The Right Balance

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Representing EREF

EREF - The independent RES producers' voice in Europe

- EREF was founded in 1999
- EREF is the umbrella organisation of national European associations covering all renewable energy sources
- EREF is the Renewable Energy Independent Producer's Voice
- EREF's goal: to create a market environment in Europe which actively encourages independent power production
- At present EREF represents in electricity more than 18.000 MW installed capacity

EU EmissionTrading (EU-ETS)

- The Kyoto Protocol demands that the European Union cut CO2 emissions by 8 percent between 1990 and 2012, that means over a period of 22 years.
- The new adopted climate protection goal require the EU to cut emissions by a further 12 percent between 2012 and 2020, i.e. within only eight years.
- By the beginning of 2007, the EU-25 only managed to achieve approx. 1.0 percent of the 8 percent reduction agreed in Kyoto.
- This means in just 4.5 years Europe has to achieve further 7 %
- This means EU-ETS cannot claim success so far

The setting for Climate and Security

- The Pride of Europe to commit for 20 % RE in total energy consumption by 2020 – Yes, but
- A stepping stone towards the demand for close to Zero Emission in Europe by 2050 (IPPC)
- Renewable Energies: from “nice to have” to “necessary to push forward”

Renewable industry

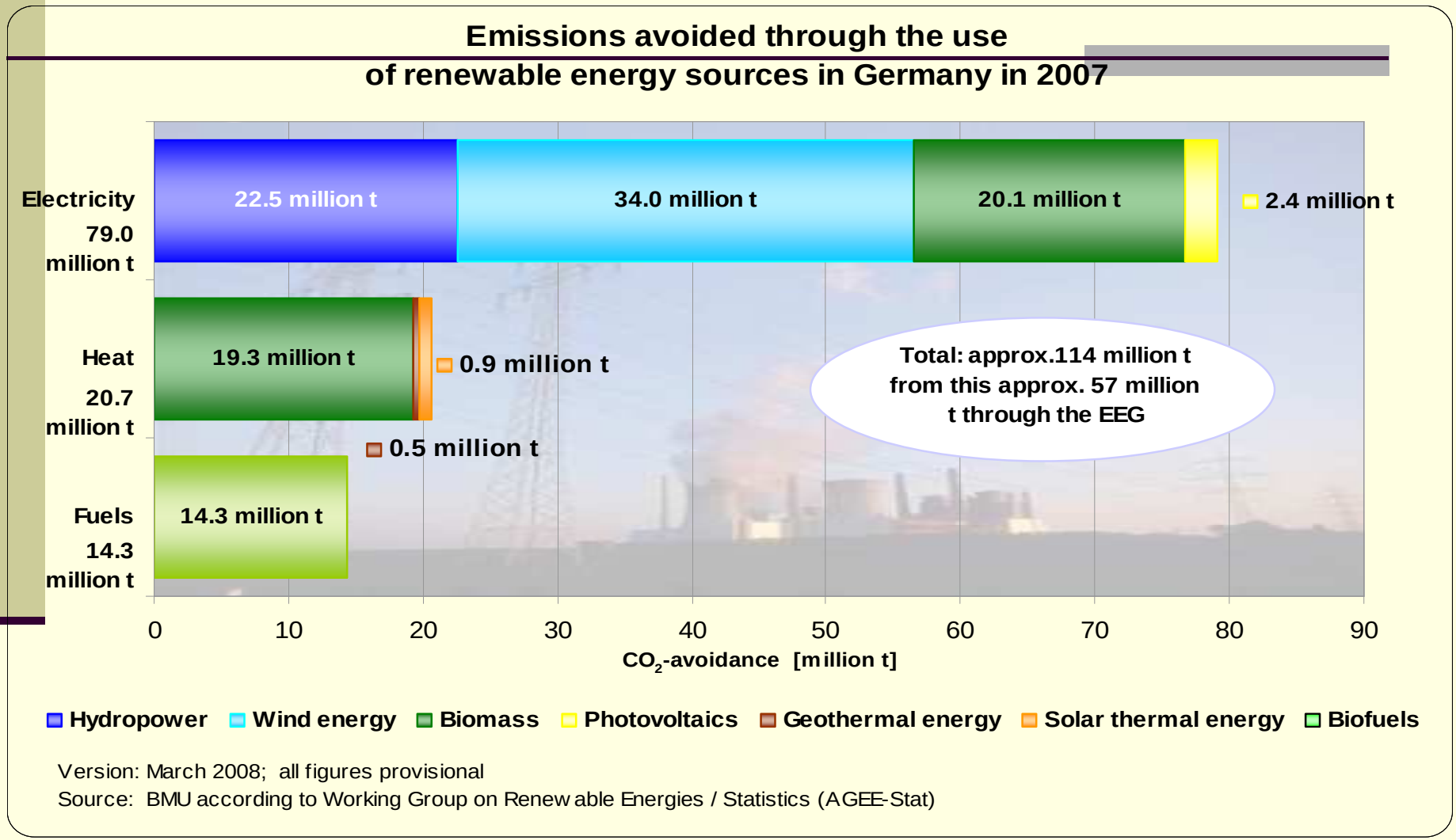
- Investment in new renewable energy in 2005 was worldwide $38 billion, up from $30 billion in 2004.
- Germany and China were investment leaders, with about $7 billion each, followed by the United States, Spain, Japan, and India.
- Overall:
  1. Wind power reached 59 GW.
  2. Biomass power production doubled in many countries.
  3. Biodiesel - 85 percent increase in overall annual prod.
  4. Grid-connected solar PV -55 percent increase in existing capacity
  5. Solar hot water existing capacity grew by 23 percent in China alone and reached record levels across Europe as well.

