



Consequences of Fukushima and a Proposal for Post 2012 Climate Regime

The Energy paradigm shift in Germany

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Ethics Commission on a Safe Energy Supply



Germany's energy transition –

A collective project for the future

Chairmen

- Prof. Dr. Klaus Töpfer
- Prof. Dr.-Ing. Matthias Kleiner

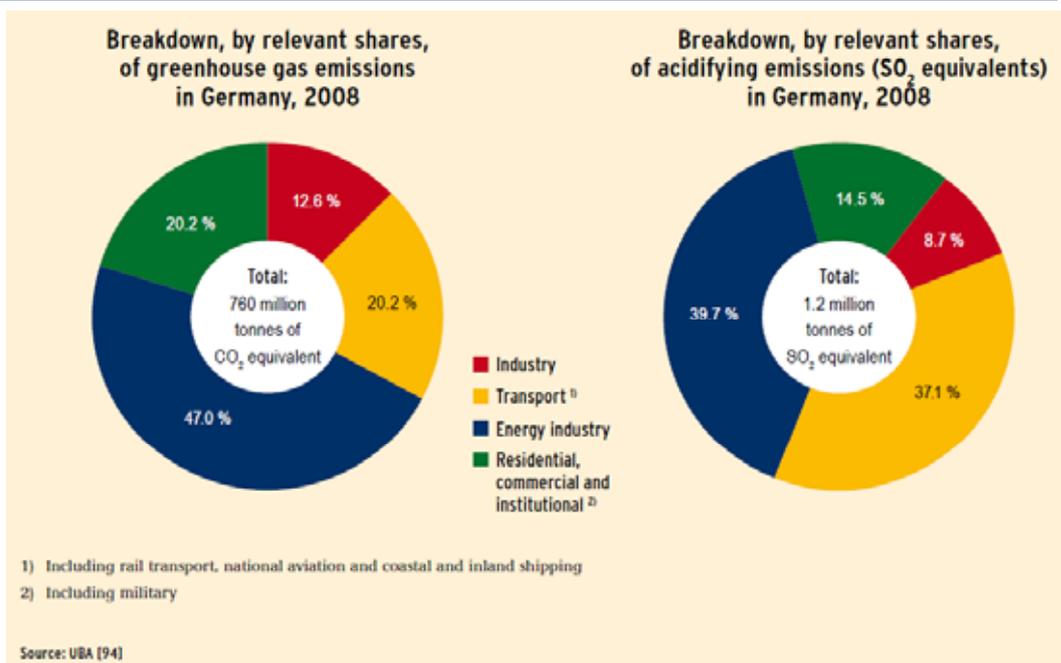
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- Dr. Klaus von Dohnanyi
- Bishop Dr. Ulrich Fischer
- Alois Glück
- Prof. Dr. Jörg Hacker
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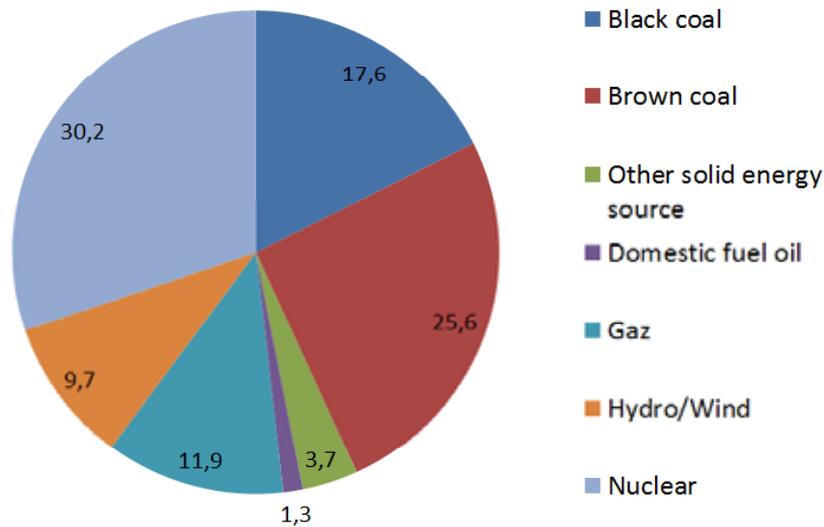
Source Picture : www.wdr.de, www.phoenix.de

