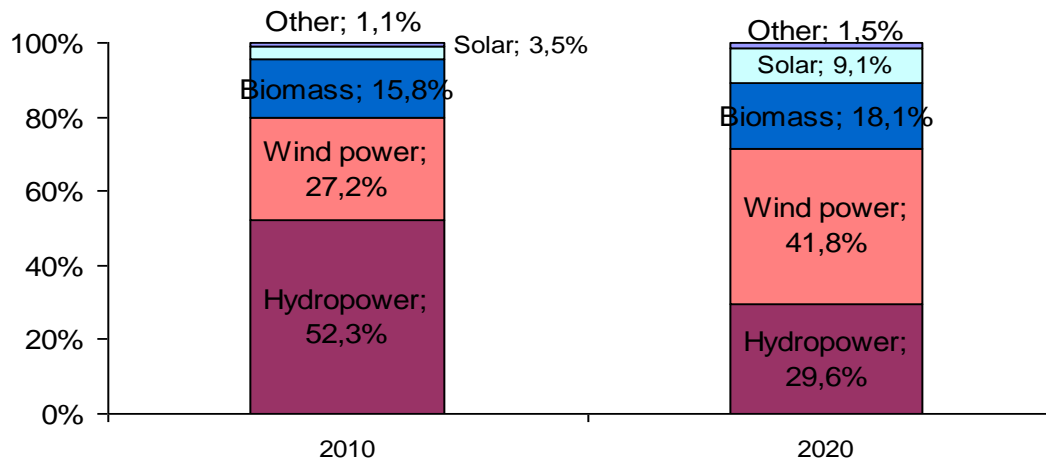
RES: EU goals to 2020 (4)

Structure of Gross Renewable Power Generation in CEE10



CEE10: depend more on biomass

Source: NREAPs Structure of Gross Renewable Power Generation in EU17



EU17: depend more on PV and wind

RES: EU goals to 2020 (5)

RES-E according to NREAPs to 2020 (2010 base)

- RES-E generation growth:
 - EU(27): +87% (total: 1 208 TWh in 2020)
 - CZ: +130% (2012 revision: 102%)
 - AT: +15.4 %

•Note: CZ is reducing its estimated final energy consumption

RES for heating and cooling according to NREAPs to 2020 (2010 base)

- RES for heating and cooling growth
 - EU(27): +64.4 % (total: 112 Mtoe in 2020)
 - CZ: +47 % (2012 revision: 35,5%)
 - AT: +14.3 %

2020 Goals: EU (20,6%), CZ (13.5%, revised in 2012: 14%), AT (34.2%)

Support schemes for RES-E projects

RES are not (economically) usually competitive under the current market conditions

- Creation of conditions for RES (RES-E) to reach EU and national goals RES-E generation growth is needed:
 - stability, transparency, economic motivation
 - harmonization of support schemes (if yes what kind of harmonization ?)

Support of RES-E projects:

- wide range of instruments for support (aimed at supply side) – feed-in tariff, feed-in premium, quotas, tradable green certificates, tax holidays, tenders, investment subsidies, etc. and their combination
- ***However there are great variations in RES support schemes even with the same instrument, no one country is similar to another!***

Variations of support schemes

Feed-in tariff (FIT – „guaranteed selling price“ for given period, value derived from the cost of technology) differ by

- guaranteed period, existence or **non** existence of cap for individual technologies and RES
- differentiation by installed capacity (**or not**), fuel input (**or not**), etc.
- FIT are reduced in case of investment subsidy (**or not**), limit of FIT reduction for new RES power plant (**or not**)
- FIT sometimes combined with tenders, inflation update (**or not**), etc.

Similar variations can be found in case of other instruments of support !

Each country uses its own methodology

We can found different things even under the same name !

