



Impacts of Wind Turbine Technology on the System Value of Wind - intro

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Impacts of Wind Turbine Technology on the System Value of Wind

Welcome and introduction to DTU

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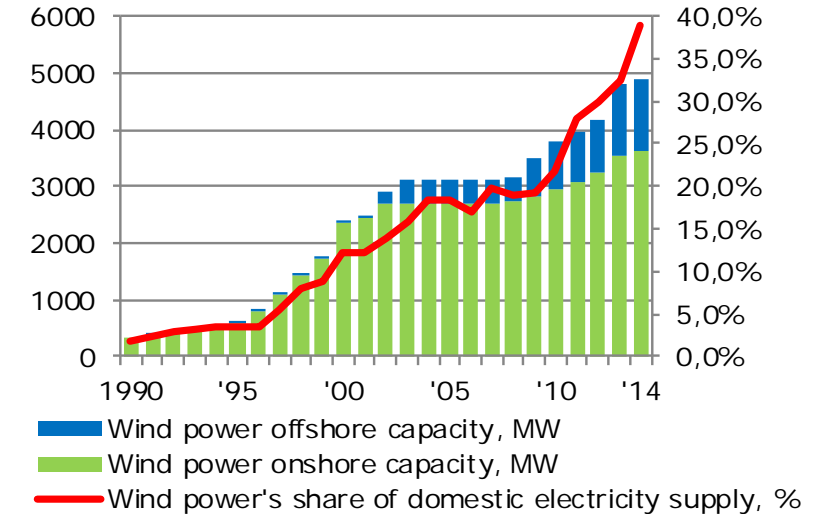


