



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

Photovoltaics support in Germany - developments and challenges



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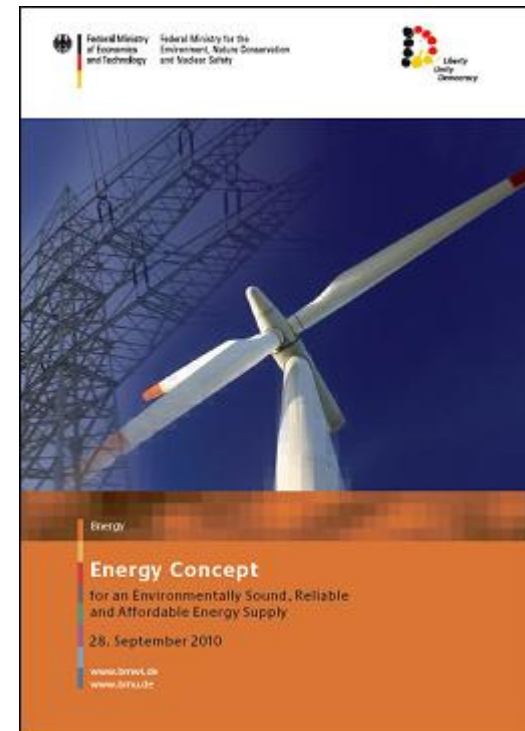
Overview

- I. Energy Concept
- II. Development of photovoltaics
- III. Progress report and amendments to the Renewable Energy Sources Act (EEG) 2011
- IV. Conclusions



I. Energy Concept 2050

- Cabinet: 28 September 2010
- Visionary, long-term strategy encompassing all sectors
- Path to the age of renewable energies and energy efficiency
- Contents:
 - specific targets
 - comprehensive bundle of measures
 - financing plans





Energy Concept: specific targets

Year	Climate	Renewable Energies		Efficiency		
	Greenhouse gases (compared to 1990)	Share in electricity	Total share (final energy)	Primary energy	Energy productivity	Building modernisation
2020	-40%	35%	18%	-20%	increase to 2.1%/a	double the rate 1% -> 2%
2030	-55%	50%	30%			
2040	-70%	65%	45%			
2050	-80% to -95%	80%	60%	-50%		



Nuclear energy: moratorium

- In the light of the events in Japan, the German government has decided to review all German nuclear power plants within three months.
- The review will be the basis for a decision. For this reason we cannot make any statements on the outcome of the safety review today.
- Philosophy of the Energy Concept: use of nuclear power as a bridging technology until it can be reliably substituted with renewable energies. Over the next months, we need to work on ways to accelerate this process.



Renewable energies = mainstay of future energy supply

- Germany pursues ambitious goals concerning the expansion of renewable energies
- Renewable energies will become a mainstay of energy supply
- Driver for innovation and the modernisation of energy infrastructure (e.g. storage, smart grids, flexible power plants, new technologies)
- Key issue: energy efficiency and energy saving in industry, private households and the public sector



Challenges

- Expansion of wind power (onshore and offshore)
- Sustainable use and generation of bioenergy
- Increased use of renewable energies for the generation of heat and cold
- Ensuring cost-efficient expansion
- Ensuring that production and use of renewable energies respond more closely to demand
- Improved integration of renewable energies into energy supply



