Danish Industry Agreement for Sustainable Woody Biomass

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The Energy Infrastructure in Denmark today

- Large penetration of district heating – 64 % of all households
- Wind power generates around 50 % of electricity
- All large power plants are combined heat and power
- High share of renewable energy – 2/3 is biomass
- Energy infrastructure and companies are publicly owned
Energy Sector Biomass Consumption

Solid biomass consumption in the production of electricity and district heating

Source: Danish Energy Agency, Energy Statistics forecast
CO2-emissions have declined since 2006
A large part of the decline is due to biomass

Danish CO2-emissions have declined since 2007 and will continue to decline until at least 2020. A high share of this decline is due to increased use of biomass in the CHP-sector.

CO2 emissions in Denmark since 2000

Forecast

Source: Danish Energy Agency, Energy Statistics forecast
A voluntary sustainability agreement?
Increased focus on sustainability of solid biomass

Recent years have seen an increase in questions being asked regarding wood use in the European energy sector. NGOs, news agencies and some researchers have raised concerns regarding forest management, bioenergy, EU and national policies and related subjects.
How we work with sustainability

- From about 2012 there has been focus on sustainability of bioenergy in Denmark – earlier than in many other countries
- The Danish government decided not to introduce sustainability requirements for solid biomass
- Danish regulation is often built on trust and cooperation between authorities and actors
- This led to the Industry agreement

CEO Danish District Heating Association
CEO Danish Energy
Minister of Energy and Climate
The Danish Industry agreement was made in 2014 with participation from energy organisations, utility companies and authorities.

Documented through certification: FSC, PEFC, SBP and "Alternative documentation" – Audited by 3rd party auditor
Utilisation rate of power station

Shown in relation to the continued use of fossil fuels

Operation: planting, maintenance, and logging

Production of woodpellets and -chips

Transportation

Utilisation rate of power station

Value chain for biomass

CO2 reduction requirements

Who, Timeframe and Costs

Who

- All heat and power producing plants
- Plants above 20 MW have to document sustainability through yearly, 3rd party audited reports that are made public.

Timeframe

- Agreement started 2016 and covered 40 % of solid biomass
- In 2017: 60 %, 2018: 75 %, 2019: 90 %
- 2020 onwards: EU regulation through REDII.

Costs

- Small companies: 1-2 man-months of extra work first year
- Large companies: More resources used, but sustainability is a core activity of those companies, e.g. Ørsted
- Documentation systems already in place – small adjustments needed for sustainability documentation
- 3rd party auditing and reporting: €2000 pr. year
- Certified biomass a few percent more expensive than non-certified
### Results from 2016

<table>
<thead>
<tr>
<th>Biomass delivered aug-dec 2016</th>
<th>ton</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Total Biomass</td>
<td>979,415</td>
<td>100%</td>
</tr>
<tr>
<td>Wood Pellets</td>
<td>721,762</td>
<td>74%</td>
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<tr>
<td>Wood Chips</td>
<td>257,653</td>
<td>26%</td>
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<tr>
<td>Certified Biomass</td>
<td>497,069</td>
<td>51%</td>
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<tr>
<td>Alternative Documentation</td>
<td>67,457</td>
<td>7%</td>
</tr>
<tr>
<td>Total Documented Biomass</td>
<td>566,764</td>
<td>58%</td>
</tr>
<tr>
<td>Non-Forest Biomass</td>
<td>10667</td>
<td>1%</td>
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</tbody>
</table>

A high fraction of certified sustainable biomass

Requirement was 40 %
Benefits of our work with sustainability

Cooperation between forest owners, industry, biomass suppliers, energy industry, authorities and the research community

Easy to adapt to proposed EU REDII regulation: Systems and processes are in place already

We can show our energy consumers that we take sustainability seriously
EU Renewable Energy Directive II

Introduced by the Commission in the Winter Package in November 2016

- Introduces sustainability criteria for solid biomass from 2020
- Lots of debate: e.g. regarding risk-based approach vs. resource based approach
- Ongoing trialogue between comission, council and parliament

From 2020 we will most likely have EU criteria for solid biomass – similar to what we have in Denmark
Summary

- Energy infrastructure with district heating making use of biomass is a wise solution for Denmark
- Large increase in use of wood pellets and wood chips
- This development has resulted in an increased share of renewables and low GHG-emissions from electricity and heat production
- Sustainability requirements for solid biomass are in place
- The Danish energy industry is well prepared for coming EU regulation

Is the Danish voluntary approach possible in your home countries?