Source: REN 21, Renewable Global Status Report 2006

The precondition for RES investment

- New renewable energy capacity needs
  - Investment Security
  - Clear legal and political guidelines
  - National RE deployment programmes
  - A market access facilitating policy
  - Grid enforcement and ownership unbundling
  - A competition-vigilant Commission
  - Group exemption for RE State Aid programmes

Renewables as Climate supporter



The Climate threat from traditional Energy production

- RWE, Enel and E.ON were the three biggest CO2 emitters during the first phase of the EU emissions trading scheme (EU ETS)
- RWE, Enel and E.ON emitted in 2007 respectively 151 MtCO2, 97 MtCO2 and 91 MtCO2
- Source: Carbon Market Data 13.05.2008
- RWE emitted 30 Mt CO2 more than the whole German reduction effort in the same year, E.ON polluted just 21 Mt CO2 less than the overall German reduction effort of 114 Mt CO2 achieved by RES deployment

Downside of market concentration

- TRUST, CARTEL and grid access manipulation burden the development of a market
- **Procedures by European Commission and national authorities against anticompetitive behaviour increase but still an uphill struggle, without full ownership unbundling of grids e.g. and with highly concentrated key markets**

The tip of an iceberg ?

- The Commission runs a number of antitrust investigations into energy companies as a consequence of the **energy sector inquiry 2006/2007**. *Inter alia,* the Commission has been investigating two cases against E.ON in the electricity sector.
- **COMP/39.326 - E.On et al.**
- **2 October 2006 Commission initiates proceedings in case COMP/39326**
- *The European Commission has welcomed structural remedies offered by E.ON to settle ongoing antitrust cases in the electricity sector. E.ON proposes to sell its electricity transmission system network to an operator which would have no interest in the electricity generation and/or supply businesses and to commit to divest 4800MW of generation capacity to competitors. Decision under Article 9 of Regulation 1/2003 considered*
- The Commission is vigilant concerning **collusion between incumbents to share markets**, one of the "most serious threats to competition" This reflects the overall priority of the Commission to fight attempts by undertakings to coordinate their behaviour in the marketplace rather than to compete.
- **Vertical integration** - creating unequal access to essential market information and by enabling incumbents to engage in strategic behaviour.
- **Lack of access to infrastructure** such as transmission and distribution networks and/or storage facilities
- **Lack of, or delayed, investment** by transmission companies with vertically integrated supply companies, preventing market integration, is another serious source of concern.
- **Focus on 3rd liberalisation package**

Where is the market ?

