

European RES policy beyond 2020

The energy utilities perspective

Beyond 2020
Final conference

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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

- Currently installed renewable capacity: 76GW
- 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

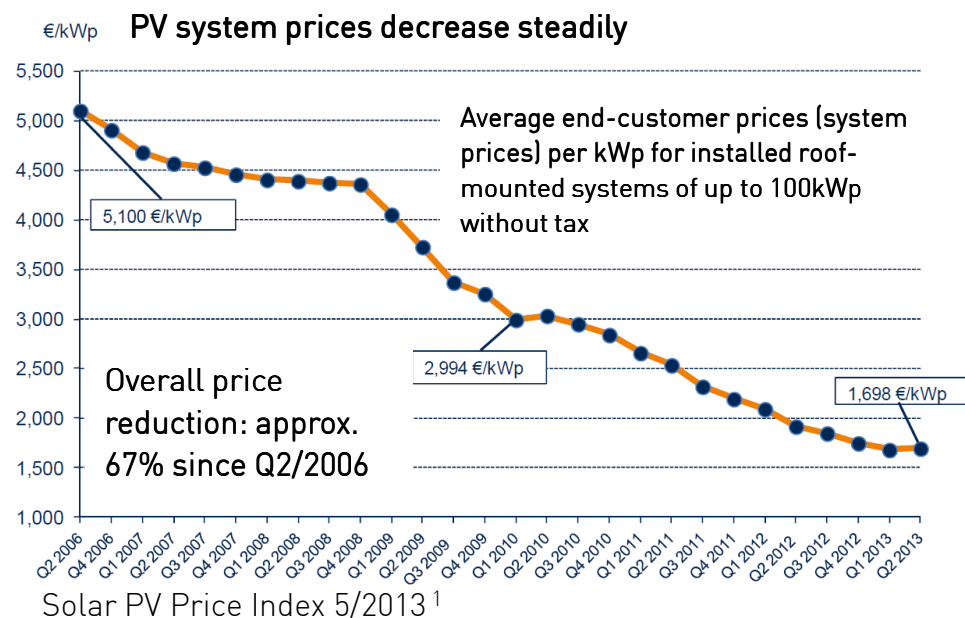
¹AREVA Wind, 09/2010

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 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

¹ http://www.solarwirtschaft.de/fileadmin/media/pdf/2013_2_BSW-Solar_fact_sheet_solar_power.pdf

Remove market entry barriers



- Further progress in creation of functioning EU internal market necessary
- 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 markets



Alex Barth

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

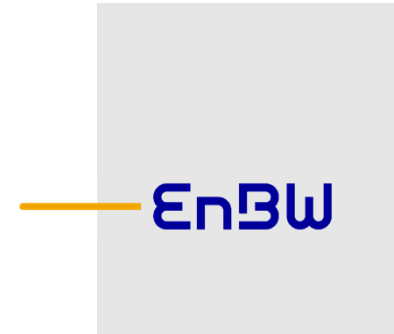
Engaging the public is crucial



- 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
- Involvement of citizens as financial stakeholders in renewable power installations
 - Example: German citizens have already formed 400 citizen-cooperatives to fund pv, wind and biomass systems in their home regions
 - Similar initiatives across Europe, e.g., in Sweden and Denmark
- Measures to ensure that pricing mechanisms for renewables remain transparent and understandable to final consumers

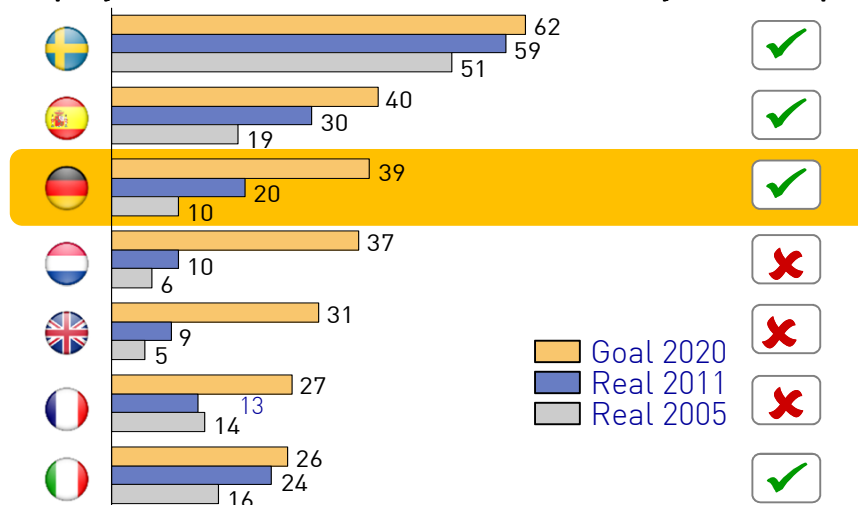


Increasing share of renewables leads to higher consumer prices



Germany reaches intermediate goals for renewables:

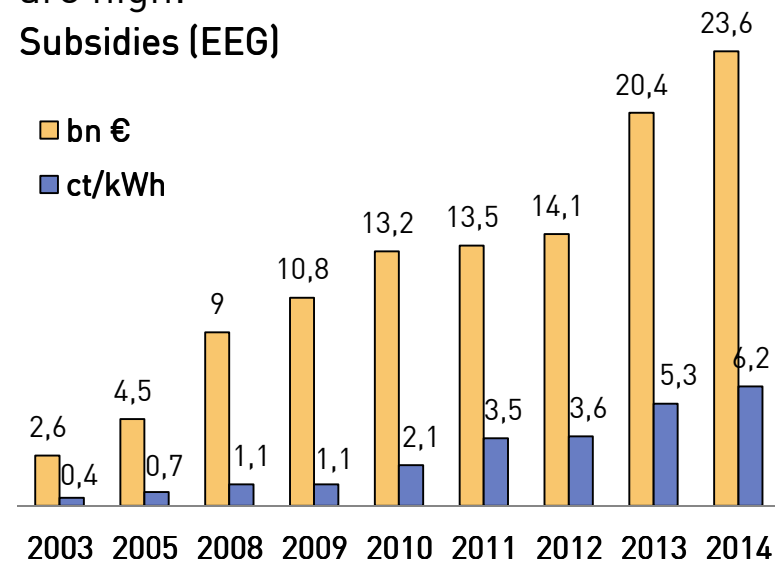
Deployment of renewables (% electricity consumption)



