

# Ørsted's journey from black to green

Let's create a world that runs entirely on green energy

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# Ørsted develops energy systems that are green, independent and economically viable



- Revenue (2018): DKK 76.9bn
- EBITDA (2018): DKK 30.0bn
- 6,080 employees
- Active in Scandinavia, United Kingdom, Germany, The Netherlands, USA and Taiwan

## Major Shareholders (voting share %)

- Danish State 50%
- Seas NVE 10%
- Capital Group 5-10%

## Offshore wind



- Global leader in offshore wind with 5.6 GW installed
- Develop, construct, own and operate offshore wind farms
- Significant and attractive build-out plan of 3.4 GW towards 2022
- Ambition of 15 GW targeted capacity in 2025

## Onshore wind



- US onshore wind portfolio with 813 MW
- Develop, construct, own and operate onshore wind farms
- Near-term portfolio includes 3 onshore wind farms with a total capacity of 714MW to be constructed by 2020
- Ambition of 2.5 GW targeted capacity in 2022
- First 20MW battery storage project, Carnegie Road, in the UK is now in operation

## Bioenergy



- #1 in Danish heat and power generation with 25% of market
- Converting heat and power plants from coal and gas to biomass and phase out coal by 2023
- Innovative waste-to-energy technology (REnescience)

## Customer Solutions



- Develop green, innovative and cost efficient solutions for our B2B customers
- Provide competitive route-to-market for own and customers' generation portfolio
- Optimize activities within natural gas
- Market trading operations to optimize hedging contracts

Process to divest Distribution and Residential Customer business has been initiated



# Ørsted's bio-conversions of CHP-plants



Herning

- COD 2009
- Gas to wood chips and wood pellets



Avedøre 1+2

- COD 2014
- Gas to wood pellets and straw



Studstrup 3

- COD 2016
- Coal to wood pellets



Skærbæk 3

- COD 2017
- Gas to wood chips



Asnæs 6

- COD 2019
- Coal to wood chips

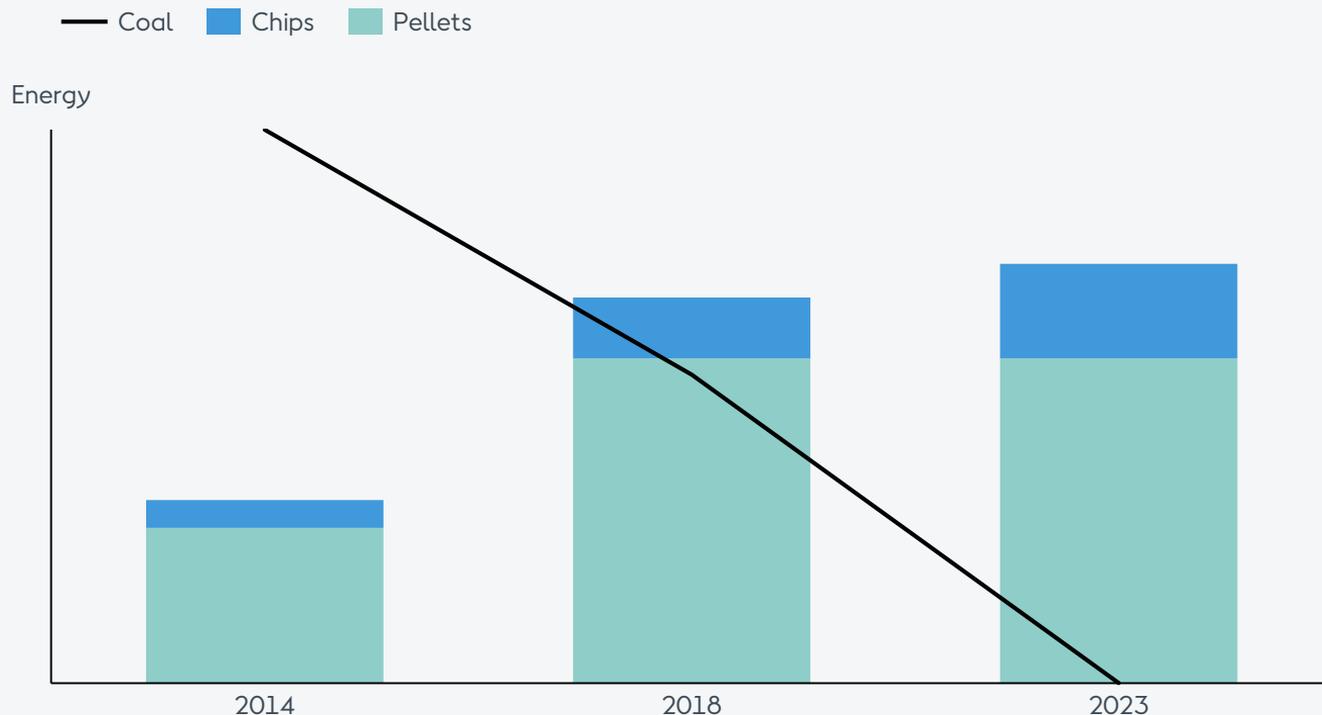
## Key points

- Ørsted owns and operates a large portfolio of thermal assets and are expanding further into bioenergy
- Ørsted converts CHPs from fossil- to biomass fuels
- Conversions results in reliable, flexible and efficient plants
- Ørsted ensures sustainable sourcing of biomass