CO2 emissions in Germany by sector



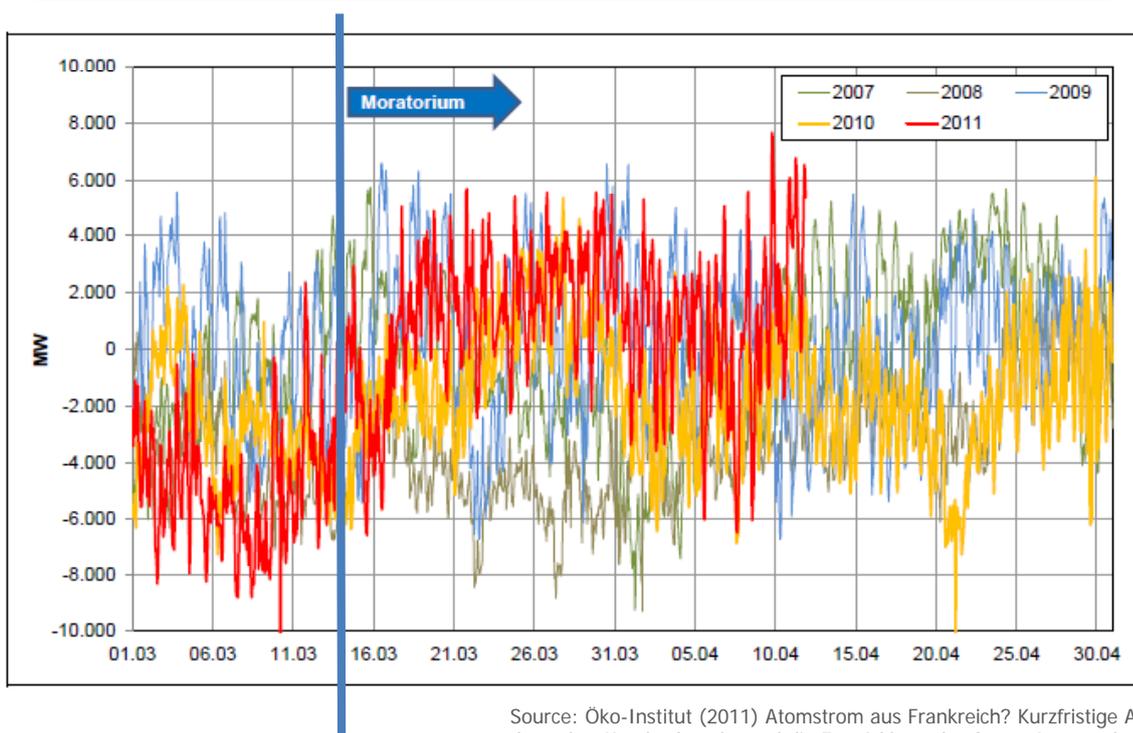
Source: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2010) Renewable Energy Sources in Figures – National and International Development

Use of energy sources for electricity production in Germany 2009 (%)



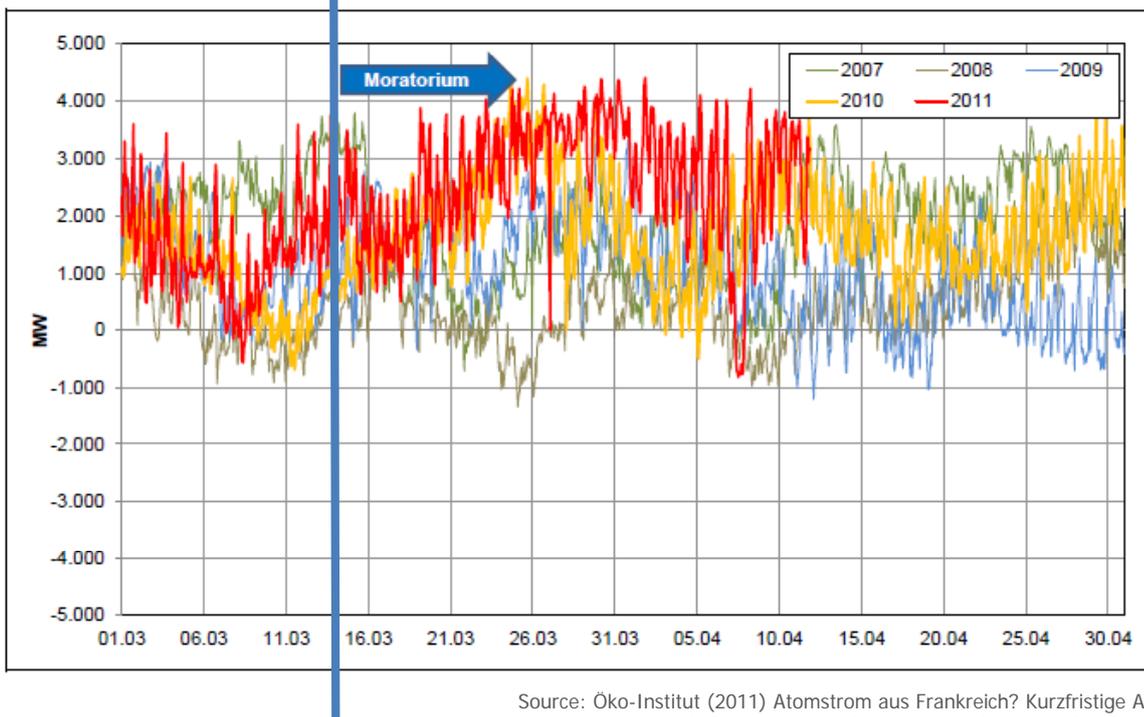
Source: Bundesministerium für Wirtschaft und Technologie (2010) Energie in Deutschland – Trends und Hintergründe zur Energieversorgung

