

European RES policy beyond 2020

The energy utilities perspective

Beyond 2020
Mid-term conference

EnBW Energie Baden-Württemberg AG

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Energie
braucht Impulse

Ambitious European goals in the deployment of renewable energies

EU energy roadmap 2050



- EU energy roadmap 2050 published in 12/2011
 - 80 % reduction in greenhouse gas emissions by 2050 compared to 1990
 - Share of RES in electricity consumption ranging from 64 % to 97 % in the scenarios

Energy concept of German government



Bundesministerium
für Wirtschaft
und Technologie

Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

- Energy concept of German government, 2010
 - 80% share of RES in electricity consumption by 2050
- “Long-term scenarios 2011”¹ study
 - Several scenarios to achieve goals are analyzed and result in an installed capacity of RE in Germany between 160 GW and 220 GW by 2050

- Total capacity of renewable installations will rise substantially and require investments
- **Mobilization of investors crucial**

¹http://www.erneuerbare-energien.de/english/renewable_energy/downloads/doc/48532.php

Energy utilities can bear project and market risks of large renewable energy projects



- Large renewable energy projects contain risks
 - Financial risks
 - Construction risks
- Investment risks need to be borne by private investors
- Energy utilities have experience in risk management of large energy projects, e.g. offshore wind farms and hydropower plants
- Mitigation of risks due to portfolio effects
- Energy utilities have knowledge in market-based approaches to energy policy and can bear market risks. E.g.: direct marketing of renewables in Germany; direct marketing of power from EnBW's offshore wind park Baltic I



Alpha Ventus Offshore Wind Farm¹



Iffezheim Hydropower Plant

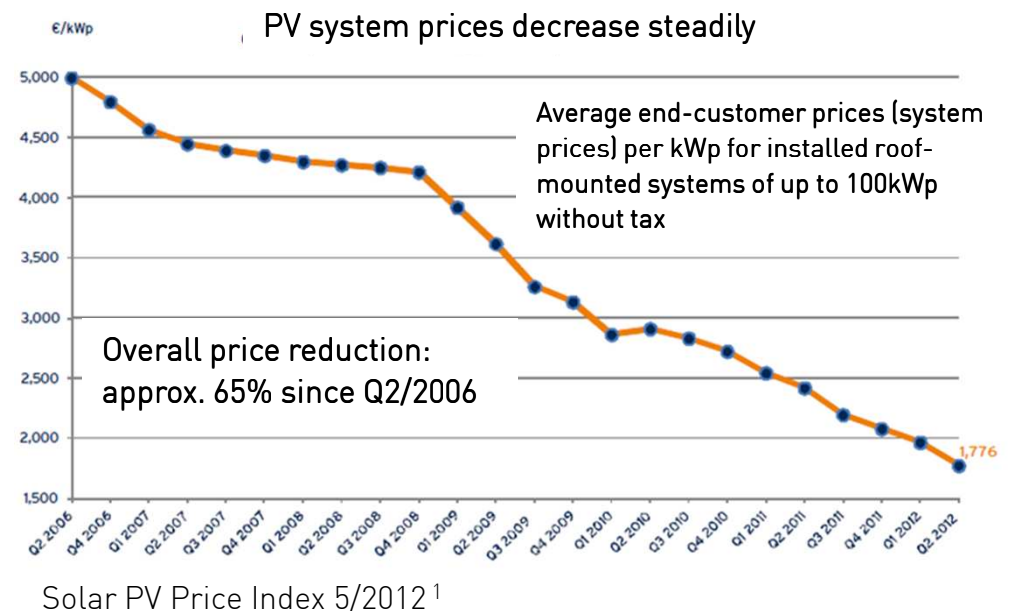
¹AREVA Wind, 09/2010

Legal certainty



- Certainty in support schemes required for long-term investments in renewable energy projects
- Frequent changes in the support of renewables pose serious problems for investors

- Spain's recent decision to discontinue subsidies for new renewables projects as part of managing its debt crisis
- Unanticipated rapid drop of photovoltaic specific investment costs
➡ Caps on new installations and reduction of FITs, e.g., in Czech Republic and Germany
- Czech Republic: solar tax introduced in 2011 for installations in 2009/2010



