The renewable future to build - now

Dr. Doerte Fouquet
Representing
EREF asbl
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State of Affairs Globally
Source Ren 21

Renewable energy, end of 2008 (GW)

* GWth
** Billion liters/year

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Mandatory EU RE Targets
Source JRC

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Trajectory to 2020
Source: JRC
And the fiddling starts

- Finland: Government want to make its RES target reaching depending from new nuclear build
- Czech Republic: Grid access obstacles increasing – Freezing of grid access permits
- Cost for balancing increasingly burdened on investor (e.g. Bulgaria)
- France: CLER will tell us
100 % is the objective for 2050

• We must massively change especially the electricity sector towards RES
• Investment decision outside RES and outside Energy Efficiency will jeopardize to reach 95 % GHG reduction
• Renewable energy and Efficiency Impact assessment (REEI) needed for all policies
• Structured sectoral roadmap on demand side bases
• 30 plus % for RES in 2030
Final Energy Consumption in EU 27 per Sector - Homework

Dr. Doerte Fouquet FIPA Workshop March 2010
Scenario comparisons - PV


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Scenario 2020 from our industry: example Germany

The Electricity Mix in 2020: Renewable Energies Ensuring 47 % of Supply

- Nuclear Energy: 9 TWh (1 %)
- Natural Gas: 65 TWh (11 %)
- Lignite: 99 TWh (17 %)
- Hard Coal: 114 TWh (19 %)
- Others*: 29 TWh (5 %)
- Geothermal: 1 %
- Hydropower (renewable): 5 %
- Photovoltaics: 7 %
- Bio-Energy: 9 %
- Wind power offshore: 6 %
- Wind power onshore: 19 %

*Waste, Mineral Oil, Storage etc.
Source: Industry Forecast 2020; Status: 1/2009

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Sustainable future - ante portas?

- **RWE CEO Says New Coal-Fired Projects "On Hold"
  
  - May 27, 2009--RWE Power
  
  Building of new coal-fired plants is no longer economically feasible. Dr. Johannes Lambertz, President and CEO of RWE Power, announced that new coal-fired power plant are now too expensive to build because of:
  
  - rising construction costs,
  
  - fluctuating electricity and fuel prices in a liberalised marketplace, and
  
  - the cost of implementing carbon capture and storage (CCS) technologies.

Global developments in renewable energy, energy efficiency and energy savings and clean energy technologies

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Increase in global grid connected power

- Wind
- Nuclear

the international institute for industrial environmental economics
Lund University, Sweden
The way to 100 % RES – the view of the RES industry and stakeholders

• **The electricity sector** will be the pioneer of renewable energy utilisation.
  
  By 2050, around 77% of electricity will be produced from renewable energy sources (including large hydro). A capacity of 9,100 GW will produce 28,600 TWh/a of renewable electricity in 2050.

• **In the heat supply sector, the contribution of renewables will** increase to 70% by 2050. Fossil fuels will be increasingly replaced by more efficient modern technologies, in particular biomass, solar collectors and geothermal.

• **Before sustainable bio fuels are introduced in the transport sector,** the existing large efficiency potentials have to be exploited. As biomass is mainly committed to stationary applications, the production of bio fuels is limited by the availability of sustainable raw materials. Electric vehicles powered by renewable energy sources, will play an increasingly important role from 2020 onwards.

• **By 2050, 56% of primary energy demand will be covered by** renewable energy sources.

• Source : (Global Energy (R)evolution 2009)
Energy Efficiency – the hidden beauty

• Development pathway for the exploitation of energy efficiency potential, focused on current best practice as well as technologies available in the future.

• EREC/GREENPEACE Energy [R]evolution Scenario: worldwide final energy demand can be reduced by 38% in 2050 compared to the IEA Reference Scenario.

• The energy supply scenarios adopted in this report, which extend beyond and enhance projections made by the International Energy Agency, have been calculated using the MESAP/PlaNet simulation model. The demand side projection to take into account the future potential for energy efficiency measures.
Energy Efficiency is key

• Exploitation of the existing large energy efficiency potentials to keep primary energy demand reigned in – from the current global 474,900 PJ/a (2005) to 480,860 PJ/a in 2050, compared to 867,700 PJ/a

• Condition sine qua non for achieving a significant share of renewable energy sources in the overall energy supply system, for compensating the phasing out of nuclear energy and for drastic reducing the consumption of fossil fuels globally.
Clever Energy management is key

