INFORSE-Europe Sustainable Energy
NGO Seminar
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August 22-26, 2011

http://www.inforse.org/europe/seminar_2011_Hamburg.htm
Nuclear phase out in Germany
An example for the World?
Climate impact of industrialisation

1000 Years of Changes in Carbon Emissions, CO2 Concentrations and Temperature

- Temperature Change
- CO2 Concentrations
- Carbon Emissions
- Fossil Fuels
- Land-Use Change

SACIA, 2004
'Fossil Fuel based industrialisation'
Zur Anzeige wird der QuickTime™ Dekompressor „“ benötigt.
Some 25% of electricity still comes from nuclear power
Pro – nuclear Power Movement (1956)

„The controlled nuclear fission and the nuclear energy obtained by that, introduce a new age for human beings [...] The Nuclear Power can help to secure democracy and peace between nations. Than the nuclear age is going to be the age of freedom and peace for everyone.”

http://www.kernenergie.de/kernenergie/documentpool/Service/050chronik2009_07.pdf

„Die kontrollierte Kernspaltung und die auf diesem Weg zu gewinnende Kernenergie leiten den Beginn eines neuen Zeitalters für die Menschen ein [...] Die Atomenergie kann entscheidend helfen, die Demokratie im Inneren und den Frieden zwischen den Völkern zu festigen. Dann wird das Atomzeitalter das Zeitalter werden von Frieden und Freiheit für alle.“

Aus dem „Atomprogramm“ der SPD von 1956
The problems of nuclear power:

Waste

Proliferation

Safety
Anti – nuclear Power Movement (1977)

Source: demokratiezentrum.org
2000

• The social – democratic and green state government decide the nuclear phase out

• On the 27th April 2002 the revision of Atomic Energy Act came into force

• “The Act on the structured phase-out of nuclear power for the commercial production of electricity”

Source: statistic.wiwo.de
The revision of the Atomic Energy Act 2002

Key points:

• Limited maturity of 32 years for nuclear reactors since commissioning
  ➔ Therefore an expected abandoning in 2021

• A total of 2623 TWh residual electricity volume, following the abandoning of the nuclear power plants

• Residual electricity volume for each of the 19 reactor

• Prohibition of transport of radioactive material for reprocessing from July 2005

• Moratorium on the investigation of Gorleben until 2010

Source: upload.wikimedia.org
Public Response

• Government guarantees an undisturbed operation of nuclear power plants
  → further governmental support of nuclear power

  → Portfolio protection contract with guaranteed privileges (BUND)

• The amount of residual electricity volumes and their transmission
  → E. g: Extension of the maturity (5,5 years) of NPP Obrigheim
    (oldest NPP in Germany, many security breaches)

• Inclusion of the NPP (Nuclear power plant) Mülheim – Kärlich into the calculation of the maturity is not justified

• No finally stated date for switching off
2005: Change of government
Black – red coalition

Source: welt.de
Christian democratic – liberal government since 2009

- 11th draft legislation of the Atomic Energy Act

- The Christ-democratic and liberal government decides in its Energy Concept 2050 an extension of the maturity of the NPPs

- The maturity of the 17 NPPS is extended on average of 12 years

- The investigation for Gorleben as a potential permanent disposal are under review

Source: abendblatt.de
Public Response

• Government is primarily based on the interests of nuclear power plant operators

• A system conflict is threatening

• Municipal services want to cut their investment into renewable energy drastically
  → Electricity companies are in favour, thus competitiveness is questioned

• Until 2010 only Stade and Obrigheim went off grid
  → Initially 4 more should have gone off grid until 2009
Reactor disaster in Fukushima 2011
Angela Merkel decides the nuclear phase out

Source: mt-online.de
Gross electricity generation by energy source

Source: tagesschau.de

Dipl. Ing. Stefan Schurig | Director Climate Energy | stefan@worldfuturecouncil.org
On 30th June, the Upper House of Parliament passes the amendment of the Atomic Energy Act

→ All NPPS go gradually off grid at the latest in 2022
→ Additional electricity amounts that have been granted with the 11. draft legislation of the Atomic Energy Act get cancelled
→ There is the possibility to keep two of the older NPPs as reserve on-grid
→ Further investigation of Gorleben
→ Nuclear fuel tax until 2016
Lifetime of German Nuclear power plants

Source: bund.net
Public Response

• French president of the employers‘ association Laurence Parisot, calls Germany a „Stowaway“ – The question about further imports of French atomic electricity arises

• Kurt Beck demands a binding plan for the abandoning „In the face of the debates about “cold reserves”, safety buffer and an interim clause until 2018, we are worried that a sort of revision clause has been incorporated secretly.”
Public Response

• Jürgen Trittin said: „The nuclear phase out turns out to be a maturity guarantee for nuclear power plants” and further „The fight about a final abandoning of nuclear power is just adjourned.”

