



# Regulatory Framework and Funding Conditions for the Integration of Renewable Energies in Germany

## Statutory Guidelines and Funding Initiatives

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#### Energy Market Analyses

Conventional  
Power Plants &  
Competitive  
Market

Renewable  
Energies

Energy  
Consumption /  
Load

Market Design &  
Regulation

Marketing &  
Optimization

Arbitration, Court  
and Antitrust  
Proceedings

Strategic Advice

# Chronological Development

## Regulatory Framework

Introduction  
of Renewable  
Energies

Integration of  
Renewable  
Energies

Liberalization  
of the Energy  
Market

Competition in a  
free market  
economy


### Introduction of Renewable Energies (RE)




### Liberalization of the Energy Market

- Grid operators: obligated to purchase electricity from RE (*StromEinspG 1991*)
- Guaranteed minimum remuneration: for electricity from RE (*StromEinspG 1991*)
- Unbundling of the business sectors: generation, transmission and distribution (*EnWG 1998*)
- Energy stock: electricity from RE must be purchased prior (*EEG 2000*)
- Transmission system operators: obligated to sell electricity from RE, additional costs are paid by final customers through the EEG levy, i.e., redistribution mechanism (*EEG 2000*)
- From negotiated to regulated grid access: supervised by a regulatory authority (*EnWG 2005*)

### Integration of Renewable Energy

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- To ensure grid stability: grid operators are authorized to regulate RE installations over 100 kW (*EEG 2009*)
  - Expansion and restructuration of the power grid: acceleration of the construction of national (*EnLAG 2009 & BBPIG 2013*) and cross-border (*NABEG 2011*) extra-high voltage lines.
  - To reduce grid expansion costs and negative energy prices: transmission system operators and direct marketers are authorized to limit the peak load of new RE installations if necessary (*EEG 2014*)
  - Currently: accelerate licensing procedures for the expansion of power supply lines (*NABEG amendment*)

### Integration of Renewable Energy

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- Introduction of direct marketing: sale of electricity from RE power plants via the market premium model on the electricity exchange (*EEG 2012 & 2014*)
  - Flexibility funding: to support the flexibility of biogas plants with increase of the capacity (*EEG 2012 & EEG 2014*)
  - Switchable load funding: Promotion of industrial companies to stabilize the network through short-term load adjustment (*AbLaV 2013*)
  - Smart Metering introduction: nationwide until 2032 (*GDEW 2016, MsbG 2016 & EU-Directive 2009/72/EC*)
  - Energy storage: exemption from grid fees (*EnWG 2005*) and from the EEG levy (*EEG 2017*)



- Pilot tenders for ground-mounted photovoltaic systems: first tests on the way to a competitive promotion system for renewable energies (*FFAV 2015*)
- Tenders are introduced in general: for Wind Onshore, Wind Offshore, Photovoltaics and Biomass (*EEG 2017*)



- **Germany and Europe have committed themselves to very ambitious climate protection targets while maintaining a high level of security of supply.**
- **To achieve these targets, the German government has adopted various packages of measures that will further accelerate the energy transition:**
  - Expansion of renewable energies in the electricity sector to 65% of gross electricity consumption by the year 2030 (expansion will be largely by wind energy)
  - Phasing out nuclear energy by 2023
  - Withdrawal from coal-fired power generation by 2038 (already decline in coal output from 42 GW today to 17 GW in 2030)
  - Expansion of combined heat and power generation
  - Strengthening sector coupling and thus increasing the involvement of new consumers.
- **The aforementioned packages of measures lead to further increasing requirements on the electricity grids, given that:**
  - Increasing conversion of the generation system from centralized to decentralized
  - Amplified fluctuating feed-in
  - Required transport of electricity from generation centres in northern Germany to consumption centres in southern Germany
  - Increase in transnational electricity trading as requested by the EU Commission

