We are an industry organisation for energy companies
5 challenges of the Danish power market

1. Markets do not incentivise new investment
2. Low availability on interconnectors limit trade
3. Legislation not suited to handle new market conditions
4. Increase use of renewable production
5. Internal market needs to take next steps
Challenge 1. Market prices do not incentivise new investment

Spot price, Western Denmark
Ore/KWh, 2006-2015

Capacity development
MW, 2015-2030

Source: Nord Pool Spot

Source: Energinet.dk, Markedsmodel 2.0, september 2015.
Capacity closure
Strong increase in import dependence

Danish Import dependence
2015-2025

Source: Danish Energy Agency, 'Elforsyningssikkerhed i Danmark 2015'.

Surplus capacity
2015-2025

Challenge 2. Low availability on interconnectors limit trade

Available capacity on interconnector from Western Denmark to Germany

Note: Data shows availability on interconnector for first half of 2015
Source: Energinet.dk
Congestions not just a Nordic problem

Congestions

Average electricity prices
Prognosis, Ore/KWh

Source: ENTSOE

Source: Syspower, Energomix, Nasdaq OMX
Challenge 3. Legislation not suited to handle new market conditions

Average production in power stations
MWh/h

Source: Energinet.dk, Udtræk af markedsdata

Seasonal fluctuations in production

Source: Energinet.dk, Udtræk af markedsdata
New products needs to be marketed

Energy

Capability
Challenge 4: Increase use of renewable production

**Increasing wind production**

**Stagnation in consumption**

Index 2011 = 1

**Large differences between wind production and consumption**

Timespan 1 week, MWh/h

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*Source: Energinet.dk, Analyseforudsætninger*

*Source: Energinet.dk, Udtræk af markedsdata*
Good initiatives limited by levies
Electricity highly taxed

**Levies by fuel**
Prognosis 2015-2025, DKK/GJ

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Levies (DKK/GJ)</th>
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<tr>
<td>EL</td>
<td>304</td>
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<tr>
<td>EL TIL VARMÉ</td>
<td>166</td>
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<tr>
<td>BENZIN</td>
<td>141</td>
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<tr>
<td>DIESEL</td>
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<tr>
<td>FYRINGSOLIE</td>
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<td>NATURGAS</td>
<td>64</td>
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<tr>
<td>TRÆFILLER</td>
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</table>

Source: Danish Ministry of Taxation

**Heat pumps vs. biomass-fired boiler**
Prognosis 2020, DKK/MWh

Source: Danish Energy Association
Challenge 5. Internal energy market not always moving in same direction

- Market rules gradually harmonised through Network Codes
  - Day-ahead coupled since 2014
  - Intra day markets progressing
  - Ancillary service markets next step for EU electricity market integration

- National capacity mechanisms emerging
  - Understand concerns
  - Cross-border effects
  - Regional approach important
  - Denmark expected to implement peak load reserve from 2016

- Need a stronger regulatory framework

Source: Energinet.dk, Markedsmodel 2.0, 2015
Coupling of ancillary service markets next step for European power market integration

<table>
<thead>
<tr>
<th>Product</th>
<th>Market</th>
<th>Status 2015</th>
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<tbody>
<tr>
<td>Primary reserve; FNR/FDR</td>
<td>Common market DK1-SE</td>
<td>Succes!</td>
</tr>
<tr>
<td></td>
<td>Common market DK2-DE</td>
<td>Succes!</td>
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<tr>
<td>Secondary reserve</td>
<td>Nordics</td>
<td>Pilot project</td>
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<tr>
<td></td>
<td>Continent</td>
<td>Poor outlook</td>
</tr>
<tr>
<td>Regulating power</td>
<td>Nordics</td>
<td>Succes!</td>
</tr>
<tr>
<td></td>
<td>Continent</td>
<td>Proposed start Jan 1, 2019 – unlikely</td>
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</table>

Source: Danish Energy Association
3 recommendations

MORE MARKET
- Markets for all products needed to operate to energy system
- Power stations need freedom to react to the market’s price signals
- Market price to fully reflect value of flexibility

MORE ELECTRIFICATION
- Increase in wind production to be complemented by increase in use of electricity
- Make use of electricity and add flexibility to demand
- Heat pumps, electric boilers and EVs

MORE EUROPE
- 2050 targets to test internal market – no country can do it alone
- Need for solutions at EU and regional levels
- More infrastructure + available capacity
Thank you for your attention

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