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Policies with regard to wind energy in the EU

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Presentation overview

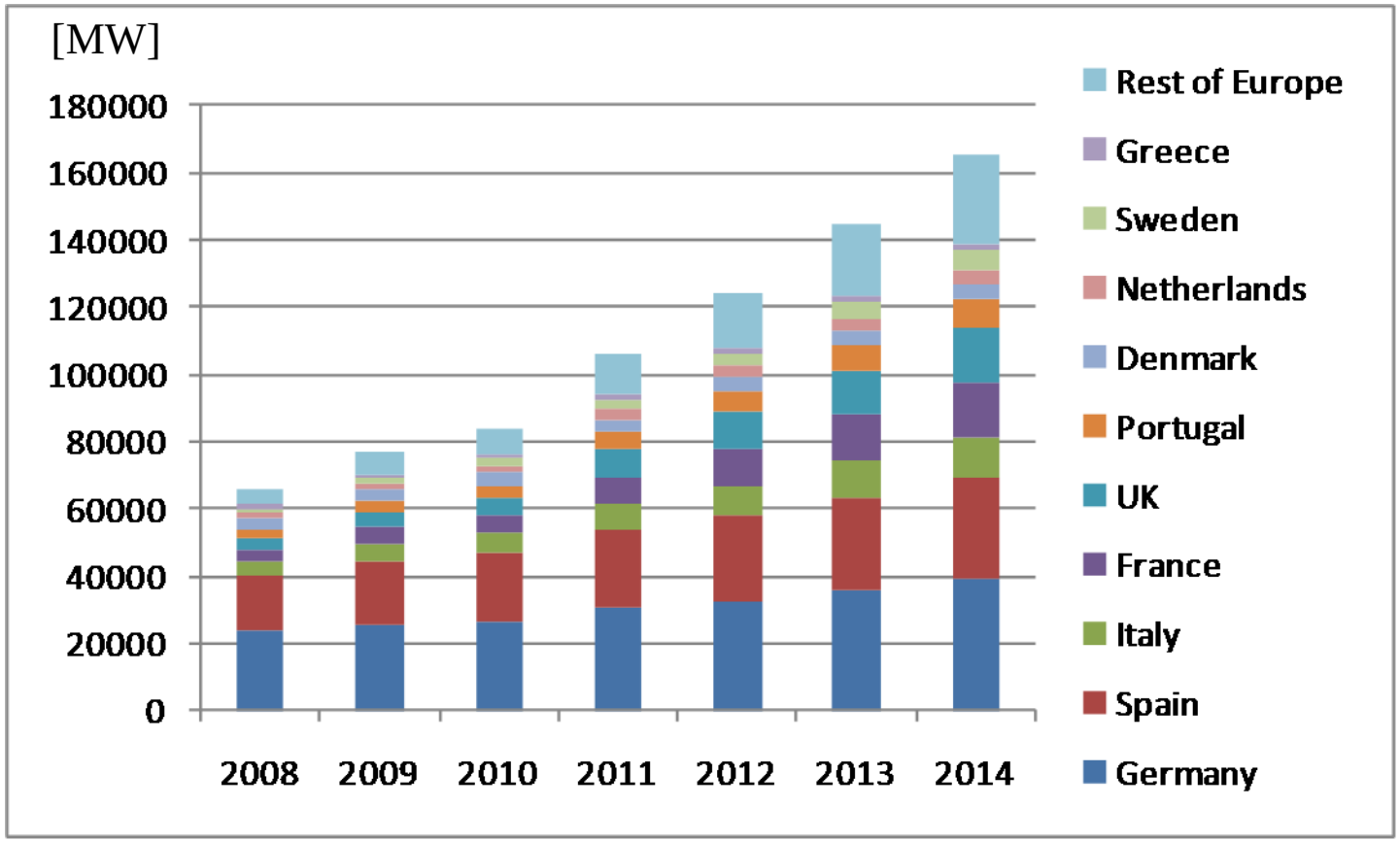
- Global wind energy capacity 2010
- Growth wind energy Europe
- Growth offshore wind Europe
- Learning offshore wind
- RES-E policy drivers and growth in the EU
- Experienced cost reduction onshore and offshore wind
- Main support systems and design choices
- Experienced pros & cons feed-in system Germany
- Concluding remarks