Net electricity export of EU-neighbor states to Germany (March-April, 2007-2011)



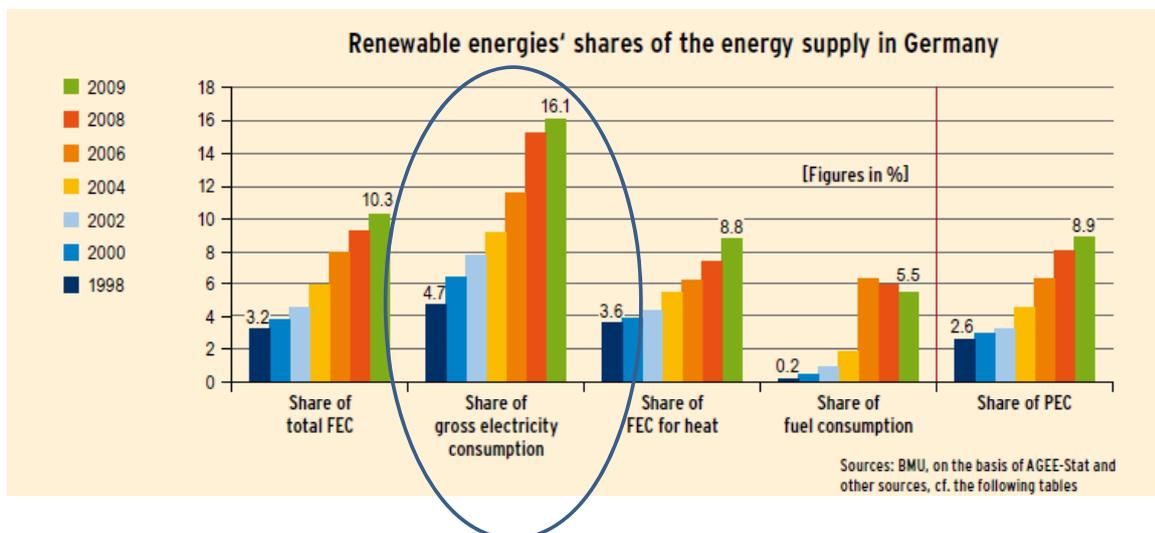
Source: Öko-Institut (2011) Atomstrom aus Frankreich? Kurzfristige Abschaltungen deutscher Kernkraftwerke und die Entwicklung des Strom-Austauschs mit dem Ausland

Net electricity export of France to Germany, (March-April 2007-2011)

