Implementation of the EU Directive for Renewable Energies

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The new RES Directive

- Sets **mandatory national targets** for renewable energy shares, including 10% biofuels share in transport, in 2020
- Requires **National Action Plans,**
- **Gives flexibility** for Member States to reach part of their target through
  - **Statistical** transfer
  - **Joint projects** between Member States and third countries with existing or planned interconnector capacity (under certain conditions and provided RES energy reaches the EU))
- Encourages **joint Support mechanisms between MS**
- **Sets clear rules** for disclosure quality of **Guarantees of origin**
- Requires **reduction of administrative and regulatory barriers**, improvements in provision of information and training and improves renewables' access to the electricity grid
- Creates a **sustainability regime** for biofuels

Europe's new Commitment

- **20% GHG reduction compared to 1990**
  - **Independent commitment**
- **30% GHG reduction compared to 1990**
  - **In context of international agreement**
- **20% renewables share of final energy consumption**
- **10% bioenergy in transport, with**
  - **production being sustainable**
  - **second generation biofuels commercially available**
  - **Electricity from RES**

EU 27's homework

- National overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020* (ANNEX I of RES Directive)

	2005 (1)	2020 (2)		2005	2020
Belgium	2,2 %	13%	**Lithuania**	15,0 %	23%
Bulgaria	9,4 %	16%	**Luxembourg**	0,9 %	11%
Czech Republic	6,1 %	13%	**Hungary**	4,3 %	13%
Denmark	17,0 %	30%	**Malta**	0,0 %	10%
Germany	5,8 %	18%	**The Netherlands**	2,4 %	14%
Estonia	18,0 %	25%	**Austria**	23,3 %	34%
Ireland	3,1 %	16%	**Poland**	7,2 %	15%
Greece	6,9 %	18%	**Portugal**	20,5 %	31%
Spain	8,7 %	20%	**Romania**	17,8 %	24%
France	10,3 %	23%	**Slovenia**	16,0 %	25%
Italy	45,2 %	17%	**Slovak Republic**	6,7 %	14%
Cyprus	2,9 %	13%	**Finland**	28,5 %	38%
Latvia	32,6 %	40%	**Sweden**	39,8 %	49%
United Kingdom	1,3 %	15%			

* In order to be able to achieve the national objectives set out in this Annex, it is underlined that the State aid guidelines for environmental protection recognise the continued need for national mechanisms of support for the promotion of energy from renewable sources.

- (1) Share of energy from renewable sources in ***gross*** final consumption of energy,
- (2) Target for share of energy from renewable sources in ***gross*** final consumption of energy

Achievement

- 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
  - 235,000 jobs in German RE industries (2006) (170.000 in ’05), - 350,000 EU wide (2006)
  - 21.6 Billion Euro turnover (2006)
  - 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

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

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

- Example – Germany:
  - **2007**:
  - Indicative **12,5 % target** of gross electricity consumption **for 2010 already passed** (14.2 % in 2007)
  - 9,8 % share of total end energy consumption (Electricity, heating, fuel) (2006:
  - 8,1 %)
  - 250.000 people working in RES in 2007 (170.000 in ’05)
  - Gross Turnover: 25,5 bio. Euro (18,1 in ‘05) In
  - Turnover from new installation set up: 11,3 bio. Euro (10,3 in ’05))
- Turnover from running of installations: 10,3 Mrd. Euro (7,8 in ‘05)
- 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 and “Erneuerbare Energien in Zahlen, (BMU,Internet Update 2009); press declaration of 5th of July 07, BWE, Germany)