- “Even though some RE technologies without any support are at cost levels comparable with those of conventional sources of energy, unsupported new renewable energy is still not commercially competitive in the **current distorted electricity market.** This deformation of the internal EU 27 electricity market is especially caused by public direct and indirect subsidies. “

  Source: Fouquet, Johansson: European renewable energy policy at crossroads – focus on electricity support mechanisms, 2008

- “UNEP, the World Bank and the International Energy Agency put global **annual** subsidies for fossil fuels in the range of US$100-200 billion, representing “a substantial market distortion, discourage new entrants into the market, and undermine the pursuit of energy efficiency”

  Source: Fred Beck, Eric Martinot ,Renewable Energy Policies and Barriers, in Encyclopaedia of Energy, Cutler J. Cleveland, ed. (Academic Press/Elsevier Science, 2004)

Windfall

- Windfall profits or producer rents resulting from marginal cost pricing and earned by electricity companies owning large depreciated nuclear and lignite fuelled utilities (especially in Germany and France) –
  - Estimated for 2005 and 2006 together for the companies RWE, EnBW, E.On and Vattenfall Europe with their German operations at the order of 8.2 bill Euros and for EDF in France at 13 bill Euros

  Source: Uwe Leprich, The Crisis of the Electricity Markets in Europe: Problems and Consequences, 2005
- Windfall profit derived to passing on a large share of the not occurring additional costs for Greenhouse gas (GHG) emissions allowances by electricity producers to customers
  Free allocation or so-called grandfathering is rectified under current ETS Directive just allowing 5 % allowances' auctioning between 2005 and 2008 and 10 % between 2008 and 2012.
- The European Commission proposal in January 2008 for an amended ETD Directive now foresees the principle of full auctioning of emission allowances for EU 27 for the period after 2012.

Imbalance

- Policy of especially Germany to leave the funds for the future dismantling of nuclear power stations in the budget of the four companies owing nuclear plants amounts to a further considerable addition to market power at the order of approximately 30 to 40 bill Euros

Uneven distribution of externalities since centuries

- "In the nineteenth century, the reductions in energy service prices led to vast increases in consumption, which were far greater than the environmental gains of efficiency. Markets have an incentive to externalise the costs of energy service production. Technologies and fuels that manage to externalise the costs are more likely to be adopted. The costs have been passed on to society in general, although often on to the politically weaker or poorer segments of the population.
- Another problem is that the benefits of cheap consumption are not spread equally either. Powerful firms producing energy and technology are able to capture high profits by externalising the costs. Their sales and profits would be far lower if the full costs were paid by consumers. Markets have failed to respond adequately to the public's demand to reduce these costs. "