Global wind energy capacity 2010

Country	MW	%
China	42,287	21.8
USA	40,180	20.7
Germany	27,214	14.0
Spain	20,676	10.6
India	13,065	6.7
Italy	5,797	3.0
France	5,660	2.9
UK	5,204	2.7
Canada	4,009	2.1
Denmark	3,752	1.9
Rest of the world	26,546	13.7
Total TOP 10	**167,844**	**86.3**
World Total	**194,390**	**100**

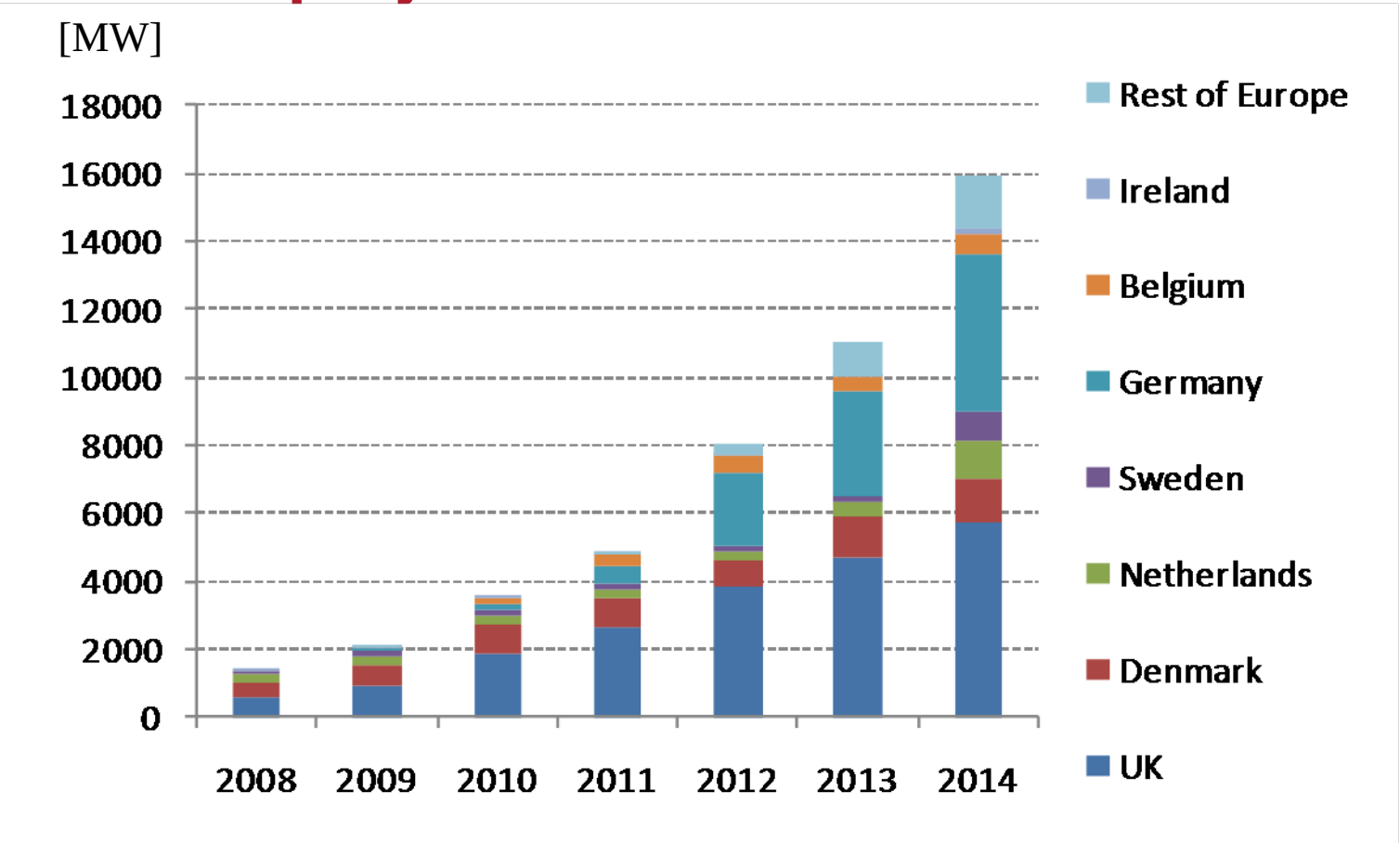
Source: GWEC (2011): Global wind statistics 2010. Global Wind Energy Council, Brussels, February 2011.

