Renewable energy support schemes – for environment and/or for investors?

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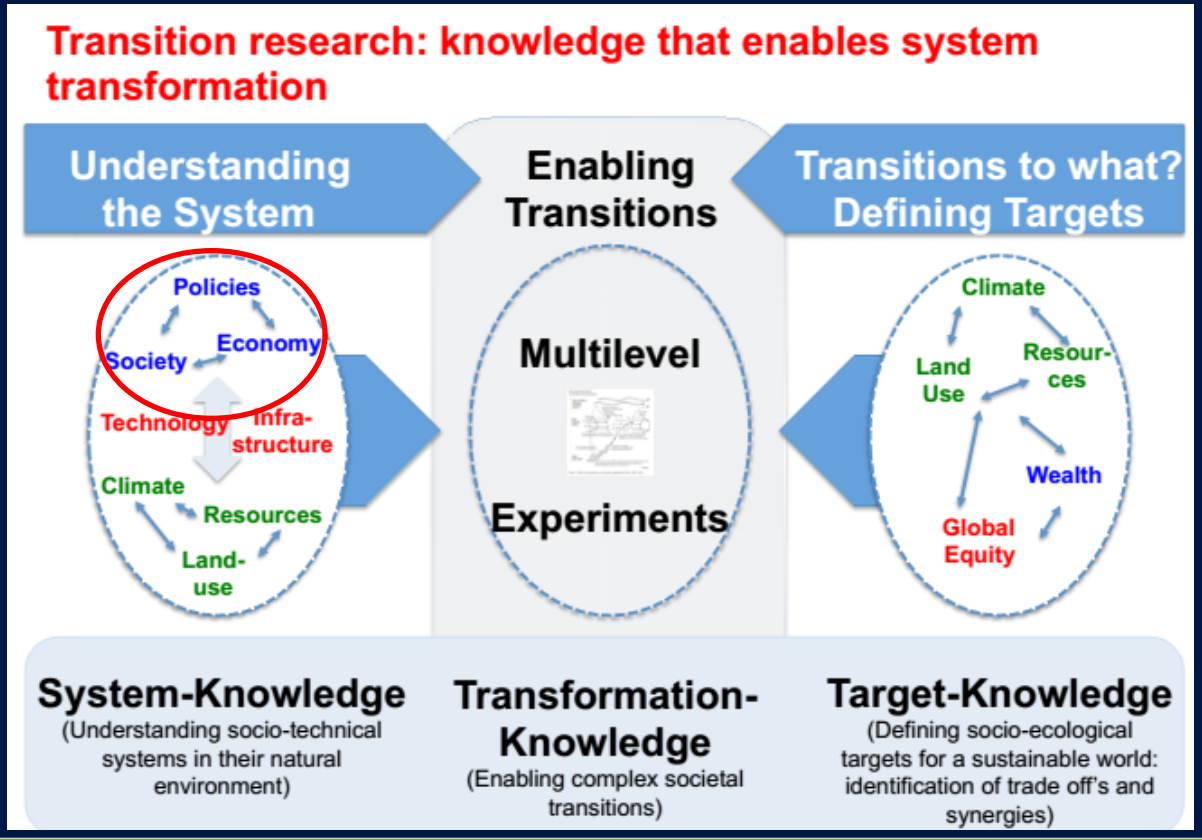
REGIONAL ENVIRONMENTAL CENTER



Source: Ortiz, W. presentation in Pécs, 27.03.2015.

Why RES are facilitated (besides economic interests?!)

EU 2030 (23.10.2014.)