Average 11 % RE increase per year in Germany 1997 -2007

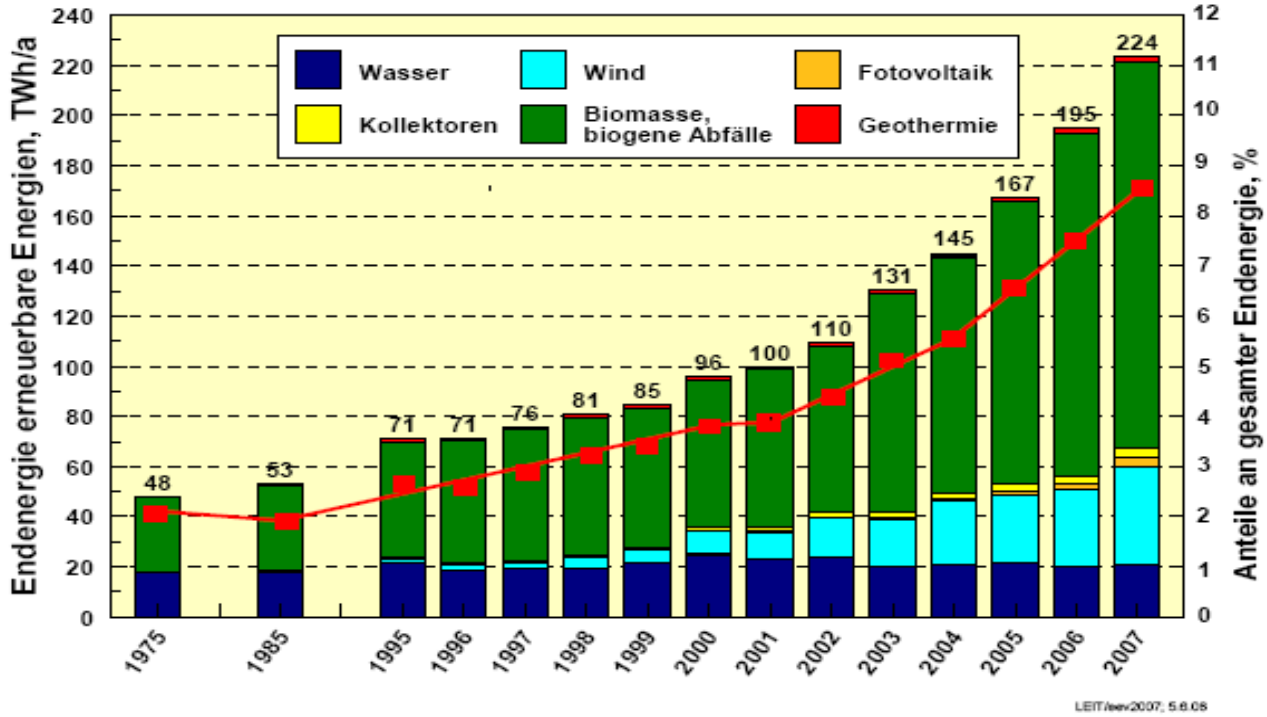
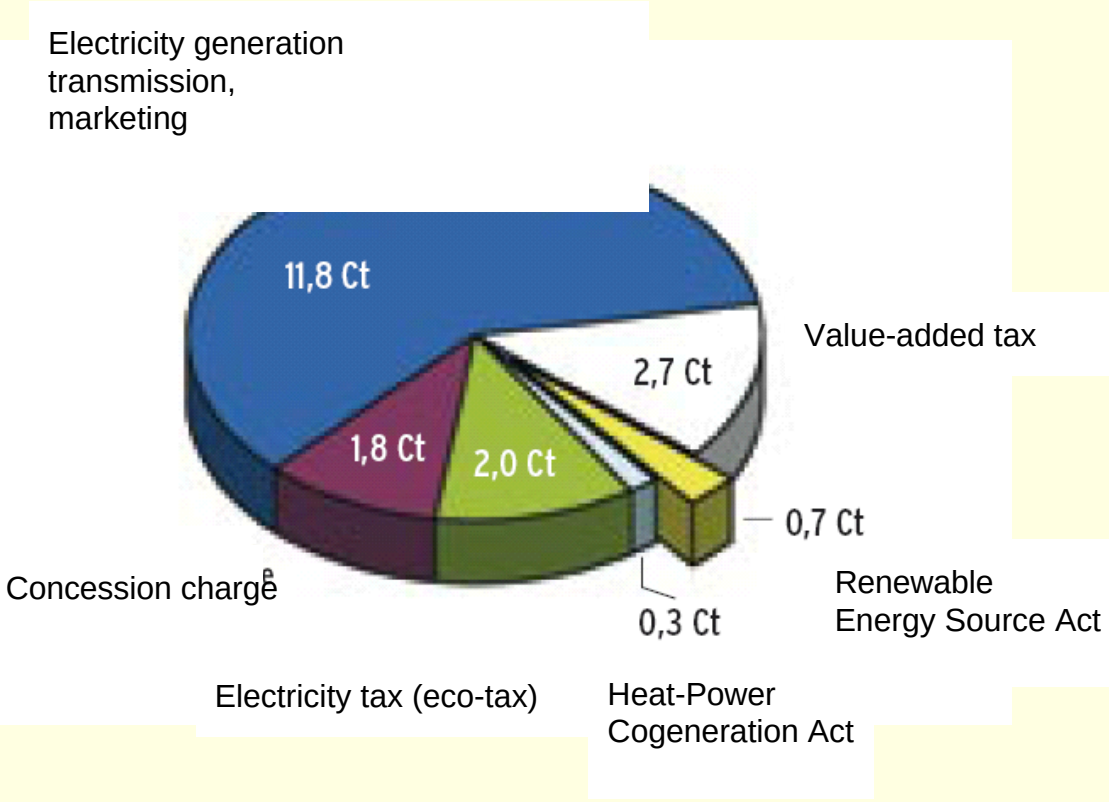