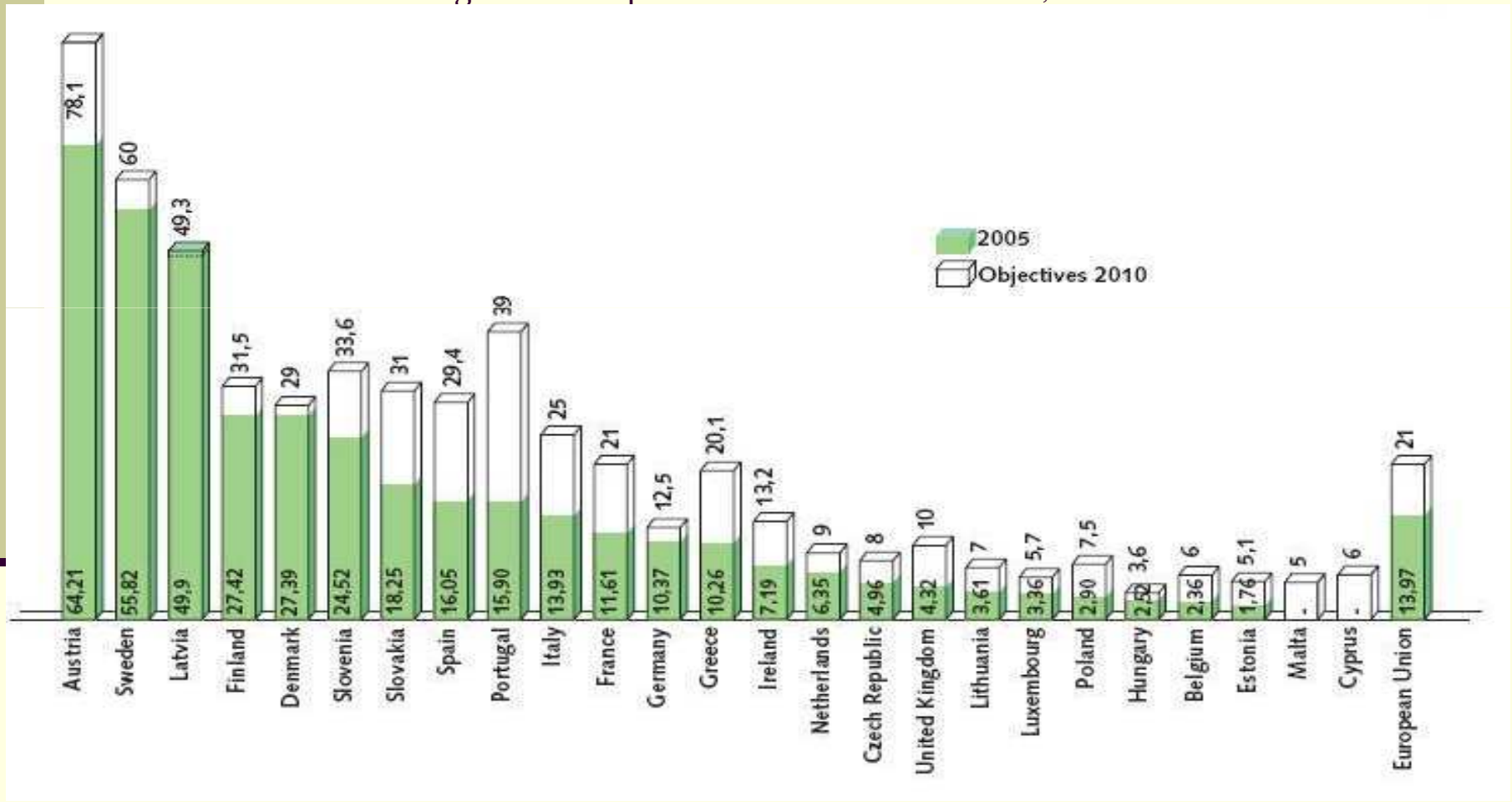
Source: Roger Fouquet, Heat, Power and Light, Revolutions in Energy Services (2008)

Life Cycle Shortcoming

- Non reflection of full lifecycle costs of all energy sources in the respective market price per kWh, including e.g. also the inadequate risk insurance for nuclear power as specific problem
- Factors of non-internalisation:
- Climate change damage costs associated with emissions of CO2;
- Damage costs (such as impacts on health, crops etc) associated with other air pollutants (NOx, SO2, NMVOCs, PM10, NH3),
- Other non-environmental social costs for non-fossil electricity-generating technologies.
- The external costs from nuclear are still too unconsidered in modelling tools such as ExternE. According to EEA they “have to be treated with caution, as only parts of the externalities are included”. The costs reflect to a large extent the small amount of emissions of CO2 and air pollutants, and the low risk of accidents. New estimates of the damage cost factors for nuclear energy are clearly needed in future ExternE projects .”