Growth projection wind energy in Europe



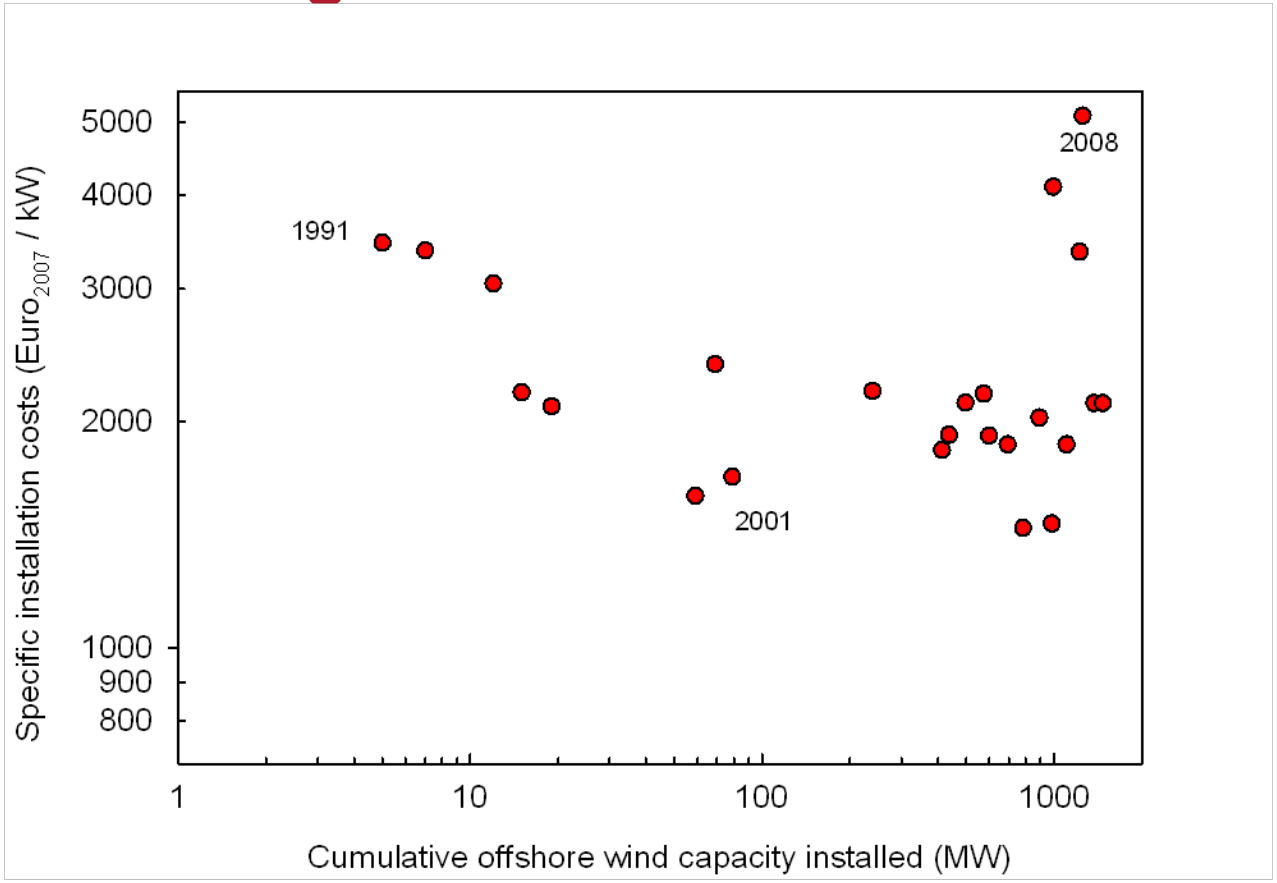
Sources: BTM (2010): International wind energy development – World market update 2009. BTM Consult ApS, March 2010. Windpower Monthly, January 2011, p. 76.

Growth projection offshore wind EU27



Source: BTM (2010): International wind energy development – Offshore Report 2010. BTM Consult ApS, November 2010.