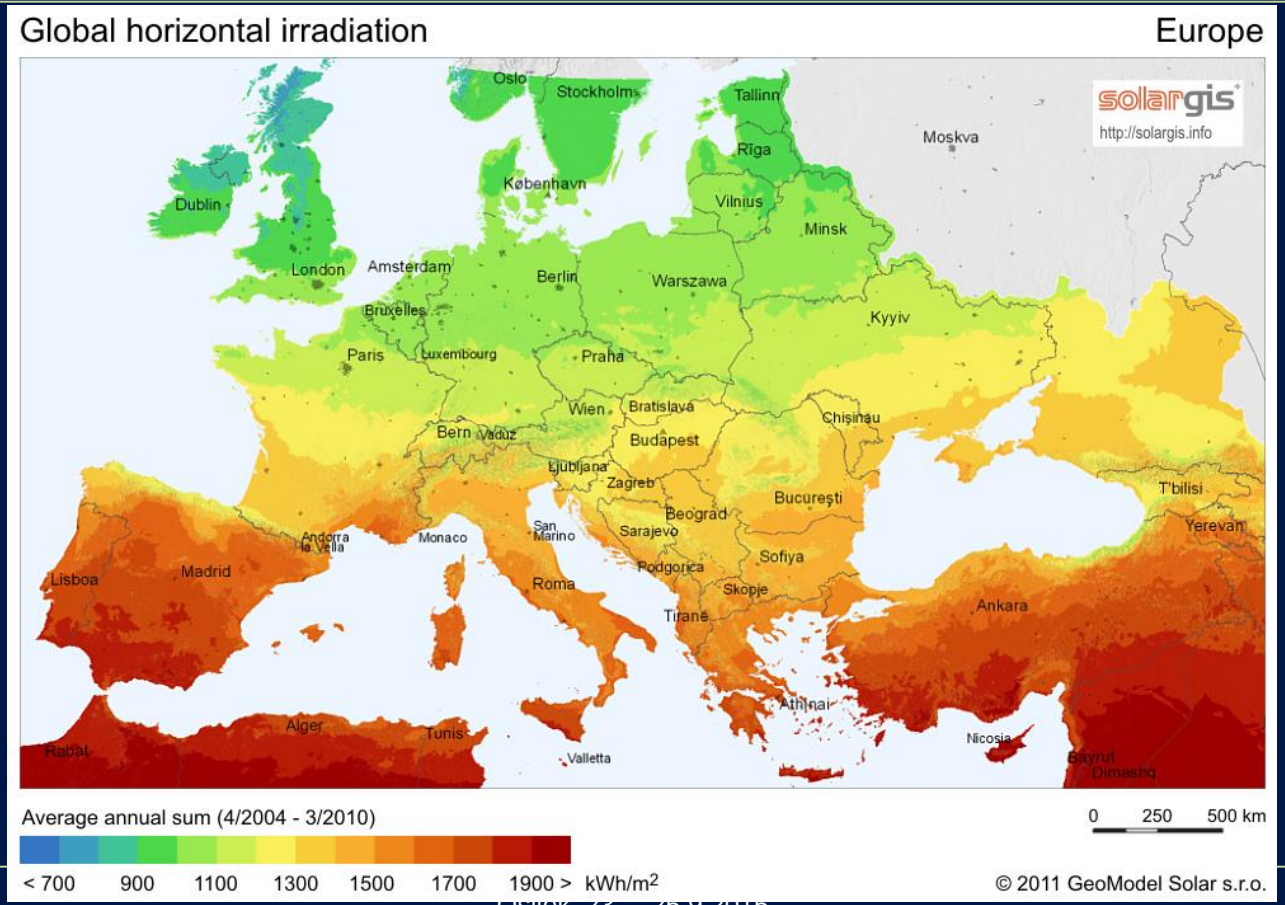
- 40% of CO2 reduction
- 27% of renewable energy
- 27% of energy saving

