

§ 4 An innovative approach for greenhouse gas emissions-free energy supply as basis for sustainable growth in the future: renewable energies law [Recht der erneuerbaren Energien]

I. What are renewable energies?

- definition: energies obtained from sources that renew themselves in the short term or whose use does not deplete the source
 - clarification of terminology: despite the misleading term, not the energies but the energy sources are renewable
- examples:
 - solar radiation energy (in particular photovoltaic energy)
 - wind energy (used by wind turbines or mechanical windmills)
 - hydropower (including wave, tidal, salt gradient and ocean current energy)
 - geothermal energy (from hot springs, geysers, volcanos; also ambient energy extracted by heat pumps)
 - biomass energy (esp. from biomethane; from energy crops, agricultural crop residues and biodegradable waste)
- note that this energy is available in abundance in Indonesia!
 - esp. wind energy (e.g. at south coast of Java), solar energy, geothermal energy (near volcanos)

II. The importance of renewable energies for a greenhouse gas emission-free energy supply

- The use of most renewable energy sources is *emission-free*, the use of (deforestation-free) biomass energy at least *emission-neutral* (since greenhouse gas is absorbed during the growth process).
- The use of *solar energy* has *no side-effect*, the use of wind and geothermal energy little side-effects and the use of hydropower much smaller side-effects on the environment than using fossil fuels.
- Note that in Europe the *use of fossil fuels* for energy production, though still very common, is considered dirty and polluting!
 - However, it is more lucrative for big business and therefore still pushed by its influential lobbies...

III. The EU Renewable Energy Directive (RED) (Directive 2018/2001)

- a new directive that replaces an older one of 2009 and has been revised in 2023

1) The firm European commitment to the timely promotion of the use of renewable energy

- the European Union's goal to promote energy production from renewable sources and strengthen its competitiveness on the global renewable energy markets
- the *binding target of a share of at least 42.5 % in 2030* in the EU's overall gross final energy consumption (art. 3(1))
- member states encouraged to joint projects for electricity, heat or cooling production from renewable sources (sect. 9 et seq.)

2) Restrictions on biomass use to minimise negative effects on the biomass raw material market, biodiversity, environment and climate (art. 3(3))

- taking into account that even biomass use, although emission-neutral, has a negative impact on environment and climate
- biomass use and its promotion must comply with a number of sustainability criteria, in particular the *principle of cascading use of biomass* (art. 3(3 - 3d))
 - (efficient resource utilisation by using residues and recycled materials)

- 3) **The member states' obligation to establish a framework for adequate promotion of renewable energy** (art. 3(4a))
 - to foster renewable energy purchase, increase its electricity share and tackle barriers, e.g. in bureaucratic procedures and infrastructure development
- 4) **The member states' obligation to require fuel manufacturers to increase the share of renewable fuels to 29 % by 2030** (art. 25(1))
 - for a higher share of biofuels, green hydrogen fuel, electrofuel

IV. The German Renewable Energies Act 2023 [Erneuerbare-Energien-Gesetz 2023]

- serves to implement the Renewable Energy Directive and other European Union law

- 1) **The pioneer predecessor: the Law on the Sale of Electricity to the Grid of 1990** [Stromeinspeisungsgesetz]
 - regulated for the first time the obligation of electricity suppliers to purchase and compensate for electrical energy from renewable sources
- 2) **The replacement by a frequently updated Renewable Energies Act (2000 - 2023)**
 - with changing concepts of compensation for electricity fed into the grid
- 3) **The present Renewable Energies Act 2023** (originally of 2000)
 - a) **The aim of transformation to a sustainable, greenhouse gas-neutral power supply entirely based on renewable energies** (sect. 1(1))
 - an aim also supported by the Electricity and Gas Supply Act [Energiewirtschaftsgesetz] (cf. sect. 1(1))
 - the *target* of a renewable energy share in electricity consumption of 80% by 2030 (sect. 1(2))
 - actual share in January 2026: 50 %
 - ambitious, detailed expansion plans for onshore and offshore wind turbines and solar plants, less ambitious plans for biomass plants (sect. 4)
 - individual consumers know their personal shares, since the *electricity bill lists the proportion of electricity from renewable sources* in their consumed energy mix (sect. 42 Electricity and Gas Supply Act)
 - after *Germany's coal phase-out decided for 2038*, emission-neutral electricity supply shall be achieved in a purely market-driven way (sect. 1a))
 - b) **The renewable energy privilege**
 - the construction and operation of renewable energy installations are by law in the *overriding public interest*, serve public health & security and must be prioritised in balancing processes under the law (sect. 2)
 - this can speed up planning and authorisation procedures for such facilities
 - c) **Promotion of hydrogen-based electricity** (sect. 28f, 28g, 39o - 39q)
 - of innovative concepts with hydrogen-based electricity storage
 - of facilities for electricity generation from green hydrogen (hydrogen produced by electrolysis of water with electricity from renewable sources)

