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Integration of Renewables into the Market

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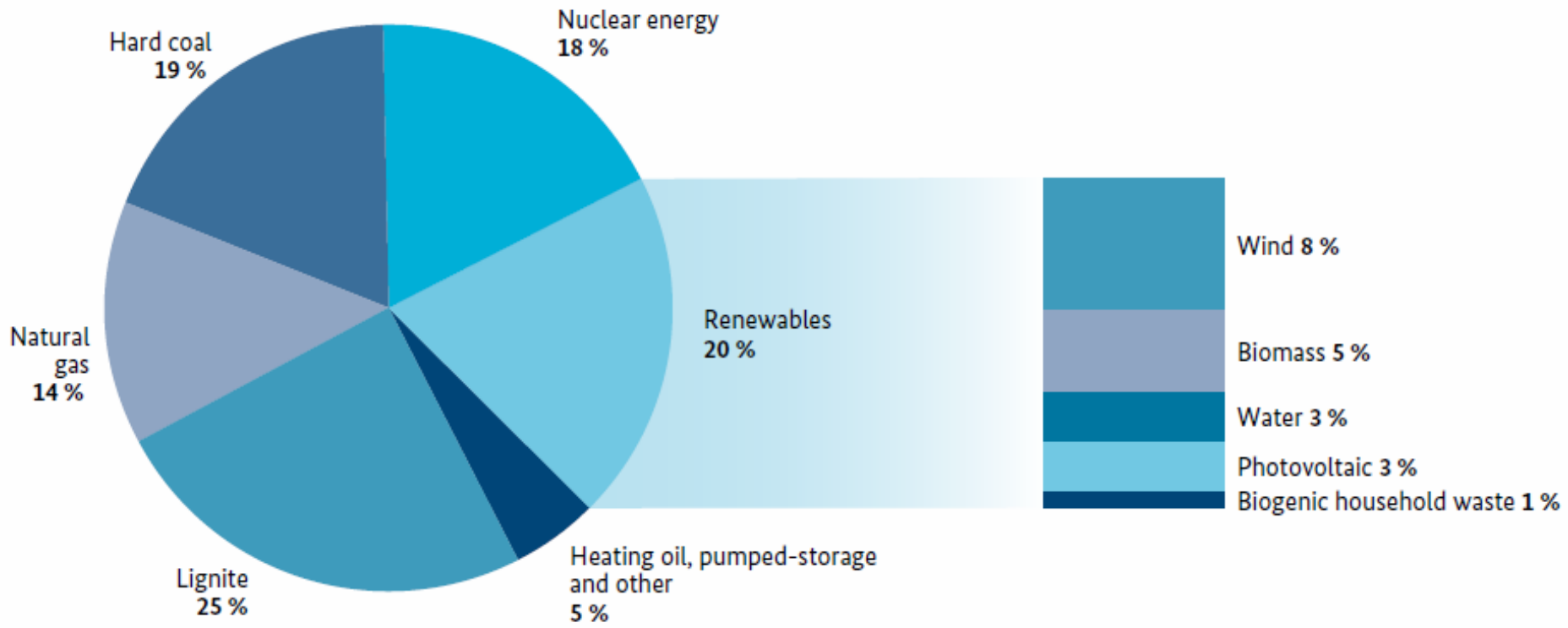