• RWE – Chief executive Jürgen Großmann: „We make experiments with the competitiveness of our economy with an uncertain out coming.“

• E.ON Manager Johannes Teyssen demands a compensation of the order of a billion from the federal government.

• Besides E. ON wants to take legal action against the fuel elements tax, which will be in force until 2016.
Legal Framework for the realization of the climate targets

Source: energieundbau.de
EEG (Erneuerbare Energien Gesetz )
Renewable Energy Sources Act

• Came into force on 1st April 2000
  ➔ Key points:

• Promotion and market launch of future-compliant technologies

• Guaranteed feed-in tariffs (as a rule for 20 years)

• Grid operators are obliged to give priority to electricity from renewable sources

• Costs incurred by feed-in tariffs
  ➔ Borne by the consumers through the electricity price

Source: csr-news.net
Results of the EEG

• In 2010 investments increased by 30% (towards the previous year) and reached its maximum state of 27 billion Euro

• 2010 370,000 people were employed in the field of the renewables

• 2009 Savings of 60 Mio. t of greenhouse gas emissions (Because of plants that are paid through the EEG)

Source: destatis.de
Source: Rolf Disch
FIT (Germany) vs. Quota system (UK): Wind energy

Costs for wind energy
~8 Euro Cent/kWh in Germany
~14 Euro Cent/kWh in Great Britain

Source: http://www.ewes.org & Hans-Josef Fell

www.hans-josef-fell.de
Zur Anzeige wird der QuickTime™ Dekompressor „“ benötigt.
<table>
<thead>
<tr>
<th>Resource installed after 1.1.2008</th>
<th>Technology</th>
<th>Support level [€cents / kWh]</th>
<th>Feed-in tariff or premium?</th>
<th>Start year</th>
<th>Duration [years that an investor is entitled to support]</th>
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Source: REN 21 GSR 2009
Zur Anzeige wird der QuickTime™ Dekompressor „“ benötigt.
FITs in the European Union - the new EU Directive forsees 20% RE by 2020
Source Ipsos/2011
Phase out of nuclear power and uptake of Renewable Energy - empowering the people
Thank You!
A new opinion poll from Ipsos MORI tells us: 62% of citizens in 24 countries across the world oppose the use of nuclear energy, with a quarter of those having change their minds after the Fukushima disaster.

The most anti-nuclear nations in the poll, at about 80% against, were Italy, Germany and Mexico. Only three of the 24 countries had majorities that favoured nuclear power: India (61%), Poland (57%) and the US (52%). The UK and Sweden were split 50-50 within the uncertainty cited.

In France, where most of the electricity is produced by nuclear, 67% opposed it, the same percentage as in coal-rich Australia. Perhaps surprisingly, 42% of people in Japan, still recovering from the huge tremor that wrecked the Fukushima nuclear plant, remain supportive of nuclear power.
Amendment of EEG 2011
Most important points

- Reduction of financial incentives for personal electricity consumption → Personal electricity consumption for major companies was cancelled

- The „Breathing cap“ remains → Feed-in tariff decreases 9% at the turn of the year

- Promotion for photovoltaic plants on open space has been cancelled

- Green Power Privilege vs. optional „Market premium“

- From the „Law of citizens“ to a „Law of companies“

- Mindestwärmenutzungsgrad von 60% für Biogasanlagen

- Cutback on „on - shore“ wind parks, more money for „off – shore“ (only big investors profit, municipality do not)
Future of renewables

• Generally:
  - Extension of the grid
  - Possibilities for power storage

• Extension of wind energy (on & off – shore)

• Sustainable usage of biomass
  → 3 types of utilization:
  - electricity
  - heat
  - fuel

• Solar energy
  → Smart Grid
  → Concentrated Solar Power (CSP)
  → Desertec

→ Strengthening of the personal consumption

Source: bundesregierung.de
Greenpeace Plan B until 2050
A carbon free Germany is possible

Quelle: greenpeace.de
Greenpeace Plan B until 2050
A carbon free Germany is possible

Quelle: greenpeace.de