Abbildung 1: Endenergiebeitrag erneuerbarer Energien nach Energiequellen 1975 – 2007

Leitstudie 2008, BMU

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



Source: BMU 2006

The very national link of support mechanism

- Renewables are distributed and decentralised energies, best tapped and managed on a regional level
- All RES Technologies must be promoted, no cherry-picking
- Each country has a lot of specific variables:
- The availability of RES potential
- Cultural preferences
- Different social, tax, RTD approach

Benefit beyond the technology - Macro economy

- **Societal benefit of FiT law, ex: German EEG**
- + Merit-Order-Effect of renewable electricity generation on spot market prices in Germany 5,0 Mrd. Euro
- + avoided environmental damage 3,4 Mrd. Euro
- + avoided fuel import 1,0 Mrd. Euro
- - EEG- difference costs 3,2 Mrd. Euro
- - Increased costs for balancing (Regelenergie) 0,1 Mrd. Euro
- **Overall benefit 6,1 Mrd. Euro**
- (Source: German Ministry for Environment BMU 2006)

- *Merit-Order: The guaranteed feed-in of electricity generated by renewable energy sources has the effect of a reduction in the electricity demand*

Cost Digression Capability

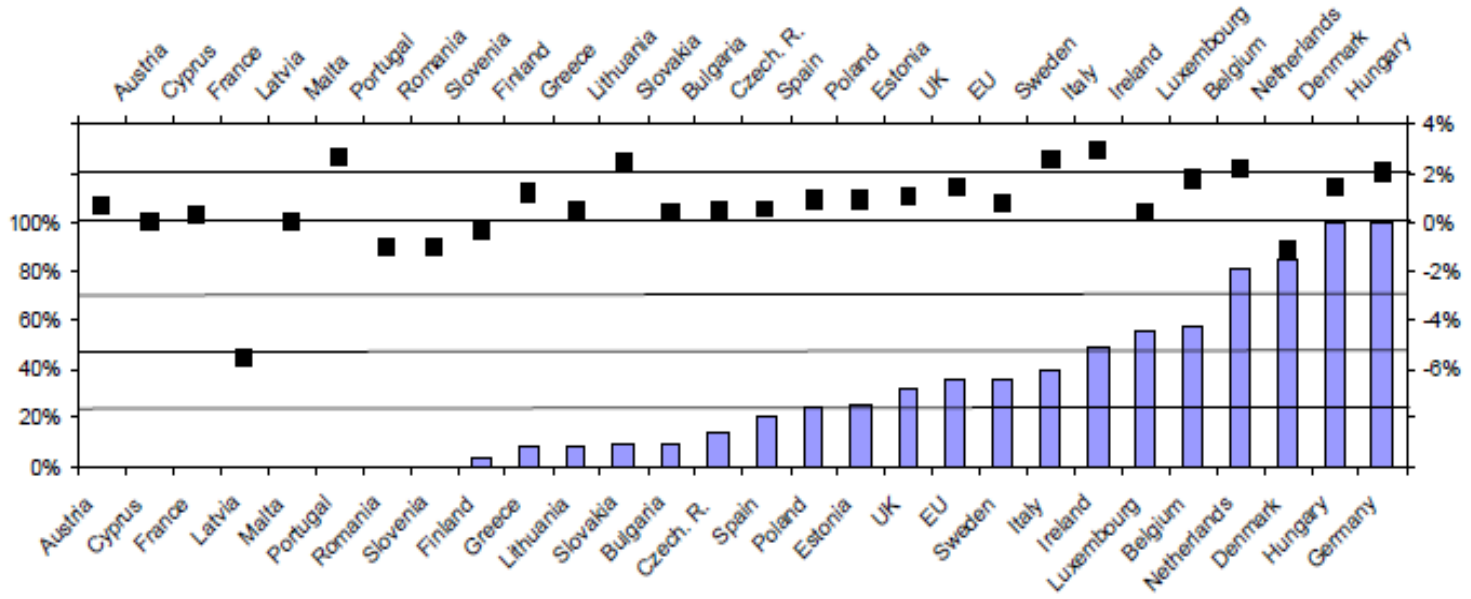
- Example PV: First Solar thin film producer is driving towards grid parity at $2.50/W (System) and $0.08/kWh before 2012
- Source: Thin Film Technology: the pathway to Grid Parity, 2009 (Benny Buller, Director of Device Improvement First Solar)
- Support mechanisms in general contain review clauses and digression obligations
- *Mike Ahearn, CEO, First Solar, quoted in: Thomas Friedman, Hot, Flat and Crowded, p 389:*
- “Every year- and this was really smart- new solar projects coming on line in Germany have a feed-in tariff that is 5 percent lower then the previous year’s tariff to account for, and to stimulate improvements in efficiency. Research around learning curves says that when sales double, you usually get a roughly 20 percent reduction in price. So volume matters here.The more volume, the quicker and further you move down the learning curve toward the price that will scale in China and India. After we made the initial market test in Germany, we realized that the feed-on program had created a centre of technological excellence, with a lot of budding innovators..”