Variations of support schemes (2)

RES-E support distribution cost:

Sources of financing

- total support cost transferred to the electricity customers
- only part support cost transferred to the customers, rest covered from state (EU - SF) budget
 - limit for fee or limit for state financing

Cost distribution

- according to electricity consumption (no consumers differentiation, flat fee)
- according to voltage level and amount of electricity consumed
 - exemptions for selected consumers
 - energy intensive industries (under the global competition)
 - low income households

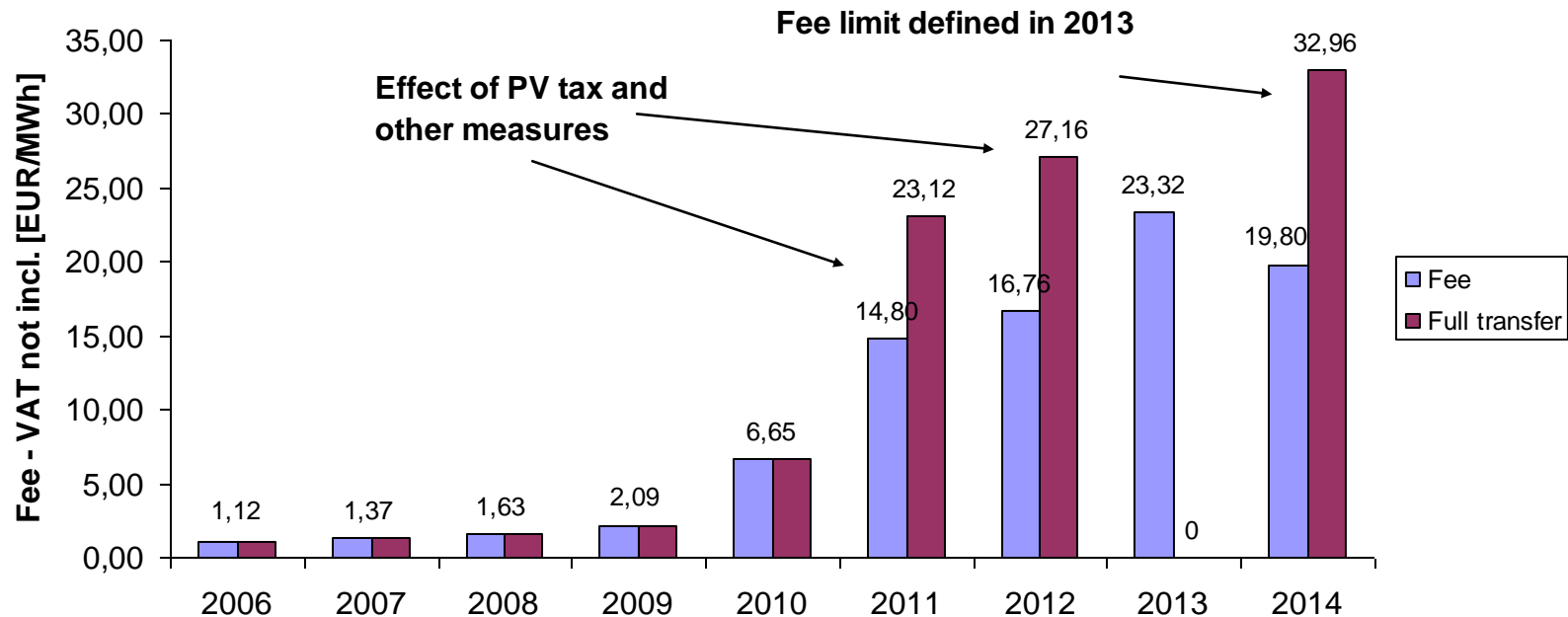
Underestimated impact of RES-E development

RES boom accompanied with boom of support cost in recent years create pressure to RES development financing:

- changes of RES-E support legislation
 - stop of support of new RES-E projects
 - or limits for financing
- retroactive changes applied in some cases
- transfer of RES-E support cost causes troubles with competition for many companies
 - differentiated impacts to companies in different countries as the result of different policies and (even) different economic power of EU MS (e.g. Germany and Czech Rep. case)
 - problems with transfer of increasing RES fee to households

Underestimated impact of RES-E development – CZ case

Development of RES fee in Czech Rep.

