

**Velkommen til...
Welcome to...
Willkommen zu...**



Energistyrelsen
Danish Energy Agency

Agora
Energiewende



***Danish Meets
German Energy
Transition***

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26TH MAY 2016 IN COPENHAGEN



Lessons Learned and Energy Transitions...

Denmark – *den grønne omstilling*

- **Objective:** Energy system independent from fossil fuels by 2050 (across all sectors).
- Wind energy expected to cover 53%-59% of electricity consumption by 2020 (in 2015: 42%).

→ Transition from a fossil fuel-based towards a renewable energy based system with increasing shares of variable renewable generation.

- Strong integration with the heating sector (CHP), role of wind & biomass.

Germany – *die Energiewende*

- **Objective:** More than 80% renewables in electricity consumption by 2050.
- 40-45% renewable share in electricity consumption by 2025.

→ Transition from a fossil fuel-based towards a renewable energy based system with increasing shares of variable renewable generation.

- Wind and solar PV as main pillars.

Common challenges, similar questions – just a few examples...

Denmark

- **Markedsmodel 2.0**: stakeholder process initiated by Energinet.dk.
- **Support schemes**: experience with tendering for offshore wind energy.
- **Integrated approach** to transition across all energy sectors...
- **The grid**: DK-Germany, high shares of wind energy in the North, smart grid...



Germany

- **Strommarkt 2.0**: electricity market and capacity reserve + back-up, adoption of Electricity Market Law.
- **Support schemes**: introduction of tendering scheme as of 2017, revision of Renewable Energy Act under way.
- **Heat sector and electrification** gain increasingly attention...
- **The grid**: DK-Germany, high shares of wind energy in the North, smart grid...



Agora Energiewende's "Lessons Learned from Denmark"- series

Event #1: "Renewable Energy Integration and Flexibility" (24.09.2015)

→ "The Danish Experience with Integrating Variable Renewable Energy"

Study by Ea Energy Analysis commissioned by Agora Energiewende

Event #2: "Future Paths of Renewables – Scenarios, the Grid and Support Schemes" (12.11.2015)

→ "A Snapshot of the Danish Energy Transition"

Report written by Agora Energiewende & DTU Management Engineering

Event #3: "Danish Meets German Energy Transition"

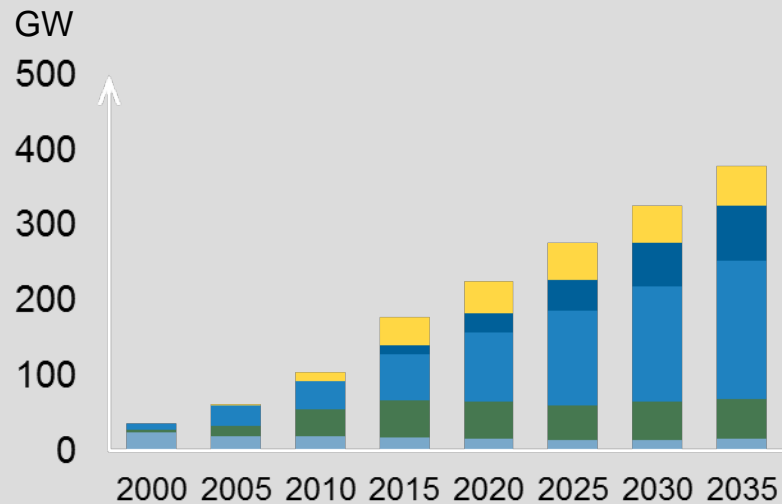
→ "The other way around": Danish-German energy policy dialogue held in Copenhagen, in cooperation with Danish Energy Agency, Ea Energy Analysis and DTU Management Engineering.



Energiewende:

With wind and solar, the new power system will be based on two technologies that completely change the picture.