Roadmap 2050

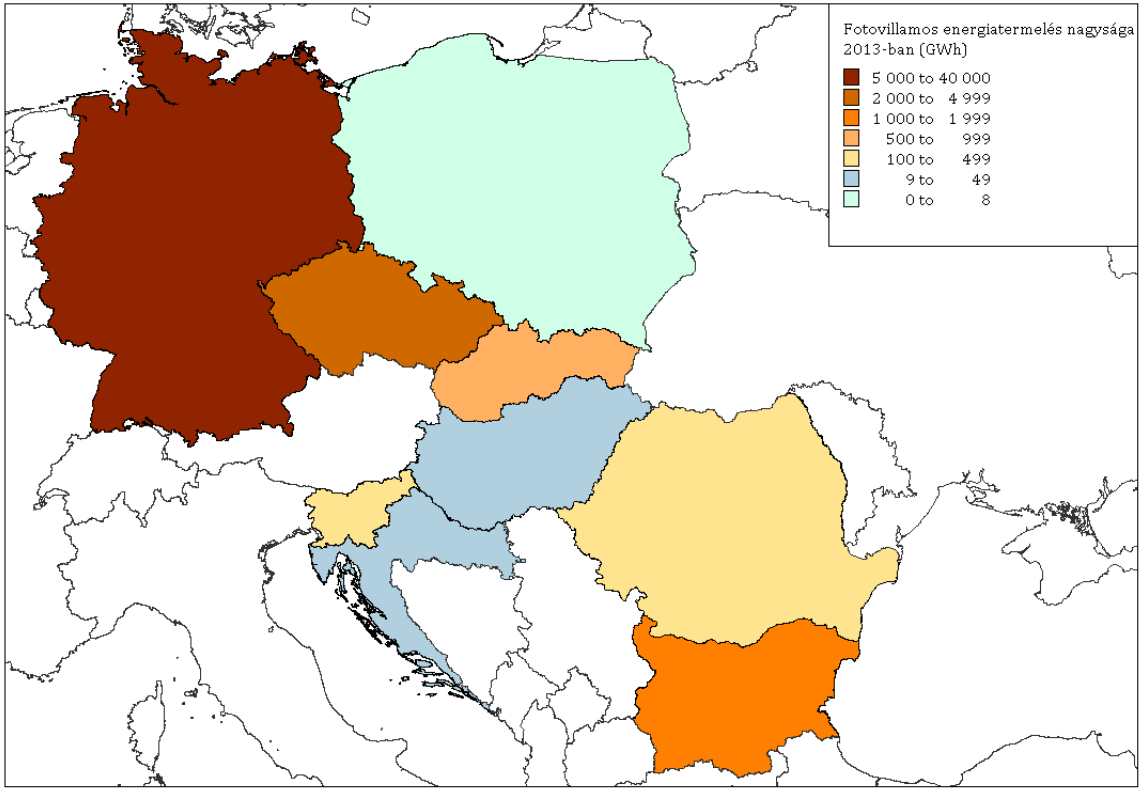
- 80% of CO2 reduction (2040 60%)
- 30% less energy in 2050 than in 2005
- „More locally produced energy would be used, mostly from renewable sources"

Green Economy → New challenge (*US Bureau of Labor Statistics since 2011)*

New Climate Economy: „…to analyse and communicate the economic benefits and costs of acting on climate change"