The weak points of the Directive

- No binding interim targets
- No direct penalty mechanisms for the Commission
- Too modest on minimum use of RES in new buildings
- May not help to prevent temperature increase by 2050 above 2 °Celsius

Trust in Delivery ?

The progress made towards the 2010 target (columns and left hand axis) **and the change in Member State's renewable electricity shares 2004-2006** (points, right hand axis).

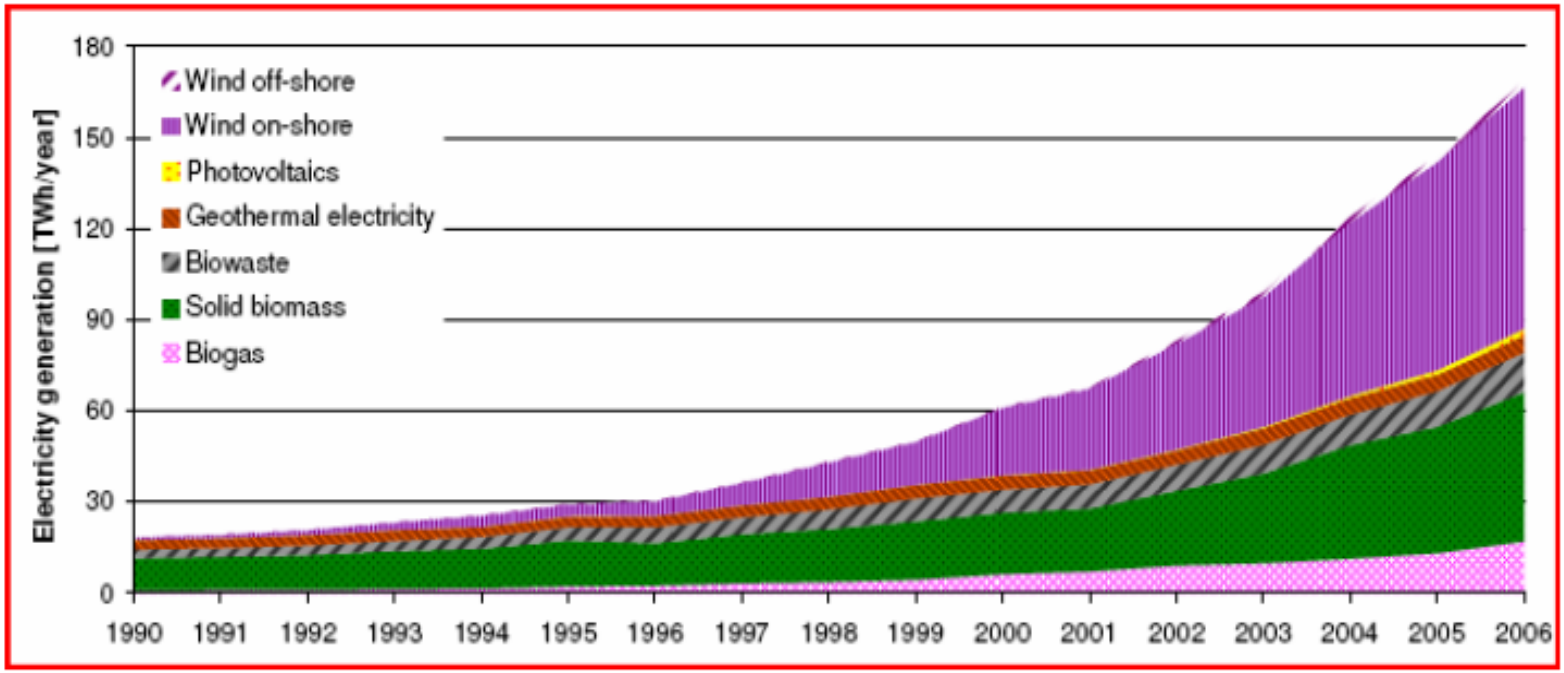


Source: based on normalised Eurostat 2006 data and 2010 targets

Source The Renewable Energy Progress Report: Commission Report in accordance with Article 3 of Directive 2001/77/EC, Article 4(2) of Directive 2003/30/EC and on the implementation of the EU Biomass Action Plan,COM(2005)628

Poor spread of technologies and MS performing

The growth of renewable electricity has been driven by a small number of Member States and the range of technologies used[13] has also been limited:



Source: "Promotion and growth of renewable energy sources and systems" Final Report, Ecofys et al. (hydropower excluded)

From the Commission's Evaluation 2009 on Performance of MS for RE

- "Commission analysis still suggests the 2010 21% target will not be reached without significant additional effort."
- "Hungary and Germany have already reached their target, whereas several countries still have to make all their efforts in the next two years, highlighting the need to take quick and effective action to begin development. With six member States increasing their shares by over 2 percentage points (Germany, for instance, increasing from 10.6% to 12.6%), over the last two years the EU share of renewable electricity has increased by almost 1.5 percentage points (14.4% to 15.7%). **However this disguises the poor recent efforts of some seven countries whose shares have stagnated or actually declined."**

Commission's evaluation

- Reasons for the slow progress in developing renewable electricity "are not new".
- Since 2004 61 legal proceedings against Member States for non-compliance with the Directive.
- Italy - 13
- Spain - 6
- Austria - 4
- Czech Republic - 3
- France - 3
- Latvia - 3
- Poland - 3
- 16 cases still pending.
- European Commission continues monitoring and will "open infringement cases wherever necessary".
- "However the poor progress and number of infringement proceedings also implies that the legal framework is not sufficiently strong. This is one reason for the new Directive on renewable energy."