Gross electricity generation of renewable energies 2000 - 2035

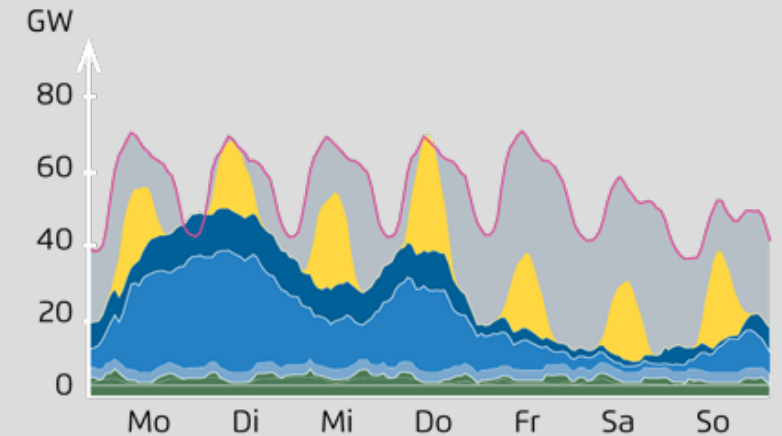


AGEB (2015a), BNetzA (2014), BNetzA (2015b), own calculations

Specific characteristics of Wind and Solar PV

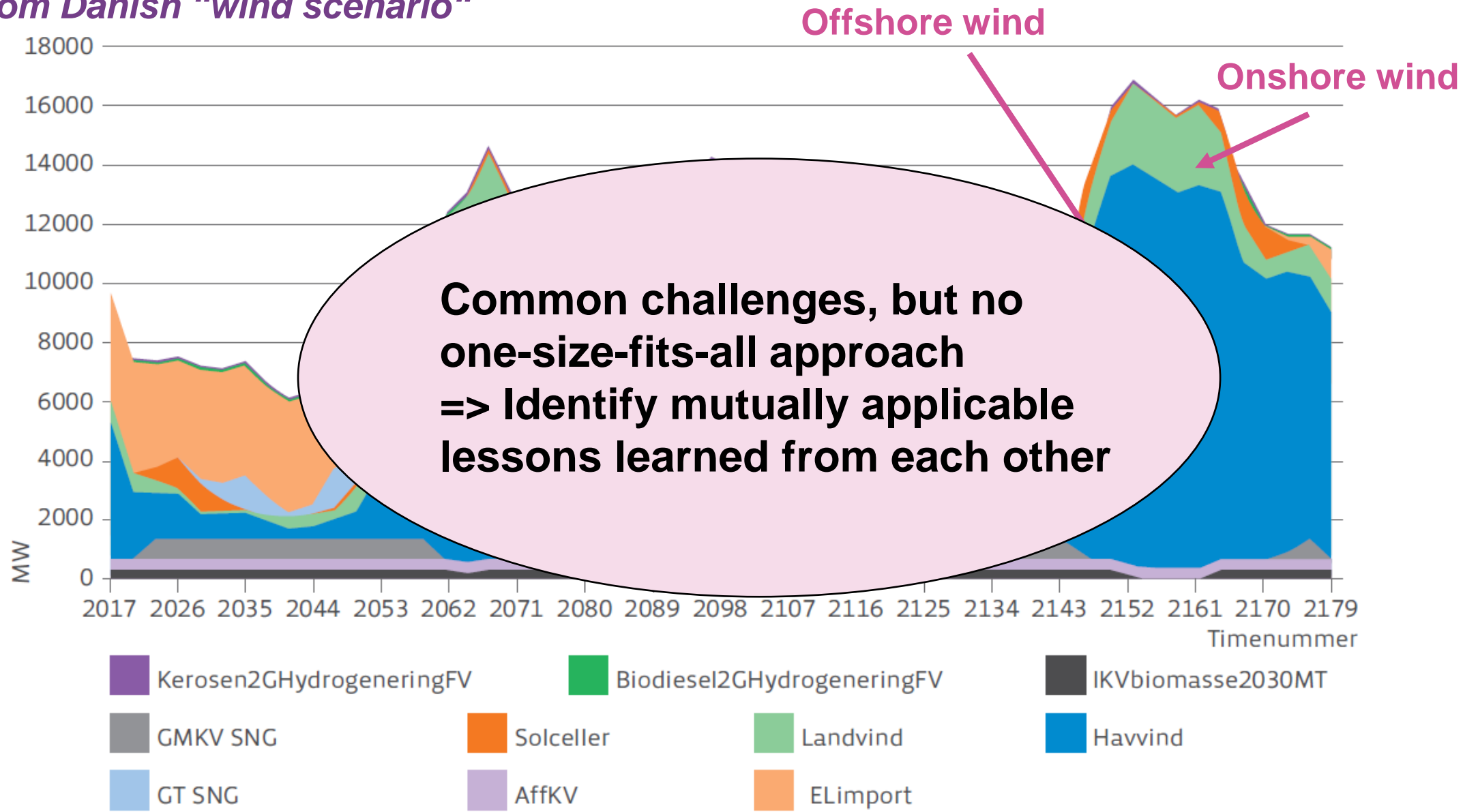
- 1 Intermittent
- 2 High capital costs
- 3 Very low variable cost

Electricity generation and consumption in a sample week 2023



Fraunhofer IWES (2013)

Example from Danish “wind scenario“



Figur 11.26. Elproduktionen i vindscenariet uge 13, 2050.

Agenda

1) Welcome and Introduction

- ❖ Stephanie Ropenus, Agora Energiewende & Lars Brømsøe Termansen, Energistyrelsen

2) Recent Developments in German and Danish Energy Policy – Where Are We Heading?

- ❖ Peter Menck, Federal Ministry for Economic Affairs and Energy
- ❖ Edward James-Smith, Energistyrelsen (Danish Energy Agency)

12:30 – 13:15 Lunch break

3) Across the Borders: Interconnectors and Integration of Wind Energy

- ❖ Jonas Kraeusel, 50Hertz Transmission GmbH
- ❖ Bjarne Brendstrup, Energinet.dk
- ❖ Comments by Anders Kofoed-Wiuff, Ea Energy Analysis

Agenda

14:30 – 14:45 Coffee break

4) Renewables Across Borders: Auctions in Denmark and Germany

- ❖ Fabian Joas, German Federal Ministry for Economic Affairs and Energy, GIZ
- ❖ Rasmus Zink Sørensen, Energistyrelsen (Danish Energy Agency)
- ❖ Chaired by Lena Kitzing, DTU Management Engineering

16:00 End of Event

Mange tak – Vielen Dank - Many thanks
to our cooperation partners for this event:

- ❖ **Energistyrelsen** (Lars Brømsøe Termansen, Edward James-Smith, Rasmus Zink Sørensen)
- ❖ **DTU Management Engineering** (Lena Kitzing, Klaus Skytte, Henrik Klinge Jacobsen)
- ❖ **Ea Energy Analysis** (Anders Kofoed-Wiuff)



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**Tusind tak for jeres
opmærksomhed!**

**Thank you for
your attention!**

Questions or Comments? Feel free to contact me:
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