V. In particular: the integration of private photovoltaic installations into the electricity grid and the remuneration claims of their operators for electricity fed into the grid (sect. 19 - 21 Renewable Energies Act)

- a revolutionary approach allowing every citizen to contribute himself to the transformation of the energy supply system
- has made the use of renewable energy popular in Germany

1) The right to connect one's photovoltaic installation to the public electricity grid (sect. 8)

- has fostered the development of a broad spectrum of photovoltaic systems, from rooftop solar systems on private homes to industrial-scale solar power parks
- trendy in 2024: balcony power plants on the balconies of apartments (which the landlord must tolerate...)

2) The claim for remuneration against the electricity grid operator for electricity fed into the grid (sect. 19 et seq.)

- a financial claim for 20 years for feed-in remuneration [Einspeisevergütung], tenant electricity surcharge [Mieterstromzuschlag] or market premium [Marktprämie]
- alternatively, the operator can opt for direct marketing
- the claim is directed against the grid operator, not the electricity provider, and therefore not offset against the electricity charges
- disputes can be settled at a special clearing center [EEG-Clearingstelle]

VI. Practical problems and perspectives of the current renewable energies law

- German Renewable Energies Act effective, but only a transitional solution
- therefore claim duration of 20 years too long
- high number of small photovoltaic installations feeding into the grid at the same time can cause technical problems
- photovoltaic installations not effective in the evening, when they are most needed
- *lack of efficient large-scale storage solutions* for the energy generated from renewable sources
- high demand for overland power lines to transport electricity from wind energy to industrial and densely populated areas
- resistance and floods of lawsuits of parts of the population who demand effective climate action but do not accept wind turbines or overland power lines in their own neighbourhood
- *political threats*: plans of the Federal Minister for Economic Affairs and Energy, a radical fossil fuel lobbyist, to cut renewable energy subsidies, esp. for the popular rooftop solar panels

VII. Anti-fossil fuel measures complementing the renewable energy law

1) Germany's coal phase-out

- ending the use of coal as energy source
- 2007: *Law on Financing the End of Subsidized Hard Coal Mining by 2018*
- caused the immediate end of hard coal mining after the expiration of the last subsidies in 2018
- 2020: *Coal-based Power Generation Termination Act* [Kohleverstromungsbeendigungsgesetz]
- power generation from hard coal and lignite is continuously reduced and will end in 2038

2) The European ban on combustion engines in new cars from 2035 and its watering down (→ Regulation 2019/631)

- since an amendment of 2023, art. 1(5a) lit. a Regulation 2019/631 effectively prohibited the registration of new passenger cars and light commercial vehicles that emit greenhouse gases in the EU from 2035
- in 2025, European car manufacturers, led by Mercedes, but also BMW and the Japanese producer Toyota, launched an intense lobbying campaign for reversal of the ban, while others who had modernised their products, such as Hyundai, supported it
- after intensive lobbying of the German Federal Government, the European Commission proposed in December 2026 a significant relaxation of the regulations, which will allow the further registration of new cars with hybrid systems or e-fuel motors

VIII. An interesting perspective for the Global South: towards a green hydrogen law?

- so far there is still little use of hydrogen-based power in Germany as elsewhere in the EU
- green hydrogen (see supra, IV.3.c) is rare in Europe because its electrolytic production requires too much electrical energy, but it could easily be produced in the Global South by solar power
- storing solar-generated energy in green hydrogen as a medium and exporting it to the industrial countries could become a win-win solution, the "oil business of the 21st century", but...
 - hydrogen transport, storage and usage infrastructure must yet be developed
 - fair green hydrogen partnerships with the Global South must be developed, preventing new postcolonial or neo-liberal exploitation and ensuring "energy justice", and
 - the necessary legal framework must yet be created, both domestically and in intern. law
 - in this process, highly qualified lawyers from the Global South must play an important role...