

The German Renewable Electricity Law (EEG) –

Two Different Stories of Success and Contradictions¹

- History of the successful „Energy Turnaround from Grass Roots“ in favour of renewable energy sources (RES) in international comparison
- „Corporative Business as usual“ – Contradictions of the current internal development in Germany

History of Renewable Electricity Law

- Before the EEG after the European liberalisation of the electricity market 4 big energy corporations (Eon, RWE, Vattenfall & EnBW) were governing the electricity system in 4 occupation zones
- After the introduction of the EEG they lost every year about 1% of the share of the electricity market and now only own 5% of renewable facilities
- 60% of renewable facilities are in the hands of citizens and farmers
- The energy turnaround was the success of the anti-nuclear movement and the environmental movement in general on the basis of which movement-oriented members of parliament passed a law

Theses

- The „Renewable Electricity Law“ in electric power has been a huge success and is the basis for the „energy turnaround from below“
 - 400 000 jobs, 8.9 billion € municipal value creation (2011)
 - Million energy producers instead of 4 corporations
 - Boom of energy cooperatives amounting to over 600
 - over 130 000 members of energy cooperatives invested 1.2 billion €
- Alteration of the energy transmission and distribution networks is decisive for the system change of electricity system in Germany
 - grid structure designed for baseload (nuclear and coal)
 - grid expansion plans „business as usual“
- Cheaper electricity prices due to RES don't get passed on to consumers but lower prices for heavy users buying directly at electricity stock exchange and bring extra profit to energy suppliers
- Electricity from Renewables with a share of almost 25% reached a relevant quantity to bring the centralised structures of the power industry to systemic tipping points
 - loss of financial power of 4 big energy corporations
 - structure of the grid to integrate RES at distribution level

¹ Fabian Huebner – Presentation at the RLS-conference „Power Imbalances - Alternativen für den Energiesektor in Griechenland im europäischen und globalen Kontext“ - 10/10/2013

The Functioning of the Feed-In Tariff Law

- Priority for feed-in of renewable electricity into the grid
- Obligation of TSOs for grid-connection of renewable facilities
- Longterm guarantees with different tariffs for different renewable technologies with different quantities of installed capacity on different locations (e.g. onshore wind) for 20 years
- Fixed cost degression of feed in tariffs
- Price regulation instead of quantity regulation
- Cost allocation on electricity prices for consumers instead of public subsidies or taxation

Conditions of success

- Intelligent combination of planing and market mechanisma
- Political decision for market access
- fixed prices for investors creating investment security
- market mechanisms should ensure efficiency and technological progress
- Decline of prices for renewable due to the technological learning curve and the incentive for innovation through fixed degression of feed-in tariffs
 - The EEG has led to an enormous decline in the cost of key renewable energy technologies, solar PV and wind turbines. The cost of power generated by wind and solar energy has decreased by 50% and 80% respectively since 1990
 - Created dynamics and speed of installation of renewable facilities question hegemony of the 4 corporations over the electricity market

State of the Art

- 4 Big corporations and the political supporters in the government try to regain controll of the development of the electricity market by slowing down the installation of renewables
- Delay of the energy turnaround means longer running times for conventional power plants (more profits for corporations), more opportunities for offshore wind (centralised energy production) and more time to resolve problems of offshore wind
- Attempt to undermine public support to the Energy Turnaround by fostering a discussion about the costs of renewables and blaming the rise of electricity prices on renewables cost allocation
- Energy Turnaround so far only happening in Electricity (>20% of consumed energy)
- Allies of the corporation model in Government and industry with vested interests highly interconnected through revolving doors on ministerial level

Challenges

- Redistribution battles
 - infrastructural costs allocated to consumer
 - Major commercial users and the power-intensive industries are exempted from 16 billion € of costs of Energy Turnaround
 - Home-owners with above average incomes use energy autonomy as a source of cheap energy at the expense of tenants
- Energy poverty is rising
 - No common definition
 - 800 000 households are faced with power cuts
 - 20% of the population needs more than 13% of their disposable income for energy consumption

Contradictions – „Corporative Business as Usual“

- construction of 8 hardcoal-fired powerplants, 8 more in planning processes
- lifetime of 40 years incompatible with 100% Renewables in 2040/2050
- coal-fired power plants badly adjustable to volatile feed-in of renewables share above 50%
- Plans for expansion of lignite mining (Hambach-RWE) and for opening of 4 new lignite opencast mines (Vattenfall)
- Energy Savings and energy efficiency are disregarded
- grid expansion plans on the basis of business as usual of coal parallel to renewables
- grid network development plan is compiled by the 4 TSOs on the basis of in the commercial interest of maximising the grid expansion in order to maximise profits – equity return of 9% guaranteed
- grid expansion without master plan, which should include expansion of power storage, load management for heavy consumers, expansion of renewables in the south of Germany and energy savings – policy goals were not taken into account
- choice of funding policies of the last 3 years for different renewable energy sources in favor of centralised power structures

PV

- extraordinary reductions - halving of feed-in tariff since 2008
- end of assistance for solar power with 52GW of installed capacities - at current speed of 7GW/year in 2015

Offshore wind

- no reductions of feed in tariffs until 2018
- cost allocation for accountability of investment insecurity on consumers

Perspectives

- If the speed of the energy turnaround can be kept and a considerable portion of it is implemented decentrally the 4 major electric power corporations will have no basis for their business anymore
 - PV-facilities operating at midday are stealing the most profitable hours from power corporations
 - only 9 Nuclear power plants and lignite as cash cows – 7NPPs shut down (2011)
 - financial losses/marginal profits from operating fossil power plants
 - down-rating of power corporations for loans
- Discussion about future electricity market design whether corporative profits are guaranteed (capacity markets)
- Question of internalisation of external costs of energy production (subsidies/tax exemptions for fossil fuels)
- If all macro-economic and ecological effects are taken into account (merit order-price building mechanism at stock exchange, growth of jobs and incomes, less fossil fuel imports, environmental damage avoided, open and covered subsidies for fossil fuels, municipal value creation, health costs avoided) the cost/benefit analysis of the energy turnaround compared to the „corporative business as usual“-model is beneficial to German society

German Government Policy Goals

- Share from renewable electricity 35% 2020, 50% 2030, 60% 2040, 80% 2050
- Share of renewable in gross final energy consumption
18% 2020, 30% 2030, 45% 2040, 60% 2050
- Primary energy consumption (2008) -20% 2020, -50% 2050
- Electricity consumption -10% 2020, -25% 2050
- Energy consumption in buildings -20% 2020 (heat demand), -80% (primary energy)
- Greenhouse gas mitigation (1990) -40% 2020, -55% 2030, -70% 2040, -80/-95% 2050

Current state of the Art

- electricity mix (AG Energiebilanzen 2012) – gross electricity production
lignite 25,7 %, nuclear 15,8%, hard coal 18,5%, natural gas 12%,
renewables 22,6%, petroleum products and other energy sources 5,4%
- renewables distribution
wind 8,1%, hydro 3,5%, biomass 6,2%, PV 4,2%, waste 0,8%
- share of renewables in gross final energy consumption - 12,6%
- share of renewables in heating/cooling - 10,4%
- share of renewables in fuels - 5,5%