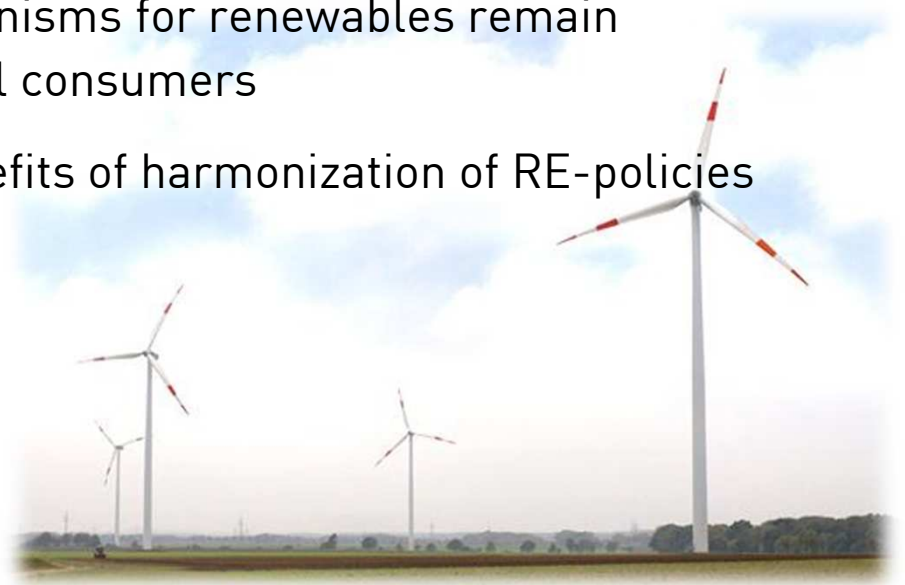
- After 2020 a stable framework for support and market integration of renewables together with a smooth transition phase will provide reliability for investments in renewables

¹http://www.solarwirtschaft.de/fileadmin/media/pdf/BSW_facts_solarpower_en.pdf (Bundesverband Solarwirtschaft)

Engaging the public is crucial

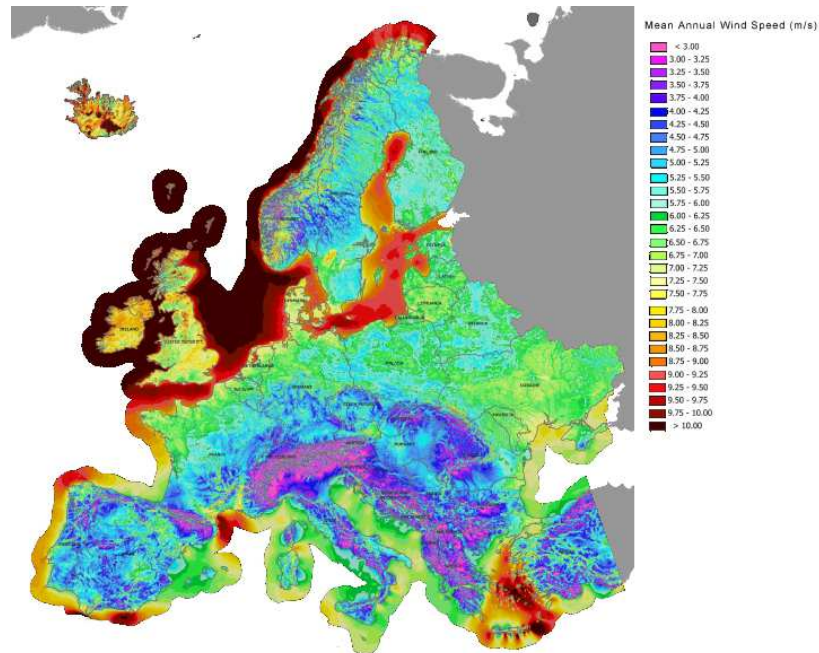


- Significantly more renewable installations, storage facilities and transmission lines needed to achieve European goals
- Current trend: opposition of local activists against deployment of installations (NIMBY) delays projects and poses serious problem for investors
- Citizens need to be informed and engaged in the decision making-process
- Measures to ensure that pricing mechanisms for renewables remain transparent and understandable to final consumers
- Final consumers must understand benefits of harmonization of RE-policies