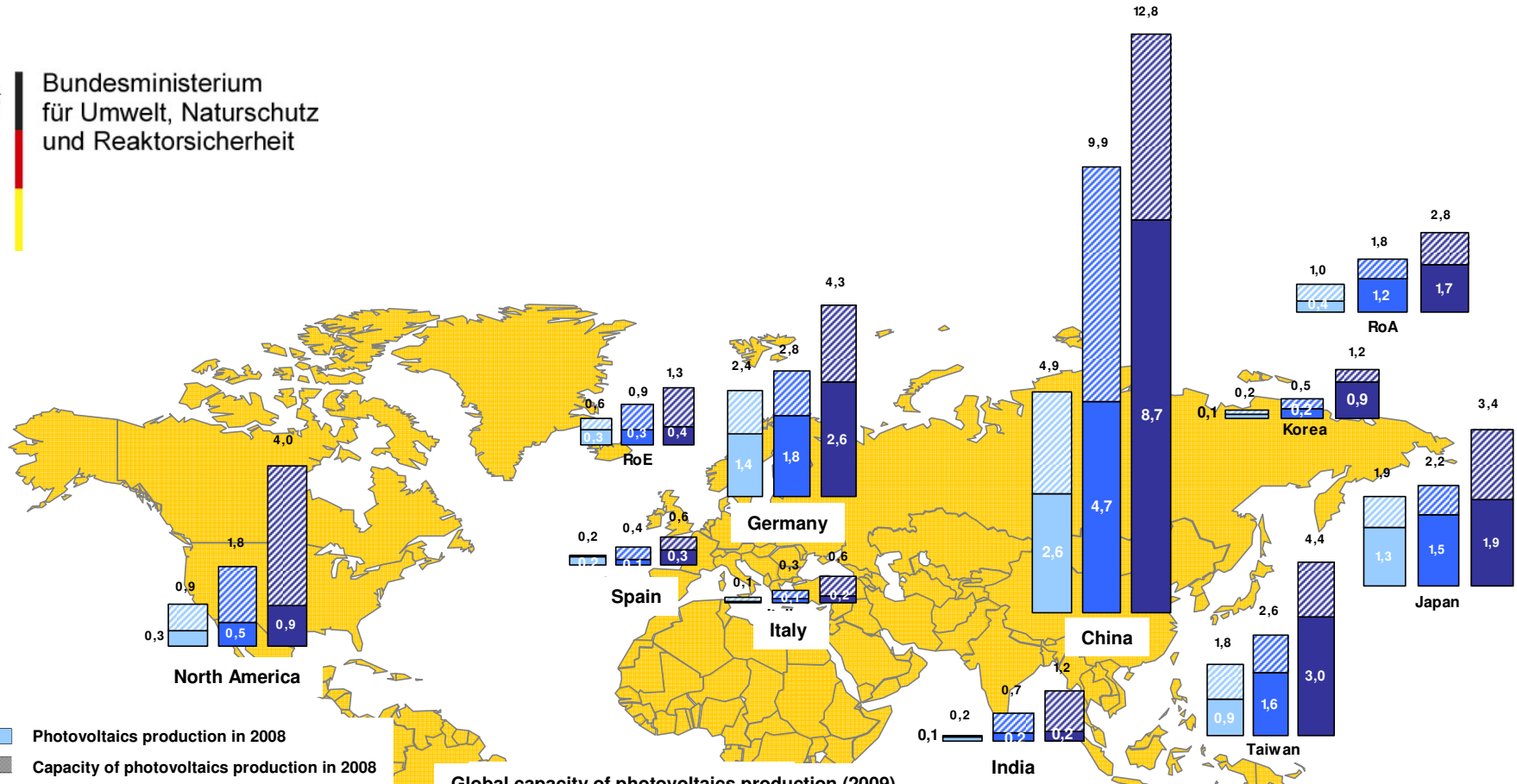
II. Photovoltaics: Status in early 2011

- Tariffs for photovoltaics pursuant to EEG lowered by 1/3 between late 2009 and early 2011
- Annual degression based on market volume: target range 2,500 to 3,500 MW
- Tariff in early 2011 around 26 ct/kWh
- Around 7,400 MW newly installed capacity in 2010
- Total installed capacity around 17,300 MW (17.3 GW)
- Electricity generation in 2010 12 TWh (2% of electricity consumption)
- Surcharge of 3.5 ct/kWh for 2011, determined pursuant to EEG in October 2010 => led to a debate on costs of photovoltaics



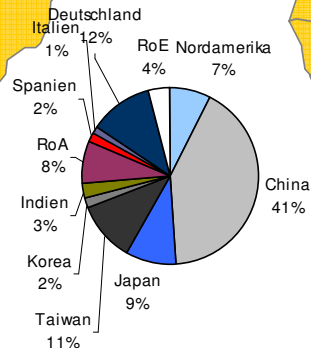
Market development worldwide

- 2009 and 2010: massive overcapacities along the value added chain
- Capacity and production surplus 2009:
 - +11 GW (capacity vs. production) or
 - +4 GW (production vs. installed capacity)
- Trend continues: more than 70% of new capacity is built in Asia, mainly China
- General tendency towards increasing utilisation rate of production (from 50-60% to 60-70%) and thus large offer of products



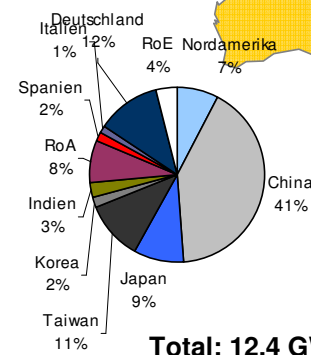
- Photovoltaics production in 2008
 - Capacity of photovoltaics production in 2008
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 - Capacity of photovoltaics production in 2010
- All figures in gigawatt [GW]

Global capacity of photovoltaics production (2009)



Total: 23.8 GW

Global photovoltaics production (2009)



Total: 12.4 GW



III. Amended EEG 2011

- German government to present progress report for EEG during first half of 2011
- EEG to be amended during second half of 2011
- Prices of photovoltaic installations have continued to fall
=> Tariffs for photovoltaics will therefore be adjusted again on 1 July 2011



Adjustment of tariffs for photovoltaics

- **Adjustments developed together with photovoltaics sector**
- **24 February 2011 decision of the Bundestag**
- **Result:**
 - Bringing part of the decrease in tariffs forward from 1 January 2012 to 1 July 2011
 - Decrease of up to 15% on 1 July 2011, depending on market developments
 - Degression until the end of the year between 1.5 and 24%
 - Provisions apply to free standing installations from 1 September 2011



Grid integration

- New photovoltaic installations are being built mainly in the South of Germany: Baden-Württemberg and Bavaria
- EEG: electricity from renewable energies has priority in the grid and must be purchased, obligation to expand grid
- Expansion necessary for low and medium voltage grids
- New technical rules for grid operation are being developed in order to integrate large shares of fluctuating energies:
 - Increasing need for swift control and management of plants
 - Plants must make greater contribution to grid stability and performance
 - Forecasting systems facilitate predictions on energy production and thus the planning of capacities



Conclusions

- Renewable energies will become mainstay of German energy supply
- The implementation of the German government's Energy Concept is to be accelerated
- The EEG will be further developed, the progress report will be presented during the first half of 2011
- Tariffs for photovoltaics have been notably lowered since the end of 2009, the German industry has so far been able to cope
- Grid integration of renewable energies and photovoltaics in particular poses a challenge which we must solve in the short and medium term