

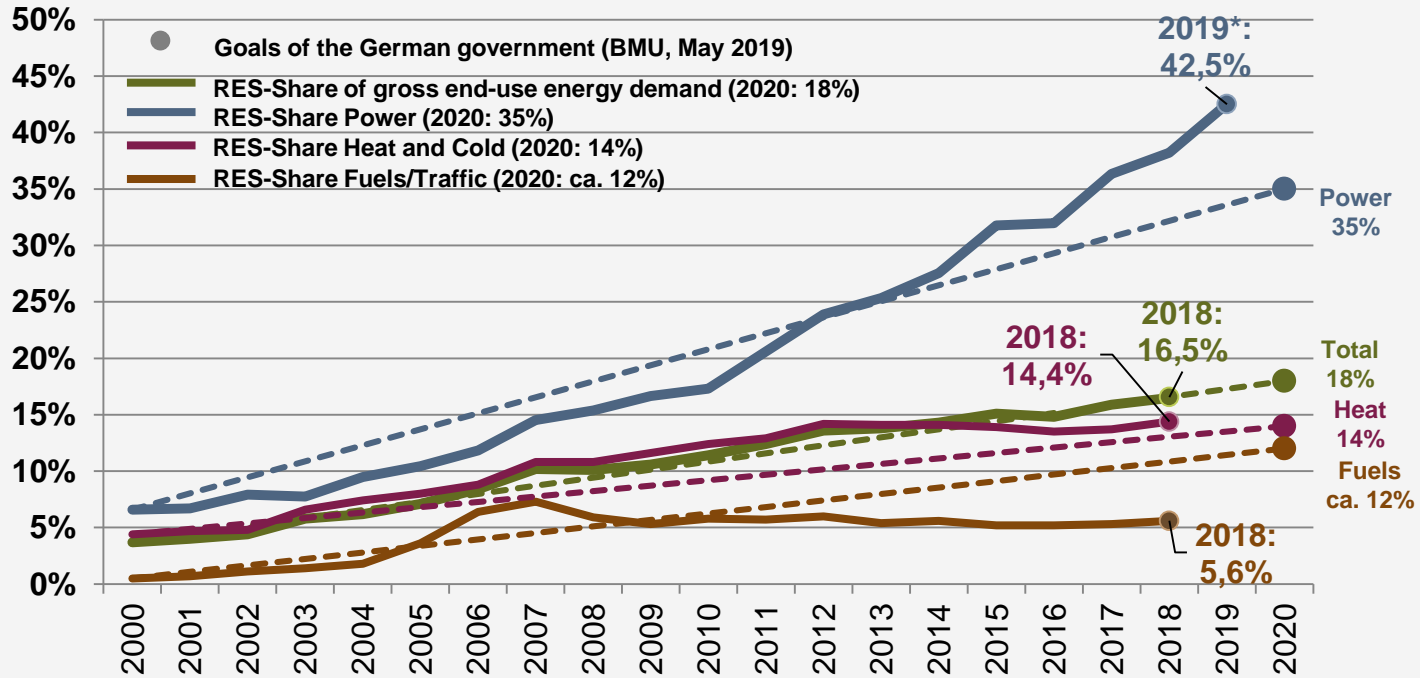
# **Sector Integration in the Energy System – Flexibilisation, Decarbonisation and Electrification:**

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## **Guidelines for Successful Sector Integration**

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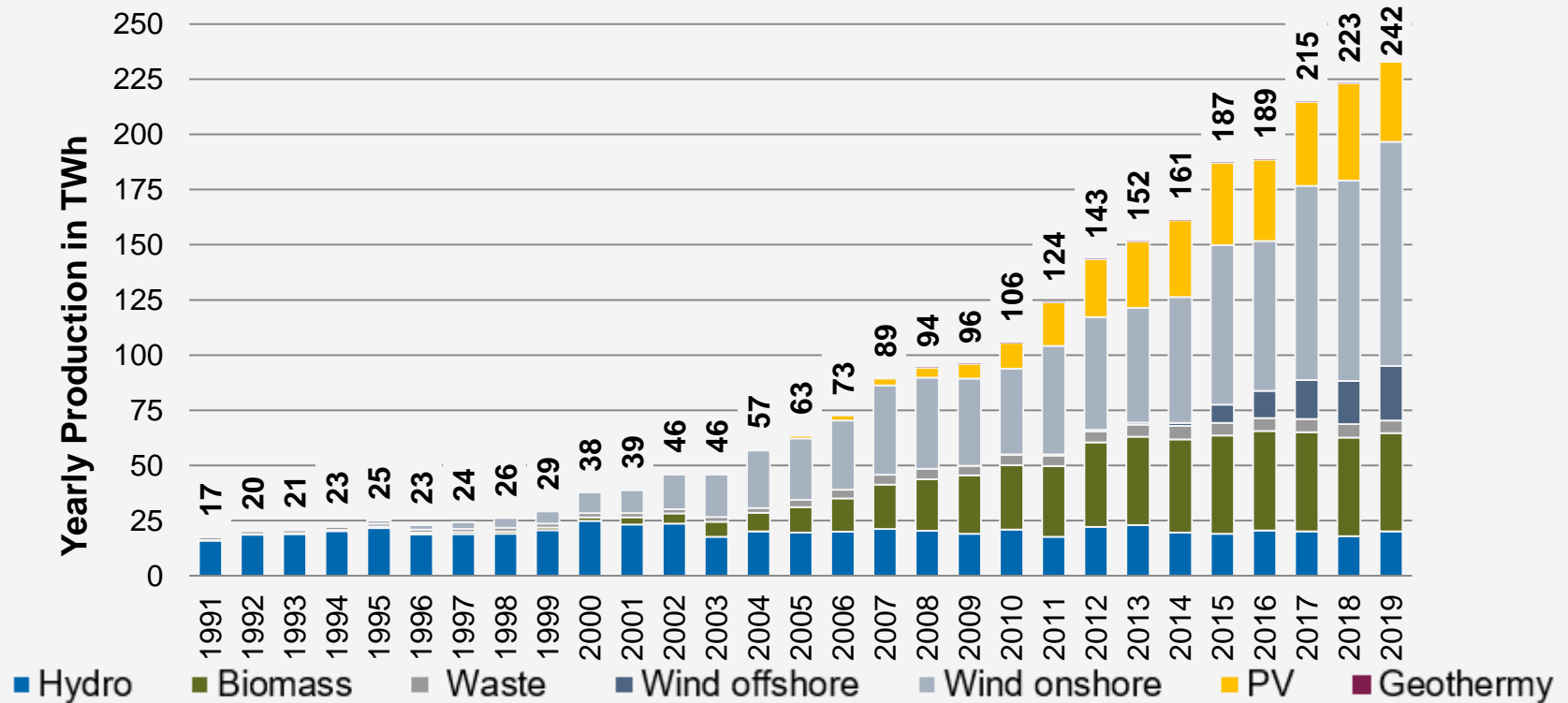
# Renewables in Germany / Shares and 2020-goals