- According to the EnWG, grid operators are basically responsible for identifying existing or foreseeable capacity bottlenecks in their electricity grids and taking appropriate measures to counter them.
- In the medium to long term, this will be achieved in particular through
  - Regional management of the expansion of generation capacity
  - Expansion and/or adaptation of the electricity grid infrastructure
  - Utilisation of flexibilities
- In the short term, further measures are required to maintain grid and system security in the transmission grid, e.g:
  - Existing measures :
    - Redispatch/Countertrading of power plants
    - Feed-in management of plants based on renewable energies and CHP
    - Maintenance and use of network reserves
  - New innovative network operation management concepts that pursue the goal,
    - to achieve a better prediction of the network operational status by applying advanced IT methods
    - of enabling higher utilization of electricity grids while maintaining the same level of grid security

- Program's main goals are:
  - guaranteeing the **secure and efficient grid operation** at high levels of renewables,
  - harnessing the potential for greater **efficiency and flexibility** (in terms of markets and grids),
  - ensuring that **all players** of the smart energy system **work together** in an efficient and secure manner,
  - making more **efficient use of existing grid structures**,
  - reducing the need for grid expansion at the level of distribution grids.



# SINTEG – Smart Energy Showcases



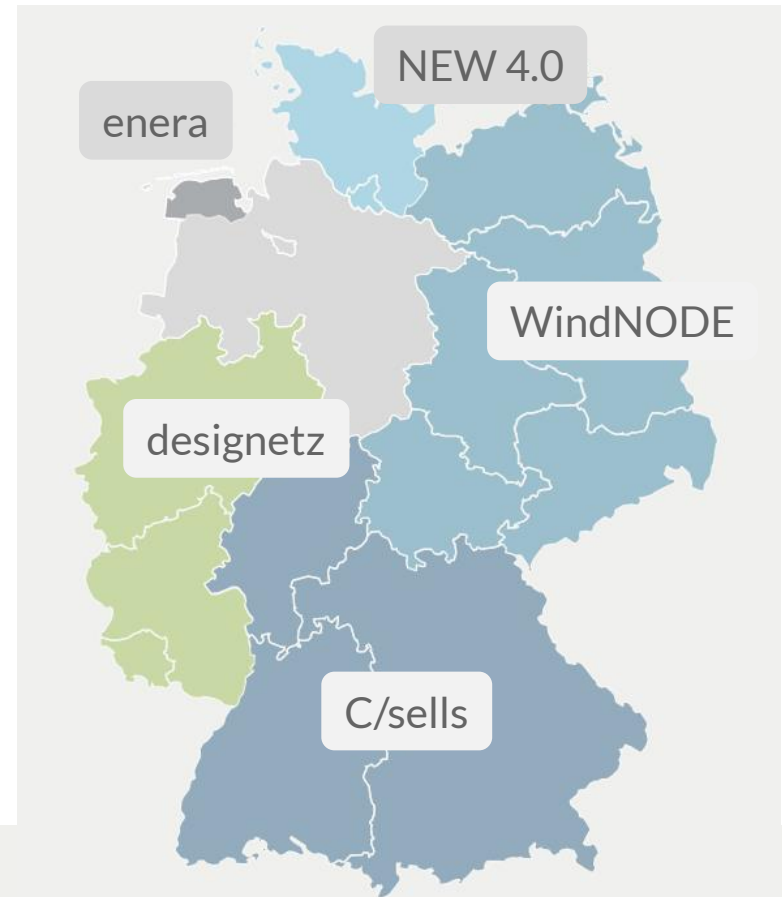
Federal Ministry  
for Economic Affairs  
and Energy

**NEW 4.0**

Norddeutsche EnergieWende



**DESIGNETZ**  
VERBUNDEN MIT KREATIVER ENERGIE



- **Funding volume:** 200 million euros
- **Total project volume:** 500 million euros (including contributions from participating companies, research institutions and civil society actors)

# Thank you for your attention



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