- The grid integration of huge percentages of fluctuating sources such as wind and solar photovoltaic needs further scientific and technical research.
- Excellent regional meteorological data
- Storage and balancing capacity on all levels of energy path (batteries, pump storage, hydro and biogas as storage, cavern use, transport means and buildings as storage hubs, IT for rapid balancing)

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Good policies are key

- **Phase out** all subsidies for fossil fuels and nuclear energy.
- **Internalise the external (social and environmental) costs of** energy production
- **Mandate strict efficiency standards for all energy consuming** appliances, buildings and vehicles.
- **Establish legally binding targets for renewable energy** and combined heat and power generation.
- **Reform the electricity markets by guaranteeing priority access** to the grid for renewable power generators.
- **Provide defined and stable returns for investors**, e.g. by well designed feed-in tariff programs.
- **better labeling and disclosure mechanisms** to provide more environmental product information.
- **Increase research and development budgets** for renewable energy and energy efficiency.
EU: Achievement of Support – Systems

- Cap and Trade mechanisms tend to ensure the basic energy industry structure and market power to remain unchanged. The power of decision is kept with the incumbent energy industry.
- The tradable quota systems introduces a negative feedback, in a way punishing success. May not be intelligent in a situation where goal is fast deployment of new renewable energy technologies.
- The system introduces new transaction costs to renewable energy, while not to the polluters. Transaction costs are in the same order of magnitude as the extra support the systems give the producers. Thus a waste of public resources.
- The extra market risks and price fluctuations introduced is a benefit to the large power companies who have enough capital to handle price fluctuations while small independent producers are vulnerable in such a process.
- Run for so-called best places with big installations under TGC inherent.
Achievements (II)

• Fit Mechanisms tend to be more welcoming towards new market players /IPP

• Share of RES in German power production:
  – about 12.5 % in 2007 [1998: 4.7%]
  – indicative target for 2010 already reached in 2007
  – 300.500 jobs in German RE industries (2009) (170.000 in ’05), - 350.000 EU wide (2006)
  – RES industry projection for Germany for 2020: 500 000 jobs
  – 21.6 Billion Euro turnover (2006)- Germany
  – So far over 90 % of new RES in the responsibility of IPPs in Germany

• 10 Years of Cap and Trade Mechanism in the United Kingdom:
  – RES share below 2% in 2006
  – Only restricted technology spread (wind, co-firing)
  – UK will not be able to reach indicative target in 2010
A word on RES pricing

• Current discussion of FiT system and its rates for PV in Germany shows a problematic picture:
  • As much as Independent power producer applaud rapid decrease in technology prices there is a fine line to short sighted populist move by politicians which endangers the validity of the whole RES sector
  • It seems it is “en vogue” to go after RES but keep on being blind on topics such as windfall profits and reserve funds for future dismantling of Nuclear Power plants which give enormous extra cash to the incumbent industry

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A word on Sustainability and Level Playing field

- Renewable Energy producing technologies compete with all other energy producing technologies. It is unacceptable to regulate RES within the legislative framework for household and consumer appliances whereas Nuclear, Gas and Coal will be excluded from the scope of RoHS.
- **European Photovoltaic Industry Association** (EPIA) and **PV Cycle**, the European association for the voluntary take-back and recycling of photovoltaic modules, underlines that extending the scope of the RoHS Directive would not do any favors for the promotion of renewable energies in the EU.
- It "bans certain innovative solar panels from the EU market" and results in "disproportionate compliance costs" due to the different transposition of the directive in member states, they said in a statement. "PV is a young growing industry which is striving to reach competitiveness; resources allocated for the compliance under RoHS will not be allocated elsewhere, to the detriment of technological and R&D investments,"
- The **European Renewable Energy Council** (EREC) underlines that including renewable energy technologies within the scope of RoHS would be counter-productive in achieving the EU's environmental, energy security and competitiveness objectives.
- "The environmental impacts of using renewable energy sources are insignificant when compared to the environmental impacts of non-renewable energy sources," **EREC statement**.
- The RES industry is striving for competitiveness, sustainability is a steady key topic for the sector. We cannot accept any turf wars nor to be again alienated from the energy market.
- It would be important the EP and Council would call on the Commission to come up with a proposal for **environmental standards for all energy producing technologies**, based on full life cycle assessment.
- All renewable technologies are environmentally safe technologies helping increasingly to avoid hazardous emission especially from mineral oil and coal based energy production.
• Thank you for your attention

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