Sources: BDEW; BMU; AGEB; AGEE Stat, from 02/2020

\* interim

# Development of renewables in the power sector



Quellen: BDEW, Destatis, EEX, ZSW; Stand: 02/2020

# Role of sector integration in the energy system

The integration of the sectors of power- and heat supply, mobility and industrial processes as well as their infrastructures is the key for a successful energy transition:

- **CO<sub>2</sub>-Reduction of all sectors**
  - Substitution of fossil energy sources within the sectors of power supply, heating and mobility
- **Integration of renewable energies**
  - Utilise renewable power production for power-to-X (e.g. in case of grid overload)
  - Expansion of renewable energy into heating and mobility sectors
- **Economically efficient implementation of the energy transition**
  - Avoidance of powering down renewable energy production due to overloads in the power grid
  - Reduction of redispatch measures
- **Ensuring security of supply as well as system stability**
  - Increase of the energy system's flexibility and resilience

# Requirements for expansion of sector integration

## Basic principles when expanding sector integration:

1. Implementation of the energy transition must be based on market instruments
  2. Commitment to the regulations of the unbundling must continue to apply
  3. Technologies of sector integration have to establish and assert themselves in the market
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- Development and improvement of existing market organisation based on economic principles
  - Identification of obstacles to systemic approaches of the implementation of the energy transition

# Guidelines of a „target model“?

In a level playing field, market mechanisms enable a combination of generation and consumption that is efficient in terms of economics and energy:

- **CO<sub>2</sub>-Pricing in all sectors**
  - Additional CO<sub>2</sub>-Pricing in the non-ETS-area with synchronism in terms of costs with ETS
- **Alignment of taxes and energy related charges based on cross sector considerations**
  - Cross-sectoral considerations of the „end-use consumer“ in relation to taxes on energy
- **Adjustment of the fiscal charges to the price of electricity**
  - Elimination of competitive disadvantages of electricity compared to other energy carriers due to relatively heavy charges on the electricity price
- **Network tariff structure based on causation**
  - Stimulation of grid serving behaviour by temporally differentiated network charges

# Measures for attainment of the target model (1)

Measures that can be implemented at short notice with immediate effect on sector integration:

- **Reduction of the electricity tax to the minimum level permitted by EU law**
  - Direct reduction in the consumer price of electricity
- **Coordination of electricity and gas infrastructure planning**
  - Joint infrastructure planning taking into account sector integration technologies
- **Introduction of guarantees of origin for green gases**
  - Eligibility and tradability of green gases and their positive climatic properties
- **Increasing the upper limit of hydrogen feed into natural gas pipelines**
  - Direct application of climate neutral hydrogen
- **Rapid implementation of the EU's Renewable Energy Directive into national law**
  - Implementation of numerous regulations that improve the framework of sector integration

# Measures for attainment of the target model (2)

Removal of current obstacles and increasing utilisation of electricity from renewable energies for decarbonisation in other sectors:

- **Creation of transparency regarding bottlenecks in the power grid**
  - Making local flexibility demand visible and thus enabling market based management of bottlenecks in the power grid
  - Development and testing of concepts of local flexibility markets
- **Market incentive programs**
  - Temporary incentives for ramping up the market and building up production capacities
- **„Real laboratories“ und „regulatory learning“**
  - Funding programs in model regions in Germany to test an innovative interplay of generation, consumption and regulatory framework
  - Implementation of positive findings through changes to the legal or regulatory framework



# Conclusion

- Sustainable decarbonisation of all sectors is impossible without sector integration!
- Prerequisite: Resolute removal of intersectoral barriers:
  - by optimising infrastructure decision making (joint infrastructure planning)
  - by cross-sectoral and greenhouse-gas related assessment of taxes and energy related charges on technologies / energy sources
- And: Discussion and agreement on the future framework of the energy system
  - What is the focus of sector integration (integration of renewables, grid stability, decarbonisation..)?
  - Who is „responsible“ for sector integration (market players / grid operators)?
  - Which technologies / capacities do we need at what time (e.g. PtG)?
  - and so on ...

# Thank you for your attention

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