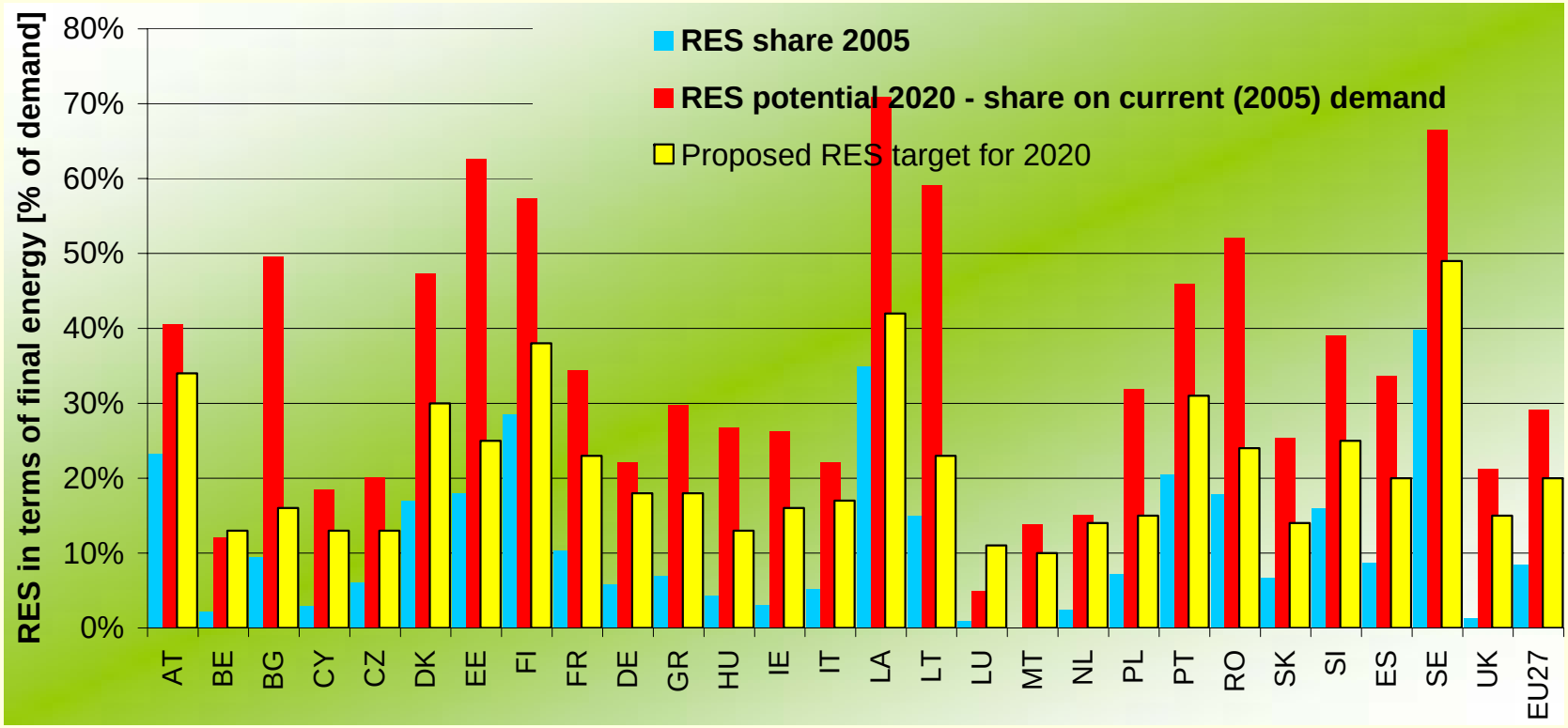
The binding character of targets

- Insufficient to trigger confidence
- Europe failed to give direct penalty mechanism to Commission
- Interim targets not binding
- Even early infringement procedures will drag on for years:
- The duration of litigation and pre-court procedure esp. in cases of environment can take 80 to 89 months (so on average it can reach 7 years) s. Ludwig Krämer, Environmental Judgements by the Court of Justice and their duration, JEEPL (2008) 263-280)

All eyes on Action

- Crucial to push governments for clear and progressive National Renewable Energy Plans
- Crucial that the Commission gives clear notes on delivery capability
- Monitoring is of utmost importance

RES target for 2020 (final energy demand) compared to total national potential and already achieved RES share in 2005



Source: futures-e project (see Resch et al., 2009)

The new Directive and barriers for RES

- **Reforms, or requires reforms of administrative and regulatory barriers to the growth of renewable energy**
- simplification and streamlined procedures
  - planning authorities to consider renewable energy and district heating and cooling systems
  - Too low but - minimum levels of renewable energy in building codes for new or refurbished buildings
  - promotion of energy efficient renewable energy
  - Certification regimes for installers; mutual recognition

National Renewable Action Plans

- Policy action required in all Member States to achieve the ambitious RES targets. Commission will publish a template by June 2009
- The following criteria, independent of the support instrument applied in a certain country, are recommended:
  - The RES policy framework needs to respect the full basket of RES technologies as allowed for target compliance.
  - An adequate level of financial support level should be provided – i.e. slightly higher than the marginal generation costs (in the case of a quota system the level of penalty is relevant).
  - Financial support for the operation of a RES plant needs to be guaranteed but clearly restricted to a certain time frame.
  - Any adaptation or change of the policy framework should be targeted to assure deployment of new RES capacities.