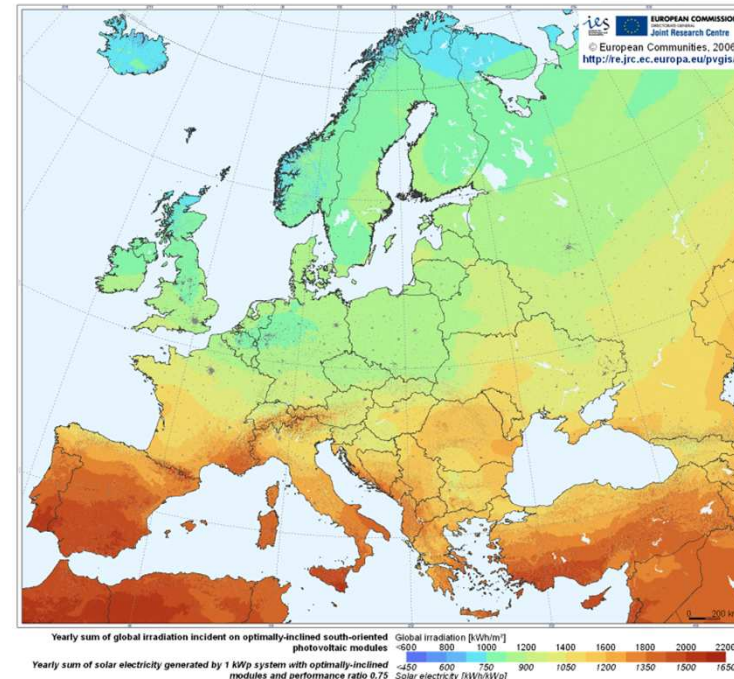


Harmonization schemes must be transparent and understandable to final consumers

Annual average wind speed at 80m hub height¹



Photovoltaic solar electricity potential²



- Harmonization of renewables can lead to increased deployment of installations in profitable areas
- Added value for renewable installations remains to some extent in country of construction
- Opposition against power installations may increase due to
 - intensified deployment in more profitable regions
 - storage and transmission lines, also in less profitable regions

¹AWS Truepower ²Institute for Energy and Transport – Joint Research Centre

Challenges in infrastructure



Energy security and grid stability must remain

- New storage facilities and transmission lines, possibly in neighboring regions
- Efficient permission procedures required
- Incentives for storage facilities
- Efficient number of new transmission lines and storage facilities through **demand side management**
- Incentives for flexible power plants providing ancillary services to compensate the volatility in energy generation from wind and PV
- Increase in interconnection capacities to enable import of renewable energies from other countries



Existing grid capacity 2010¹

¹Roadmap 2050, European Climate Foundation, AMO

Remove market entry barriers



- Transparent and efficient approval process
- Transparent procedure for grid access
- Legal certainty and sound legal protection of investors
- Fair competition between investors for project opportunities in the power market



Alex Barth

Technological and regional differentiation of support

The EnBW logo is located in the top right corner. It consists of a grey square background. To the left of the square is a horizontal orange line. Inside the square, the letters "EnBW" are written in blue.

- Regional and technological differentiation of support will mitigate both regional and technological concentration of RE
- Without technological differentiation: onshore wind preferred technology. Reduced investments in other technologies
- Without regional differentiation: investments will focus in profitable regions
E.g. wind in Scotland, solar in Spain
- Infrastructural problems due to grid bottlenecks and lack of power storage may increase ➡ counteract with regional incentives

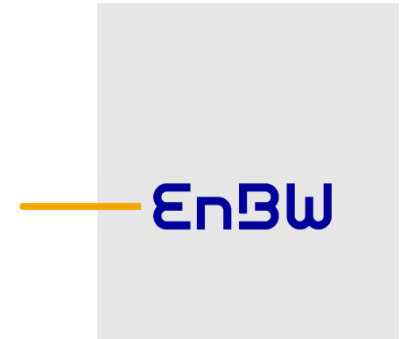
Regional incentives



- Regional incentives keep added value from RE-sector in regions with less potential for renewables; e.g. Baden-Württemberg. Neither good wind speeds (96% has average wind speed < 5,5 m/s) nor good solar radiation
- *Sustainable Town projects* in Baden-Württemberg, i.e. regional cluster of decentralized renewable energy projects. Cooperation of towns and municipalities with EnBW.
 - Towns reduce CO₂ emissions and become widely independent of regional energy imports
 - Aside from energy efficiency, intelligent grids etc., this includes installations of renewables
 - Concept of sustainable towns improves added value in the region
 - EnBW provides platform for decentralized energy solutions