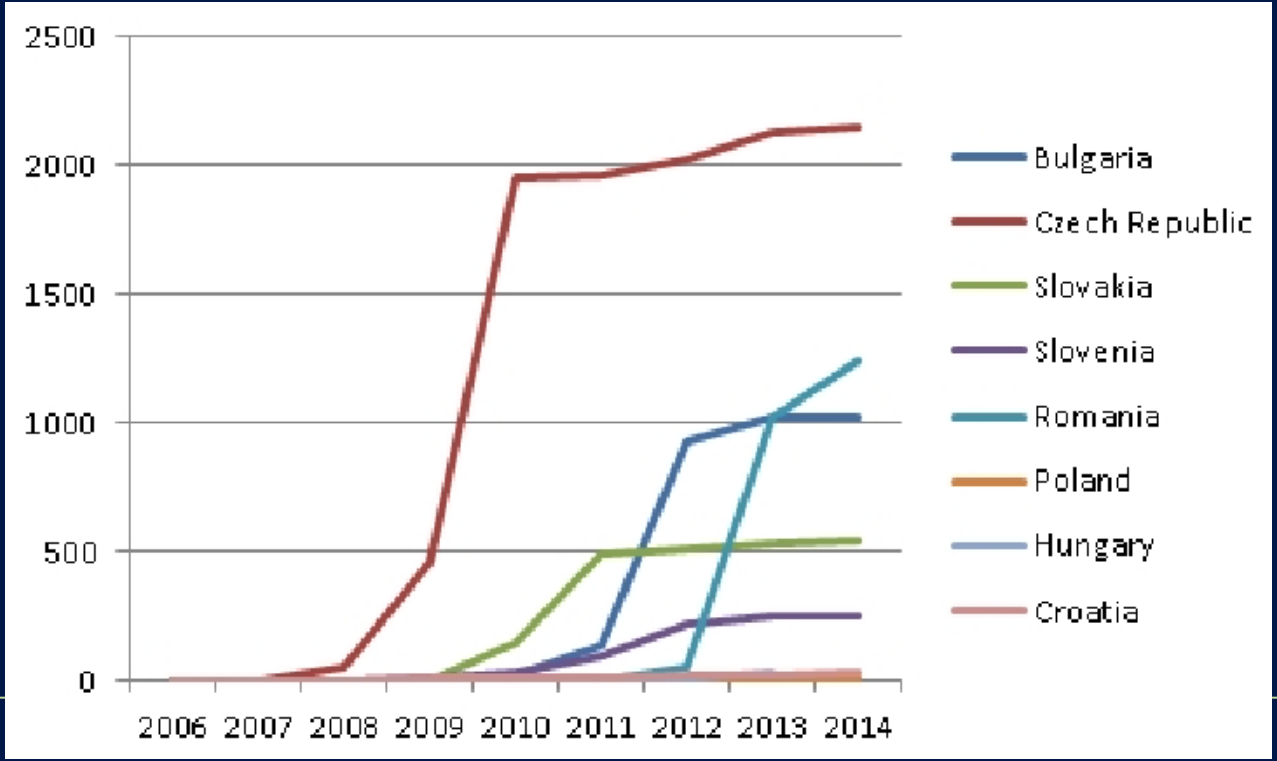

Global horizontal irradiation
Europe
solargis
http://solargis.info
Oslo
Stockholm
Tallinn
Moskva
Rīga
København
Dublin
Vilnius
Minsk
London
Amsterdam
Berlin
Warszawa
Bruxelles
Kyyiv
Paris
Luxembourg
Praha
Wien
Bratislava
Chişinau
Bern
Vaduz
Budapest
Ljubljana
Zagreb
T'bilisi
București
Beograd
Yerevan
Andorra la Vella
Monaco
San Marino
Sarajevo
Sofiya
Lisboa
Madrid
Podgorica
Roma
Skopje
Ankara
Tirane
Athinai
Alger
Tunis
Nicosia
Rabat
Valletta
Beyrut
Dimashq
Average annual sum (4/2004 - 3/2010)
0 250 500 km
< 700 900 1100 1300 1500 1700 1900 > kWh/m2
© 2011 GeoModel Solar s.r.o.

PV energy production in some CEEC in 2013 (GWh).



Source: Photovoltaic energy barometer 2013 – EurObserv'ER, http://www.eurobserv-er.org/downloads.asp és http://photon.info adatok alapján saját szerkesztés

Cumulative PV capacity deployment in some CEEC between 2006 and 2013 (MWp).



Source: Dusonchet, L.– Telaretti, E. (2010); Photovoltaic energy barometer 2007, 2009, 2010, 2011, 2012, 2013 – EurObserv'ER, valamint http://photon.info adatok alapján saját szerkesztés

From societal/governmental part – reaction to policy

- In order to achieve renewable goals governments started to support green electricity that caused huge boom in installed capacity in some central European countries.

How they can facilitate?

- Support of investments
- Green certificates
- Feed-in-tariff
- Premium prices
- Tendering
- Cut taxes

Bulgaria:

- First PV investments only for demonstration in 2006
- In 2009, Bulgaria introduced guaranteed feed-in-tariff for 25 years for renewables (price are revised in every years)
- Supported credit constructions
- Until 2012 boom in investments → Bulgarian government cut subsidies; introduce hugh network connection fee; introduced profit tax for renewables

Czech Republic

- Until 2008 there was not significant increase in RES and PV investments
- Extreme boom of PV afterwards; due to a hard political and economical supporting (distributor is compalsory to purchase green electricity in a fix price determined for 15+5 (Sivek, M. et al. 2012).
- + Energy Regulator Office recalculate price in every year, however the cut of the fix price **cannot be more than 5%** in each year!
- + Tax allowance; investment support; low credit interest rate

- BOOM → At the end of 2010, 26% profit tax was introduced for power plant above 30kWp; for previously built plant too –> Increas in household electricity price + deficit in trust of investment.