Renewables in Europe - on its way to meet the top ?

Source: state of renewable energies in Europe 2006 EurObserv'ER 2006,



10 years of conflict on the economic quality of existing RES support mechanism should end

- Rapid expansion of RE without support mechanism will not happen in the energy market place, as it now exists
- Most prominently overall RE support mechanisms may be grouped into two major categories, tradable green certificates (TGC) and feed-in-tariffs (FiT).
- Experiences from a number of countries in Europe suggest that FiT deliver larger and faster penetration of RE than TGC, at lower or comparable cost.

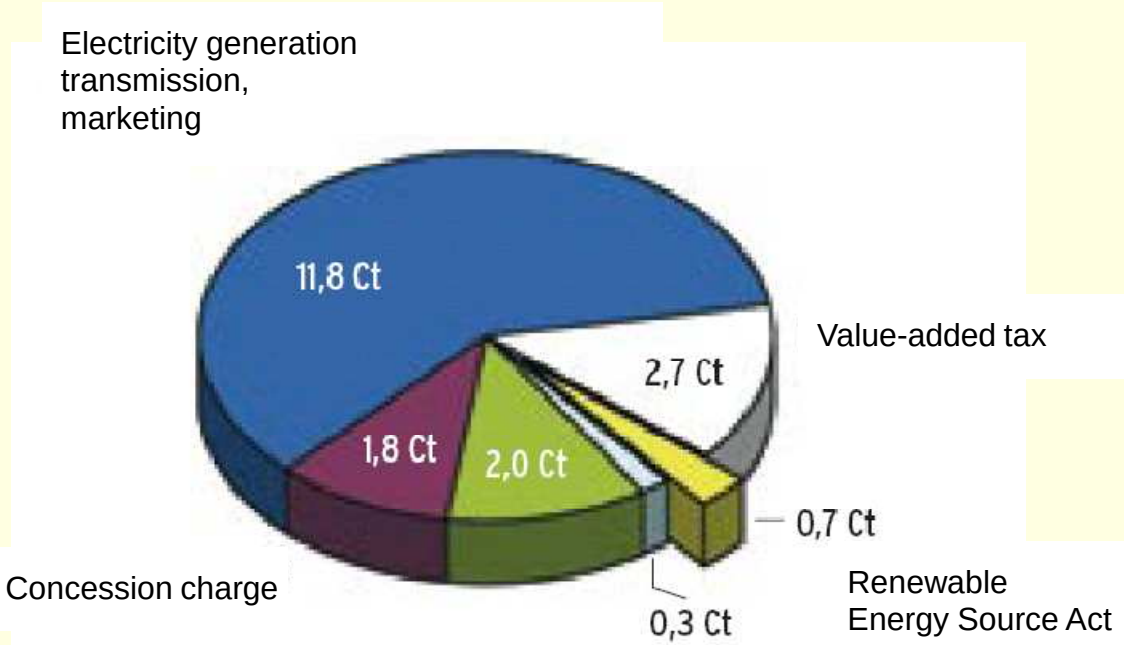
Current overall RES support Mechanisms in EU

- In TGC a defined member of the **national** electricity supply chain, be it consumer, generator or supplier, has to present a fixed minimum quantity of certificates each year, as set by a public authority. The certificates originate per MWh of RE electricity generated. An obligated party thus may generate himself or purchase certificates on a certificate market. The obligated party may pass on the cost of certificates to the consumer. The target of RE under the TGC system is set by the government and the certificate price is determined by the market
- TGC mechanisms are established in Belgium, Italy, Poland, Romania, Sweden and in the United Kingdom.
- In FiTsystems the basic principle is that any **national** generator of renewable electricity (RES) can sell its electricity at a fixed tariff for a specified time period under specific conditions depending on location, technology etc. The price remains constant for the defined period but for new connections in following years a lower price level is offered. The main elements in FiT systems are often combined with priority grid access The costs of FiT payments are in general passed on to the electricity consumers.
- Majority in EU is FiT