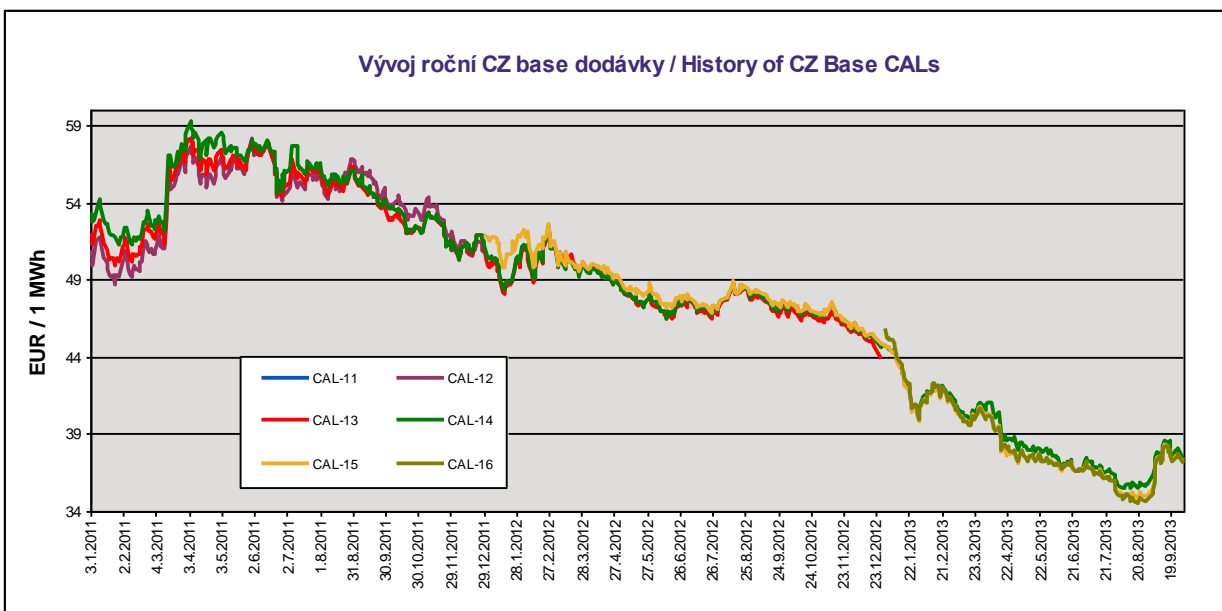


RES fee becomes one of the highest in EU !

Current situation

Already defined (binding) RES goals to 2020:

- additional pressure to financing
- market prices of electricity are going down (or stagnate) and are expected to remain the short perspective (the same with emission allowances)
- creates other pressure for RES-E financing (support basically has to cover difference between market and RES-E price derived from project cost)



Source“ PXE

Current situation (2)

- Intermittent RES-E PP already reached in several MS “technical” absorption level in short run (e.g. CZ and PV problem in 2010)
- Market coupling of short term power market (e.g. CZ+SK+HU)
 - but part of cross border capacity should be reserved for e.g. “loop flows” which significantly reduces effectiveness of market
- Quick RES-E market penetration is not accompanied with infrastructure development (e.g. case of loop flows DE-PL-CZ-DE(AT))
- Short run marginal cost (SRMC) of power from RES-E PP (PV, Hydro, Wind) are close to zero
 - significant impact on wholesale electricity prices which results in reduction of load factor of currently existing
 - investors into classical sources are postponing their investment decisions – threat to the future

Current situation (3)

Necessity to keep the economic impacts in setting the RES policy

- **cost effective RES options**
- e.g. Czech Republic is currently abandoning the original support scheme and is preparing new scheme based on:
 - RES kind and RES technology neutrality
 - low carbon technologies
 - based on preference of investment support (better control of extra cost)

Electricity market versus fragmented support schemes on MS levels

Diverging national schemes:

- may create barriers to entry
- increase transaction cost
- potentially lead to the economic non-effective solution on EU level
 - but can possibly better reflect conditions on MS level

Integrated electricity market (which is declared as the EU priority) needs:

- clear, transparent, stable and effective RES support schemes including better linkage of RES power producers to power market and inventiveness to respects grid needs in the design and operation of power plants (PP) - e.g. storage facilities, flexible generation, etc.
- reduction of uncertainty with the carbon price (incl. better coordination between EU ETS and RES support)

Threats and opportunities

- Coexistence of RES and conventional PP – long term, stable and transparent conditions should be the priority
- RES development includes RES power, RES heat, biofuels for transport
 - balance and cost effective portfolio is needed
- Cooperation in grid issues
- Non coordinated (and non harmonized RES development) **may lead to the fragmentation of internal market**
- **Setting the goals for period beyond 2020**
- Increase of cost effectiveness (power market + RES sup.) is crucial aspect of:
 - RES acceptance by the public
 - competitiveness of companies



Děkuji za pozornost!

*Thanks for the
attention !*