Slovakia

- Late development in renewables too.
  Government undertook obligations for: PV electricity purchased is guaranteed for 15 years (feed-in premium) → high amount at the beginning, than 33% decrease in 2010, than more cut in 2012 (half of the acount of 2009)

Slovenia

- Ambitious goals: 9%→25%
- PV power plants have priority in grid connection → Since May, 2009 caused PV installation save and profitable investment
- Feed-in-tariff had a fix and a flexible part. Fixed was guaranteed for 5 years, flexible part for one year.
- In 2012, due to the feed-in-tariff, returning of investment was 12-13 years; counting with 50% rate of investment subsidy, returning was 6-8 years
- Under 5 MWp capacity there is option to chose between fix or premium tariff; above 5 MWp premium was available.
- From 2009, PV investments growth with the rate of 400% in every year.

→ Boom resulted in financial problems in supporting policy. Not only in PV but biogas as well.

→ Due to the financial problems, there were several revision of supporting policy in 2011, 2012. From 2012 there is a tariff revision in every month. Slovenian government tried to push investments from power plant to household investment.

Romania

- In 2012, concerning to Ernst & Young (2012) analysis Romania is ‚paradise' on the map of renewable energy investment
- In 2009 renewable inbuilt capacity was 12 MWp, there was an acceleration from 2010. By 2013, in built capacity was 2880 MWp (within it PV increase was 1100 MWp. (By the end of 2013, 1150 MWp PV)
- Reasons: supportive development policy; huge wind power potential; relatively major PV and biomass potential.

Results → Increase of electricity price → government will decrease the subsidy of green electricity from 2017 + more strict regulation in investment

Poland

- Slow increasing: Lack of efficient supportive system; negative attitude of the government (towards renewables)
- Supporting system does not make difference between types (resources) and size → it does not really help PVs within renewable plants.

→ From 2017, Poland will introduce feed-in-tarif, instead of green-certificate, because, concerning the government it is much cheaper, and it is much easier to threat. (They would like to combine it with auction allocation).

Hungary (2002) vs. Croatia (2007)

HU+HR → Main element in supportive policy in feed-in-tarif.

In both countries, tarif is finally financed by the consumer.

2010-11-12 HU, HR → support of renewables falled back (HR: prices dicreased; HU: joint thermic support was cancelled)

PV (small size):

- Tarfis before 2012: HR: 0,47 EUR/kWh HU: 0,1 EUR/kWh
- Tarifs after 2012: HR: 0,144 EUR/kWh HU: 0,109 EUR/kWh (recently:0,105 EUR/kWh)

PV schedule for electricity production is compulsory:

- HU: above 0,5 MWp – in case of deviation there is penalty
- HR: from September 2013 in every size (for 1 year, in hours), HOWEVER, NO penalties in case of deviation. Limitation is in allowance in connection to the grid.
- HR: From 2015 change in household production – first for own consumption, then for sell. (It is now equivalent to HU style)

Increase of household prices in some CEE countries (1995-2014)

Country	Household electricity price - nominal increase (1995-2014)	Household electricity price in 2014 (EUR)	Share of subsidies as a cause in household electricity price increase (%)
Poland	237	0,156	3
Czech Republic	280	0,183	13
Slovakia	378	0,127	7,5
Hungary	414	0,126	3

Source: Magyar L. (2015) - Energiaklub

However, there are good examples in „low level" countries (e.g. Hungary) as well. (Sellye, Bóly, Nagypáli … Orahivoca (HR)

What are the driving forces? → Regphosys project results, the soft or ‚governance factor' (interviews, questionnaire):

- Role of the local government
- Personal (mayor) behaviour
- Decision-making is based on personal competencies, there are few public involvement
- What is also a strange phenomenon that local governments have not significant impact on household sector
- Main motivation is economic interest (not lead by sustainable urban development or environmental policy) – environmental sustainability appears later as a slogan, as a marketing element.
- Relatively major distance from party politics (high politics)
- There is local renewable/green development strategy
- In it, there is no reflection to EU goals

Conclusions

- RES development does not depend on physical geographical conditions already. (Technology and) Subsidy and Soft elements have major role.
- Subsidies have not only positive but negative impacts.
- Development depends on societal and **soft** elements (e.g. local politicians, administrative system, mayor, governance)

Thank you for your attention!
Hvala na pažnji!

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