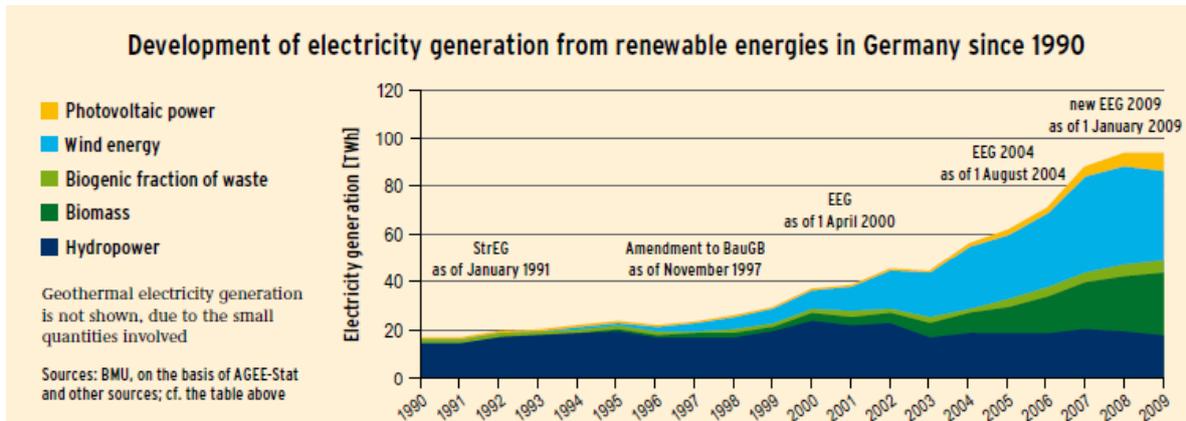


Source: Öko-Institut (2011) Atomstrom aus Frankreich? Kurzfristige Abschaltungen deutscher Kernkraftwerke und die Entwicklung des Strom-Austauschs mit dem Ausland

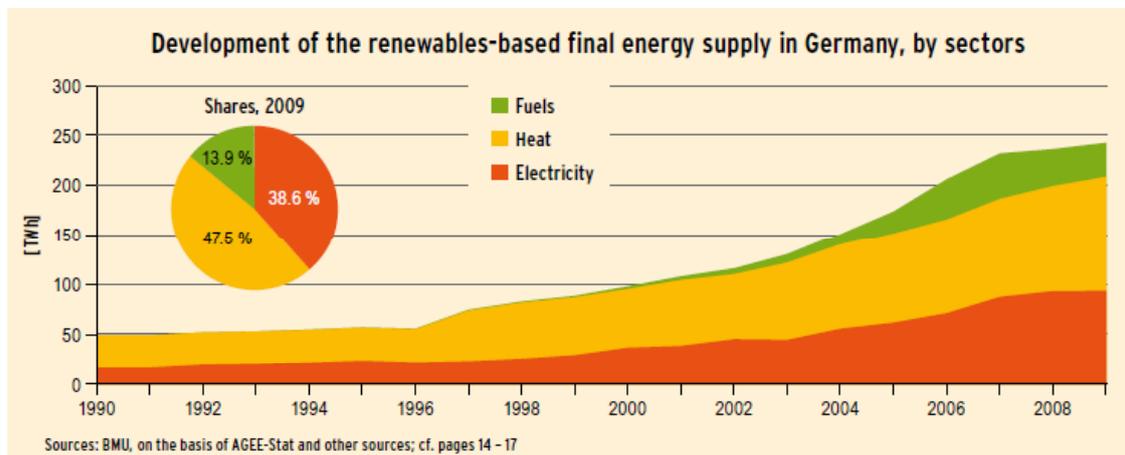
Renewables share in German energy supply



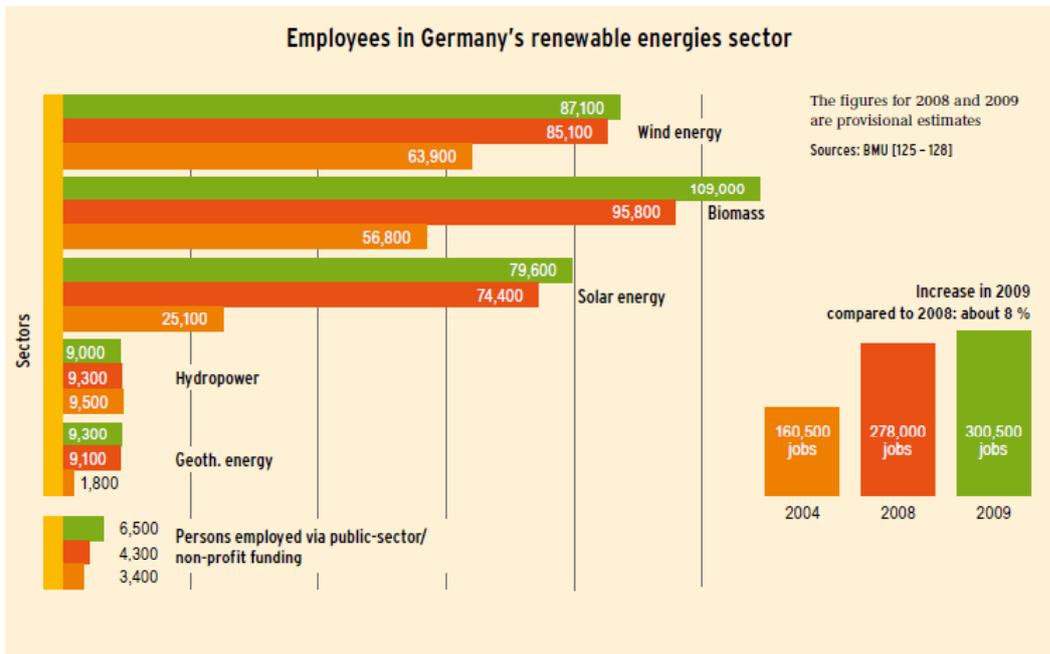
Source: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2010) Renewable Energy Sources in Figures – National and International Development