Learning curve offshore wind

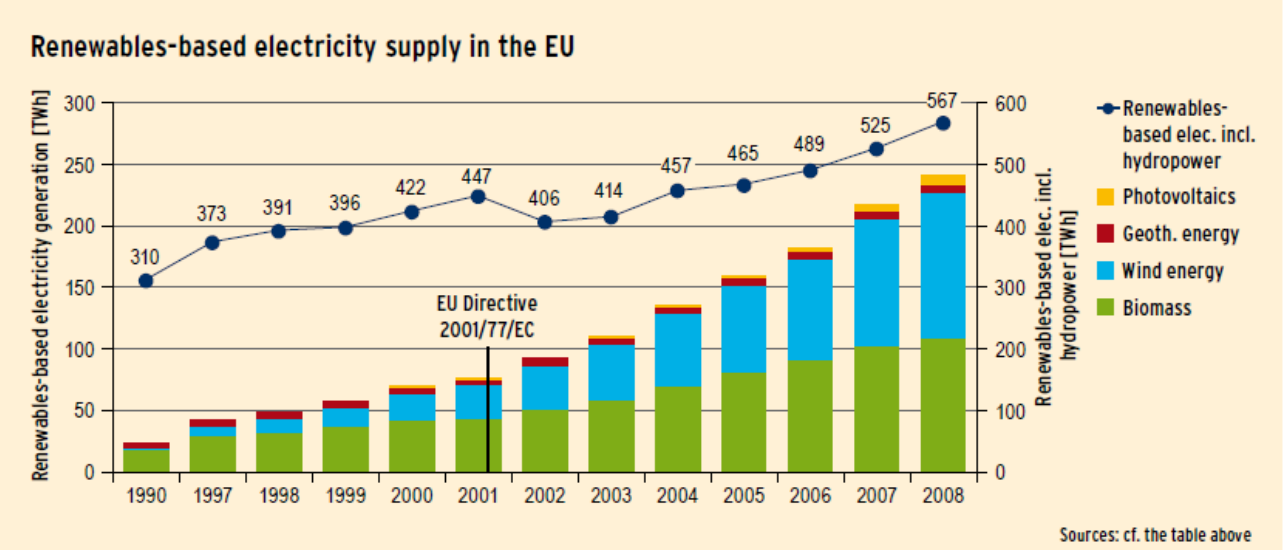


Source: Junginger, H.M., et al (2010): Technological learning in the energy sector. Edward Elgar Publishing, ISBN 978 1 84844 834 6, August 2010.

RES-E policy drivers and growth in the EU

RES-E Directive (2001/77/EC)

- EU target: 21% share of RES-E in total electricity consumption by 2010
- National *indicative* targets
- National support schemes
- Priority access and removing barriers



Source: BMU Report: Renewable Energy Source in Figures – National and International Development, June 2010 (www.bmu.de/english)

RES Directive (2009/28/EC)

- EU target: 20% renewable share in overall Community energy consumption by 2020
- National *mandatory* targets, uneven distribution of overall EU burden
- Support schemes (national) but new measures to cooperation between Member States introduced: statistical transfers, joint projects & joint support
- Strengthened & more detailed provisions on priority access and measures to reduce barriers

Main support systems and design choices

Feed-in or premium systems:

- Feed-in Tariff and/or Premium
- Technology differentiation: onshore / offshore wind; high / low wind speed
- Differentiation according to availability of resources, generation costs, etc.
- Method for calculating support, e.g. “avoided cost” conventional power, financial gap to make projects economically viable
- Period of validation; financing source
- Frequency and transparency of review
- Degression
- Can be combined with tender system

Renewable Portfolio Standards:

- “Obligation & trade” or “Just obligation”
- Where is obligation placed (producer, supplier, consumer)
- Price stabilization mechanisms
- Penalties or not
- Period of eligibility
- Banding (technology differentiation)
- Frequency of review
- Examples: Sweden, Norway, UK

Experienced pros & cons feed-in system Germany

Pros	Cons
Reaching target ahead of time	Low conformity with power market
Strong links to industrial policy	Open-ended, costly for society
Strong focus on local and regional benefits	Scheme is gradually becoming more complex
Combining long-term stability with continuous improvements	Transparency of real cost to consumer has been questioned

Concluding remarks

- Projected growth of wind in Europe 2010-2014: on average 18-19%/year
- Projected growth of offshore wind EU27 2010-2014: on average 45%/year
- Generation cost onshore wind 8 –10 €ct/kWh, offshore 15 –18 €ct/kWh
- Debate on what is the best support scheme is very much open, but feed-in tariffs have so far shown biggest contribution to new RES-E capacity in EU
- Support schemes will require a lot of attention to ascertain a better match between support level and generation cost of the different technologies
- Increased focus on economic efficiency is likely to trigger coordination and cooperation between countries
- Wind energy, in particular onshore wind but also increasingly offshore wind, are becoming mainstream, although better compatibility with electricity market will be required

Thank you for your attention!

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