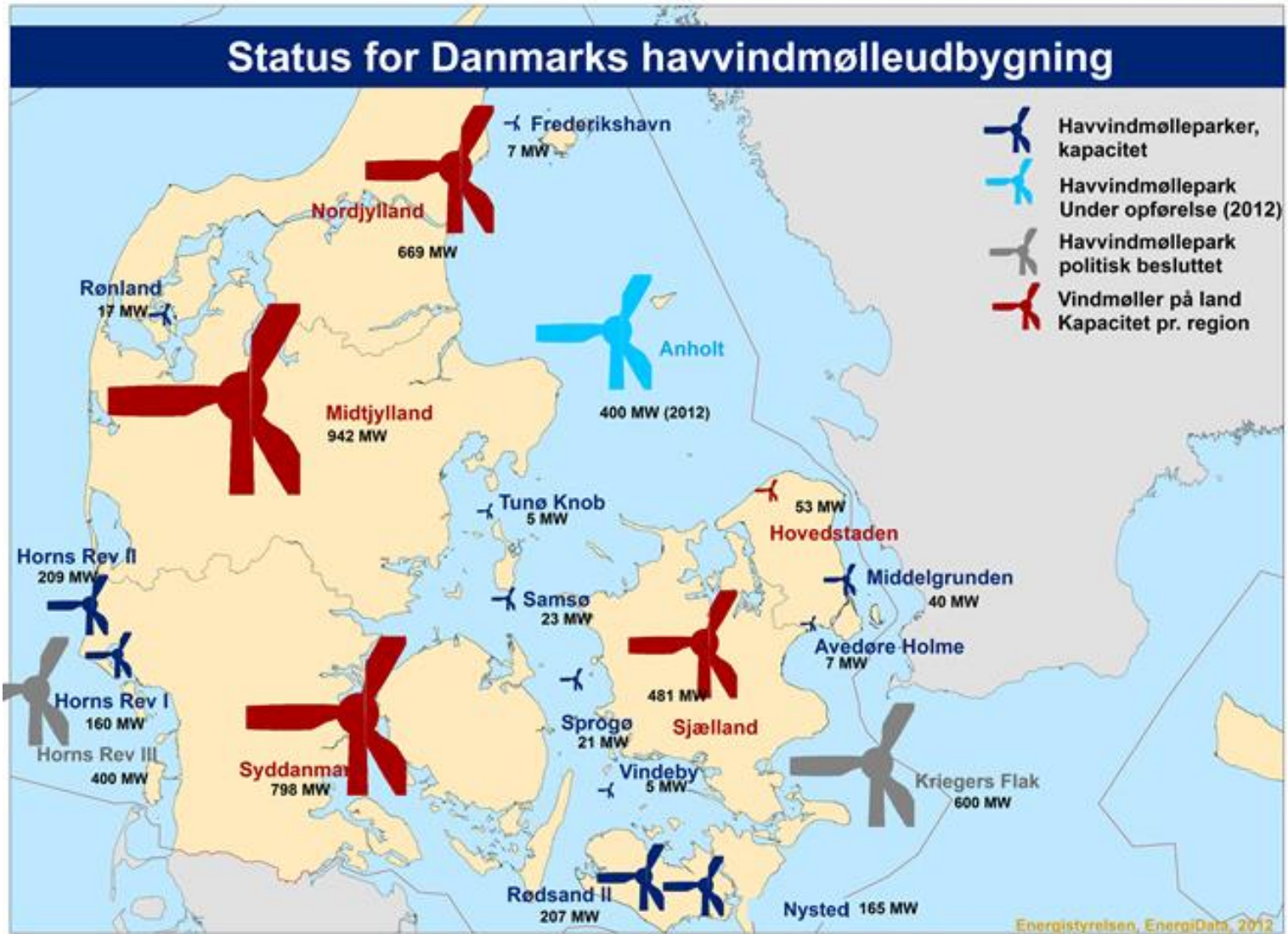
Denmark - The country of Wind

Wind 42% share (2015).

Political targets:

- **2020:** 50% of traditional electricity consumption covered by wind power
- **2035:** *All electricity and heat based on renewable energy (Obs. the previous governmental position)*
- **2050:** The total* energy supply based on renewable energy
*Total energy system incl. heat, gas, transport, industry, etc.





Wind power: 18.000 MW turbines in 2050

- **Anholt was expensive**
 - 1,05 DKK/KWh
- **Horns Rev III**
 - 0,77 DKK/MWh
- **Vesterhav Nord + Syd**
 - 0,475 DKK/kWh
- **Kriegers Flak**
 - 0,375 DKK/kWh

DTU Management Engineering

Systems Analysis division



Poul Erik Morthorst



Kenneth Karlsson



Klaus Skytte



Simon Bolwig



Ninette Pilgaard

- Energy Systems Analysis (ESY)

- Global and regional energy system optimisation models (all sectors)
- Integration of intermittent renewables in energy systems
- GIS preprocessing tools
- Quantitative scenario analysis

- Energy Economics and Regulation (EER)

- Analyses of regulatory frameworks and market designs that facilitate the transition towards larger share of renewable energy in the energy system, energy savings, and climate change
- Policy analysis and economic assessment
- Economic and social aspects of wind integration, coupling of markets, and flexibility options
- Demand behaviour based on technical/economic or econometric models

- Climate Change and Sustainable Development

- Modelling of climate Change mitigation, renewable energy, and smart cities;
- Decision making tools for climate change impacts and adaptation

- Transport Economics

Sister departments

DTU Wind Energy
Department of Wind Energy

DTU Energy
Department of Energy Conversion and Storage

DTU Elektro
Institut for Elektroteknologi



Economic and social aspects of wind integration
subprogram to EERA jp Wind



Societal and economic aspects of wind energy
R&D focus areas



European Technology and Innovation Platform on Wind
Energy (**ETIPWind**)

Research projects



Wind2050 - Multidisciplinary study on local acceptance and
development of wind power projects



IRENA Wind Potential Tool



AURES - Auctions for Renewable Energy Support
EU H2020



Flex4RES - Flexibility for Variable Renewable Energy
Integration in the Nordic Energy System
Nordic flagship project, 2015-2019

NSON_dk

North Sea Offshore Network (**NSON**) project



Welcome