European success in RES is still too much in the hands of very few committed MS

- **Positive Example – Germany**:
- 2007: Indicative **12,5 % target** of gross electricity consumption **for 2010 already passed** (14.2 % in 2007)
- 2006 : 4,7 % share of RES in primary energy consumption
- 240.000 people working in RES (170.000 in ’05)
- Gross Turnover: 21,6 bio. Euro (18,1)
- Turnover from new installation set up: 11,3 bio. Euro (10,3)
- Turnover from running of installations: 10,3 Mrd. Euro (7,8)
- Renewable energies achieved a share of 14.2 % of gross electricity consumption in 2007
- More than 6 % of this was reached in only 6 years; 90 % of this increase comes from IPP
- ***Forward Estimate by Germany:***
- 2050: 77 % share *feasible*
- Source: (German Ministry of the Environment, BMU, Press Service 055/07, 27.02.2007; press declaration of 5th of July 07, BWE, Germany)

EEG: Share of costs for one kWh of electricity in private households (19,4 €-Cent), 2006.



Source: BMU 2006

Who delivered so far?

- Comparison of UK TGC on the one hand and German FiT is apparent: End of 2006 a total of 20 GW of RE capacity from wind power alone was installed in Germany, after 15 years of FiT systems. In Great Britain, 2 GW of RE capacity was installed from wind power, after 17 years of existence of the two major quota and trade mechanisms ever established in Europe, the NFFO and the ROC.

Price Disparity

- According to data from the German Ministry of Environment under the German FiT scheme a premium for 1 kWh onshore wind is in 2008 paid at the order 5.3 eurocent as lowest tariff and 8.4 eurocent for the highest tariff whereas under the UK Quota scheme the price lies at present between 12.0 and 14.0 eurocent per kWh.
- Source: BMU

Europe needs a fast track towards RE

- With TGC system, a target for RE penetration is set by public authorities seeking to minimise cost for achieving this target. The certificate price is set by the market.
- In a FiT system, public authorities set an effective price but are not limiting the quantity installed. This has led to impressive growth rates, particularly in Denmark, Germany, and Spain.
- Investor risks are lower in a FiT system, innovation incentives are higher.
- FiT systems are labelled the “venture capital investor’s best friend”, preferring “risk-minimizing market-pull policies such as feed-in tariffs for renewable energy over CO2 emissions trading and certificate trading systems”. Source: Dr. Rolf Wüstenhagen, Vice Director , Institute for Economy and the Environment (IWÖ-HSG), University of St. Gallen, Marktchancen durch Innovation bei den erneuerbaren Energien, Juni 2007;

State Aid for Renewable Energy Sources under the new Guidelines

- Main conditions
  - If costs of production are higher compared to production from less environmental sources
  - And only as long as / if there is no EU 27 mandatory standard for a share or RES for individual undertakings
  - Biofuels and Hydropower have specific sustainability attention attached

Favouring of Bidding systems under the new guidelines

- Where Investment Aid is granted in a “genuinely competitive bidding process on the basis of clear, transparent and non discriminatory criteria”, ensuring that aid is limited to minimum necessary for delivering maximum renewable energy, aid intensity can go up to 100 % of eligible investment costs (see No. 104 of New Guidelines)
- Questionable in view of above limited success of such mechanisms

The good news: Block Exemption as an option

- New Guidelines introduce for the first time the way towards Block Exemption in the field of environment
- But the Regulations for BE (BER) are still to come from Commission during this year (“before summer break”)
- BE would mean that for all aid mechanisms under such exemption there is no need to notify and approve the single aid unless
  - a certain set threshold or condition in the future BER would require notification of a specific aid individually

- You have an own roof and still you don’t earn money with it?!”

Publicity in Germany for PV modules

- Thank you for your attention !

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