Eurostat, European Commission

Subsidies for renewables in Germany are high:

Subsidies (EEG)



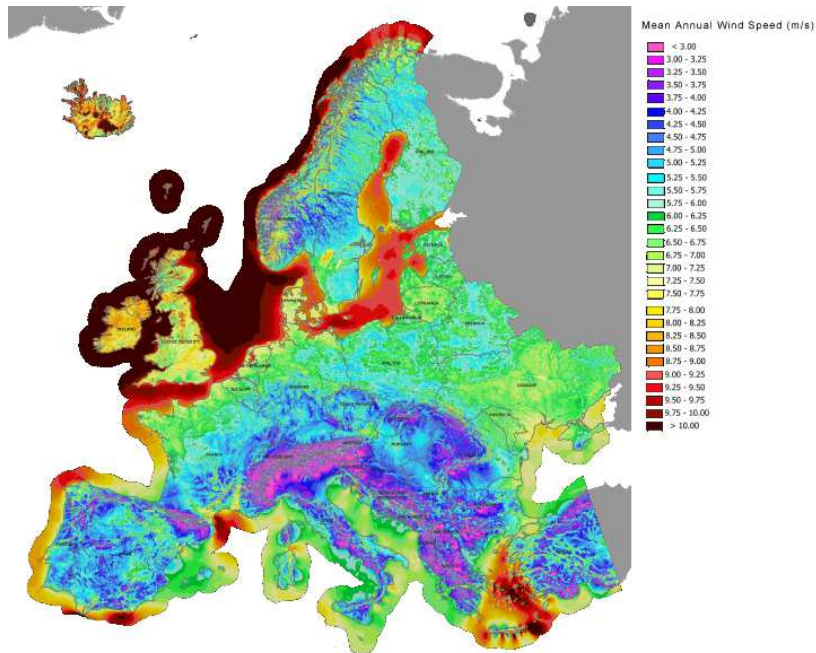
BMWi, bdew

Current situation in Germany:

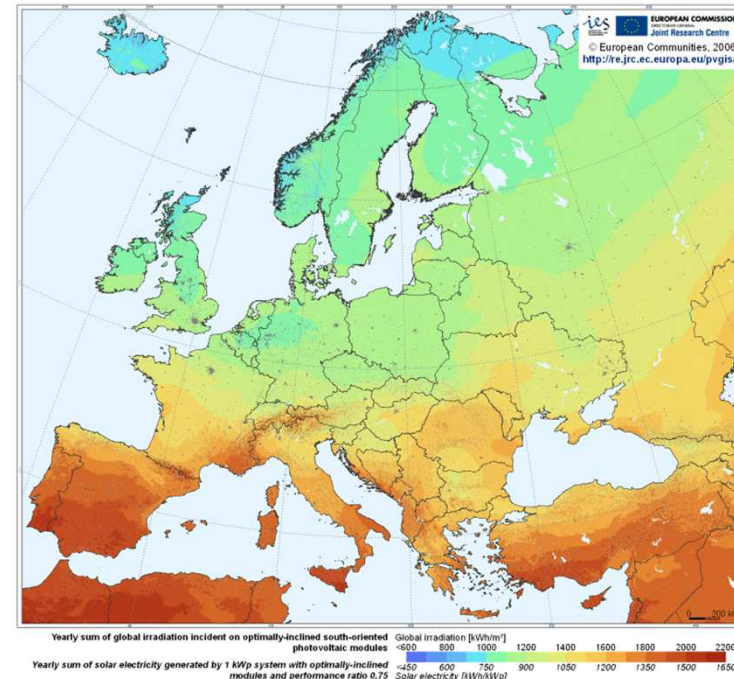
- > Inefficiencies due to excessive support, e.g. PV
- > Intensified political debate on increasing consumer prices
- > Renewable energies still need financial support
- > Market integration of renewables possible measure to reduce subsidies
- > Immature technologies, e.g. offshore, need higher subsidies

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

Technological and regional differentiation of support



- Regional and technological differentiation of support can mitigate both regional and technological concentration of RE
- Without technological differentiation: onshore wind preferred technology. Reduced investments in other technologies
- Without regional differentiation: investments may 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, e.g., with regional incentives

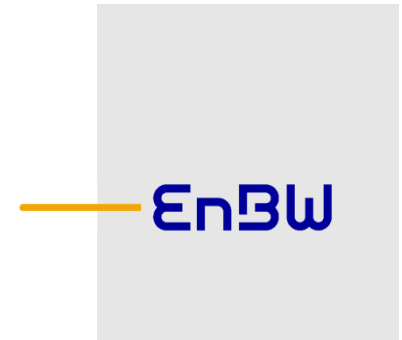
Regional incentives



- Regional incentives keep added value from RE-sector in regions with less potential for renewables; e.g. Baden-Württemberg. Neither good wind speeds (97% has average wind speed < 5,5 m/s, hub height 80m) 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
- Further progress in functioning EU internal market required
- 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

Thank you very much!

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