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Nuclear power plants in Germany

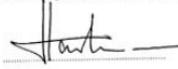
- Nuclear power plant construction in Germany:
- 1960s – 1980s



Source: https://lh6.googleusercontent.com/-ngCkzvapz04/TX9Z5ERi6TI/AAAAAAAAAK88/BDtDvJggY4A/Kernkraftwerke_in_Deutschland.png

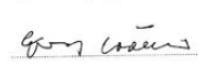
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Für die Energieversorgungsunternehmen:



Ulrich Hartmann
E.ON AG

Für die Bundesregierung:



Gerhard Schröder
Bundeskanzler



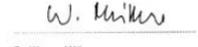
Dr. Dietmar Kuhnt
RWE AG



Jürgen Trittin
Bundesminister für Umwelt, Naturschutz
und Reaktorsicherheit



Gerhard Goll
Energie Baden-Württemberg AG



Dr. Werner Müller
Bundesminister für Wirtschaft und Technologie



Dr. Manfred Timm
Hamburger Electrotals-Werke AG

Berlin, den 11. Juni 2001

- 2001 decision of the Social Democrats-Greens-Coalition to phase out nuclear energy

Signatures:

- Ulrich Hartmann (E.ON)
- Gerhard Schröder (Chancellor)
- Dr. Dietmar Kuhnt (RWE)
- Jürgen Trittin (Minister of Environment, Nature Conservation and Nuclear Safety)
- Gerhard Goll (ENBW)
- Dr. Werner Müller (Minister of Economics and Technology)
- Dr. Manfred Timm (HEW)

- Recommendations of the Ethics Commission on a Safe Energy Supply
- Circumstances and Mandate
- Collective Project "Germany's Energy Future"
- Ethical Positions
 - 1.1 Risk and Risk Perception
 - 1.2 Summary Assessment of Risks
 - 1.3 The Basic Conflict: Categorical Rejection vs. Weighing up Relative Merits
 - 1.4 Joint Verdict of the Ethics Commission
- Guiding Ideas for the Collective Effort "Germany's Energy Future"
 - 1.5 Collective Effort
 - 1.6 Taking Goal Conflicts Seriously
 - 1.7 Consumer Demand and Civic Involvement

- **1.8 Testing Criteria**
 - 1.8.1 Climate Protection
 - 1.8.2 Security of Supply
 - 1.8.3 Economic and Financial Viability
 - 1.8.4 Social Aspects of the Distribution
 - 1.8.5 Competitiveness
 - 1.8.6 Research, Education and Innovation
 - 1.8.7 Dependence on Imports

- **Institutions for the Energy Turnaround**

Climate Protection 3x20 EU target for 2020:

- 20% CO2 emissions
- + 20 renewables
- + 20% energy efficiency

For Germany:

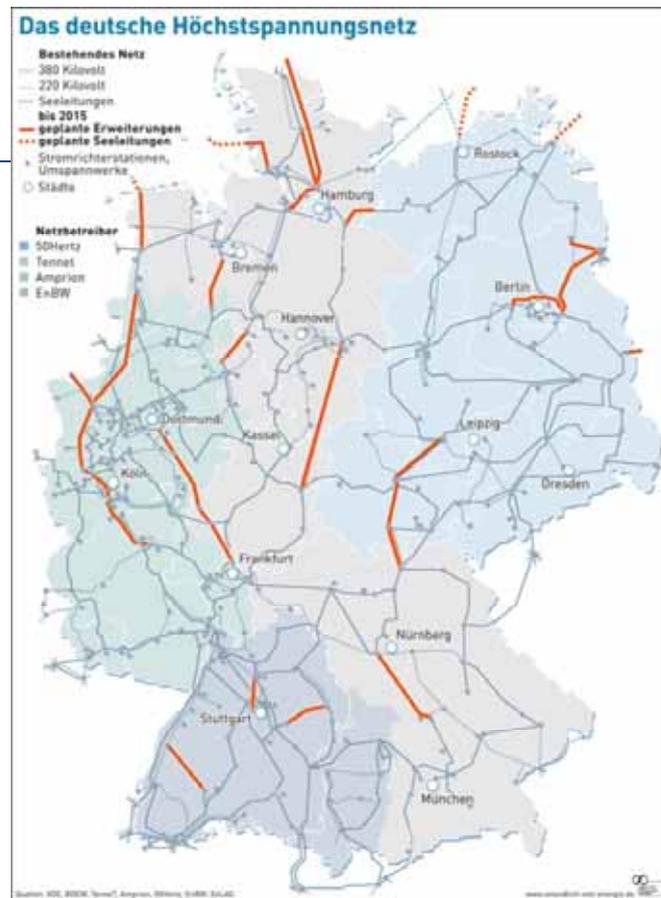
- 40% CO2 emission
- +40% renewables
- Increase in energy efficiency

CO2 price:

12.26 Euros (spot, June 20th 2011)

- **Proposals for the Energy Turnaround**
 - 1.9 Efficient Use of Energy
 - 1.9.1 Supporting Participation Effects and Good Examples
 - 1.9.2 Enable Major Applications for “Intelligent Use of Electricity”
 - 1.9.3 From Building Renovation to Energy-Oriented Urban Restructuring
 - 1.9.4 New Buildings Mean a Reorientation
 - 1.10 Renewables
 - 1.11 Capacity Markets: Securing the Demand for Stability and Supply
 - 1.12 Fossil-fuelled Power Stations
 - 1.13 Combined Heat and Power Production
 - 1.14 Infrastructure and Electricity Reserves

Grid development & Storage capacity



Source: www.unendlich-viel-energie.de

Report Ethics Commission on a Safe Energy Supply

- **Additional Framework Conditions**
- **Research for Knowledge-Based Decisions**
- **Proliferation**
- **Final Storage of Nuclear Waste**
- **International Dimension of Made in Germany**
 - 1.15 Climate Protection
 - 1.16 High-tech for Clean Coal and the Use of Fossil Carbon Dioxide
 - 1.17 International Aspects of the Safety of Nuclear Power Plants

- “For ethical reasons, nuclear power stations should only continue to operate until the power they produce can be replaced by lower-risk sources of power. *The output of nuclear power stations that is already dispensable today, amounting to 8.5 gigawatts, should be taken from the grid permanently.* The temporary shutdown of the seven oldest nuclear power stations and of the Krümmel nuclear power station demonstrates that the 8.5 gigawatts of power they supplied can be replaced by lower-risk sources of power.
- Peak power demand in the summer and the winter must be met using other capacities. The order in which nuclear power stations are taken from the grid should be determined by their residual risk and by their importance to the regional power grid, unless more detailed reactor safety analyses reveal different or additional risks associated with the nuclear power stations.”

- “In order to meet the European climate targets (EU2020) for the year 2020, distinctly more greenhouse gas emissions need to be avoided every year (*20m tonnes of carbon-dioxide equivalents* instead of the current 15m (from 2000 to 2010 only 8.4m tonnes per year). Energy productivity would have to be more than doubled by 2020, from currently approx. 1.6 percent per year to just under four percent. If all other conditions are kept constant, CO2 emissions might actually increase as a result of phasing out nuclear power; however the EU climate protection regime is in place and will counteract such an increase. In the field of heat supply, building renovations and in particular the mobility markets, the climate political efforts need to be intensified.
- The Energy Turnaround is therefore not limited only to the electricity sector, but systemically also affects the fields of heating and cooling, as well as mobility.”

- “The second commitment period of the EU Emission Trading Scheme is due to begin in 2013. Based on the average emissions between 2008 and 2012 and with an eye on the climate targets to be met by the year 2020, the *number of carbon credits has been fixed at 2 039 152 882 tonnes of carbondioxide equivalents*. This means an *annual reduction by 1.74 percent*.”
- *The carbon credits will be sold by auction*. Special regulations will apply to energy-intensive industries, which will only have to obtain a small proportion by auction while most of their credits will be allocated to them. The nuclear phase out is expected to amplify the existing increase in carbon prices.”

Thank you very much for your attention!



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