Ambitious goals for renewable energies in Europe are feasible

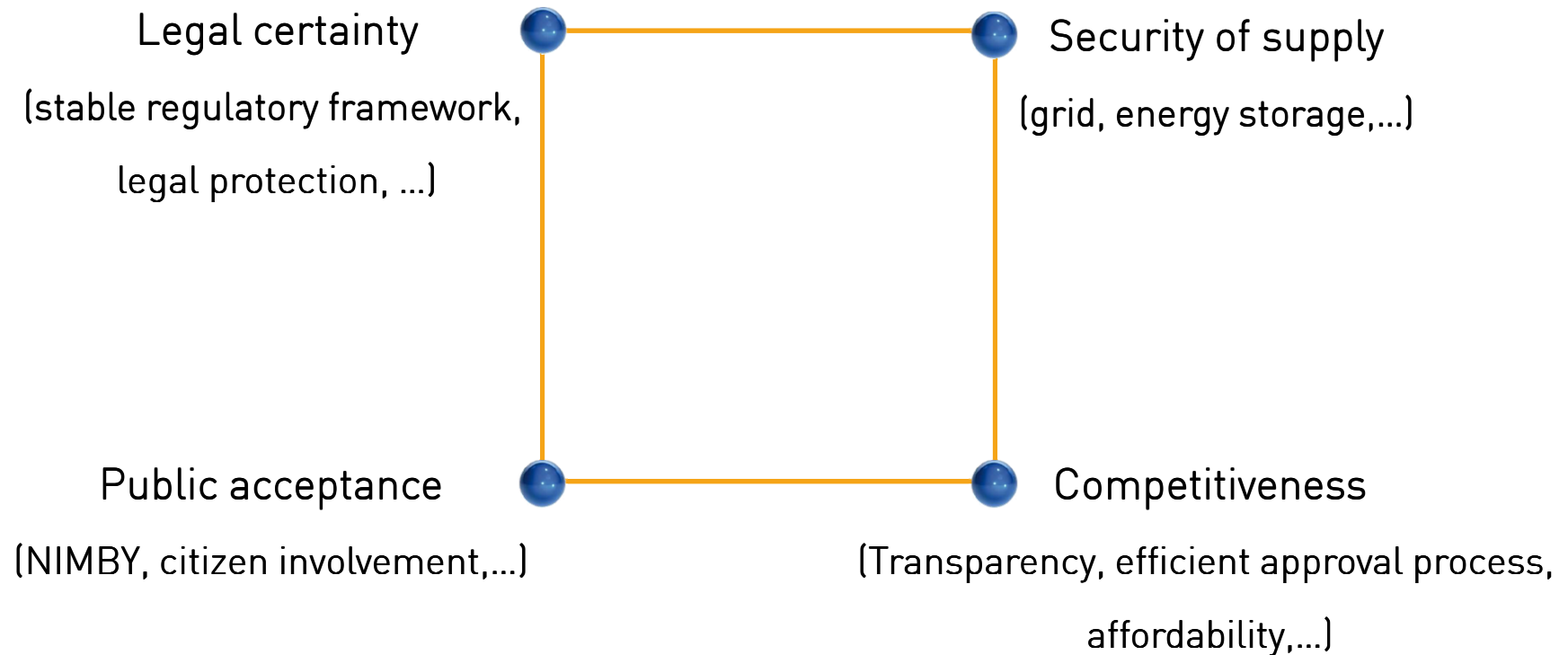


...but there are still challenges to overcome

- Improve conditions for investments in energy sector
- Legal certainty to be provided by EU and national governments
- Incentives for infrastructural measures: grid and storage
- Efficient and transparent permission procedures
- Regional and technological differentiation of RE subsidies is a measure to support technologies and regions
- Energy utilities play vital role in realization of RE goals
- In order to achieve ambitious RE goals, governments, citizens and investors must combine their efforts

Challenges for achieving goals in renewable energies

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Thank you very much!

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