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.
- FiT systems are labelled the “venture capital investor’s best friend”, - “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;

- Direct State Aid Programmes for RE

Commission and RES Support reasoning (Commission Staff Working Doc (Com(2005)627 final)

- *"From an economic efficiency perspective, a number of market failures justify state intervention in RES-E markets.*
- *Firstly.. Since complete internalisation of .. externals does not appear politically feasible at present in most countries .. supporting RES to take account of their lower emissions profile can be justified on efficiency grounds.*
- *Secondly, although some RES, such as wind in prime locations, exhibit cost structures close to those of conventional sources, RES are generally considered to be not yet commercially competitive on an unprotected electricity market , especially as this market is still distorted by a large number of direct and indirect subsidies for the existing electricity system, and is based on infrastructure that was mainly built when the electricity sector was publicly owned. .. Despite the long-term prospects of RES, the market is still under-investing in research and development, which is why governments should provide incentives to innovate.*
- *Regulatory systems nowadays favour conventional energies, which have additionally profited from massive government support for R&D in the past.*

State Aid for Res

- Often via direct grants and often supplementary or in parallel to support mechanisms such as FiT systems
- To trigger private investment in housing sector and commercial part
- To enhance industry change towards sustainability

A typical support programme

- **N 458 / 2006 – Direct Grant for the Use of Renewable Energies**

- **Member State: Germany**
- **Primary Objective: Environmental protection**
- **Aid instrument: Direct grant**
- **Interest subsidy**
- **Case Type: Scheme**
- **Duration: from 01.01.2004 to 31.12.2006**
-
- **Notification or Registration Date: 10.07.2006**
- **DG Responsible: Competition DG**
- **Related Procedures: N 287 / 2005 N 287 / 2006 N 94 / 2007**
- **Decision on 15.09.2006: Article 4§3 - decision not to raise objections**
- **Decision Text: Letter to the Member State - authentic language de**
- **Publication on 13.01.2007: Official Journal: JOCE C/9/2007**

2006 N 94 / 2007

- **Subject: State aid No N 94/2007 – Germany, modification and prolongation of the aid scheme "Aid for the use of renewable energies"**
- **EC Letter to Minister for Foreign Affairs of Germany -**
- **1. Procedure**
- By letter dated 19 February 2006, registered on the same date, the German authorities notified to the Commission pursuant to Art 88(3) of the EC-Treaty the above-mentioned aid measure. Germany notified the aid under the simplified procedure of Article 4(1)(c) of the Commission Regulation (EC) No 794/2004. The measure was notified as an amendment and prolongation of the aid scheme examined in the decision N 458/2006.
- **2. Description of the programme**
- Under the prolonged programme, assistance is provided for investment projects for the use of renewable energy sources. The projects aim and result in energy saving, environment relief and climate protection. Aid is provided to private persons, free professions, micro, small and medium-sized enterprises as defined by the Community (only in rare exceptional cases also larger enterprises) and schools. Excluded are electricity companies and the producers of the equipment for whose installation the aid is given. The aid is given in the form of grants and interest subsidies. The annual budget of the scheme was up to EUR 193,087 million in 2005 and is up to EUR 180,0 million in 2006.
- To grant state aid for
- - Solar collector installations
- - Hand fired biomass installations
- - Automatically fired biomass installations
- - Geothermic installations

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- Only additional costs incurred through the use of renewable energies or through energy saving measures are eligible, while general investment costs which cannot be attributed to environmental protection are excluded. The aid intensity under the programme lies mostly between 10% and 30% based on the eligible costs. Accumulation with aid from other public sources is allowed under the programme, but the combined intensity does in no case exceed the level of 40%.

Guidelines on State Aid for environment

- Whenever the Commission evaluates that a support scheme for electricity produced from renewable energy sources would constitute State aid, it assesses the compatibility of the aid under the ‘Community guidelines on State aid for environmental protection’

The EC logic for Guideline

- Missing internalisation of various externalities weighs on the environment
- Member States can counterbalance in order to address market failure and to reach a higher degree of environmental protection
- Guidelines serve as safeguard to fence off badly targeted or excessive state aid counteracting to the very environmental objectives

Common Interest

- Sustainable Development
  - based on economic prosperity, social cohesion and high level of protection of environment
- Polluter Pays Principle
- Are bases of the *EU Common Interest*
- Guidelines aim at authorising aid addressing market failure and “sub-optimal” protection of environment