1. Electricity production and Renewable Energies in Germany

 2. Challenges:
 - Grid expansion
 - Market integration
 - Affordability
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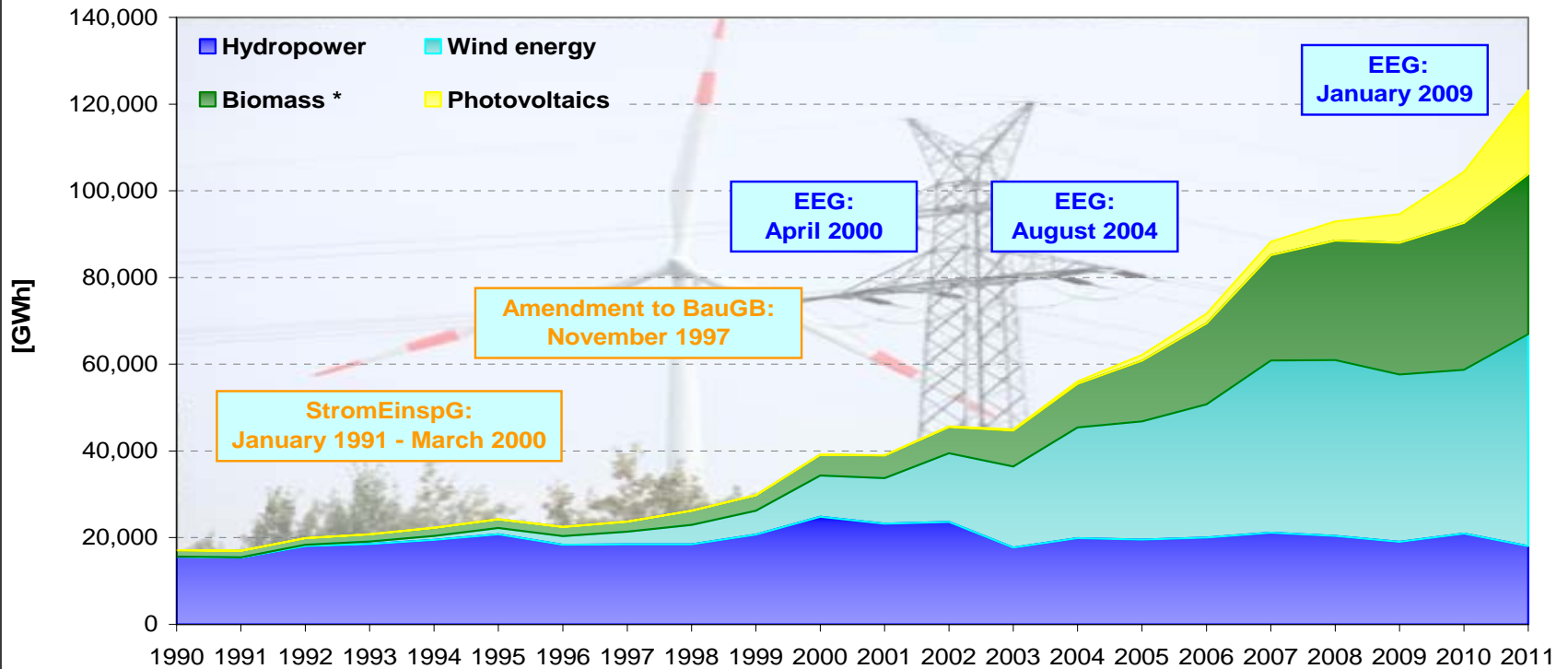


Electricity production (2011)





Development of renewables-based electricity generation in Germany since 1990



* Solid and liquid biomass, biogas, sewage and landfill gas, biogenic fraction of waste; electricity from geothermal energy not presented due to negligible quantities produced; 1 GWh = 1 Mill. kWh;
StromEinspG: Act on the Sale of Electricity to the Grid; BauGB: Construction Code; EEG: Renewable Energy Sources Act;
Source: BMU-KI III 1 according to Working Group on Renewable Energy-Statistics (AGEE-Stat); image: BMU / Christoph Edelhoff; as at: July 2012; all figures provisional



Challenge: Grid expansion

- In Germany about 3,800 km of additional high voltage grids have to be built until 2022
 - A transparent, coordinated planning is necessary
 - Solution: First Nationwide Grid Development Plan from 2012 until 2022 (by the 4 TSOs) under federal supervision

 - Additionally: close EU and international cooperation is needed
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Challenge: Market integration

- Transformation of the electricity generation is necessary:
 - in addition to fluctuating RE-installations guaranteed power generation capacity and highly efficient gas and coal-fired power plants are needed
 - Storage facilities:
 - Will be an important component of the electricity supply in Germany in the future
 - stronger market integration of RE is needed
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Challenge: Affordability

- expansion of RE has to be cost efficient
 - regular reduction of feed-in tariffs
 - Option between feed-in-tariff and direct selling (“market premium”)
 - however: energy transformation needs massive investments
 - aim: to keep the costs for companies and consumers reasonable without challenging the security of supply
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- Thank you for your attention.
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