## Drivers and incentives for conversion

- Denmark coal free 2030 and fossil free 2050
- Ørsted's vision of leading the energy transformation
- CHP heat production on biomass gets tax exemption
- CHP power production on biomass gets a feed-in premium

## The route to “farewell to coal 2023”



## We're bidding farewell to coal in 2023

- Coal consumption in 2006 was 6 million ton
- Ørsted is phasing out coal completely by end of 2022 by closing the last coal-fired plant
- Conversion to wood pellets and wood chips. Ramping up to 3 million tons consumption by 2020
- Ensurance of 100 % sustainable sourcing of biomass

## The Danish model

### - Industry agreement

The Danish District Heating Association and the Danish Energy Association established an industry-initiated voluntary framework for sustainable Biomass



Industry agreement presented to the Danish climate and energy minister by heads of Danish Energy Association and District Heating Association 5. December 2014

The Industry Agreement contains the following requirements:

1. Legality of forest management
2. Protection of the forest eco-system
3. Forest productivity and ability to contribute to the global carbon cycle shall be maintained
4. Forests must be healthy and well managed
5. Biodiversity must be maintained and sensitive areas protected
6. Social and workers rights must be respected
7. CO<sub>2</sub> emissions limits from biomass value chain
8. Additional requirements targeted carbon cycle, forest carbon stock, ILUC

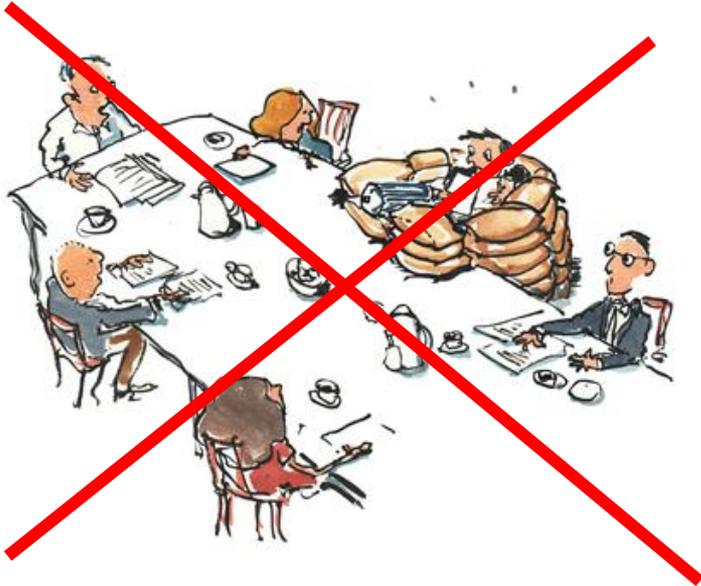
#### CO2 savings

2015	2020	2025
70%	72%	75%

#### Compliant biomass

2016:	40 %
2017:	60 %
2018:	75 %
2019:	Fully phased-in

## How was this developed and implemented? - all stakeholders was invited to the process



- Proactive dialogue
- Listen
- Acceptance

#### Stakeholder perspective

“The Danish Society for Nature Conservation recognises the important role SBP plays in providing a set-up with criteria for legal and sustainable sourcing of biomass feedstock. We see SBP as an important supplement to the FSC and PEFC certification schemes, and we work to improve the practical implementation of SBP, as well as the risk assessments.”

**Nora Skjernaa Hansen**  
Forest Politics,  
Danish Society for Nature Conservation

The Danish Forest Association is the trade association that represents forestry in Denmark.

The Danish society for nature conservation (DN)

## Private skovejere og naturforening vil styrke biodiversiteten i skovene

26. april 2019

Af: [Pressemeddelelse fra Danmarks Naturfredningsforening og Dansk Skovforening](#)

I et opsigtsvækkende samarbejde vil Dansk Skovforening og Danmarks Naturfredningsforening gøre en mere målrettet indsats for at styrke biodiversiteten i de private skove. Fælles udspil skal råbe politikerne op.

Skovene er afgørende for den danske biodiversitet. Mere end 60 procent af vores truede arter lever i skovene. Årsagerne til, at arterne er truede, er forholdsvis velkendte, men der mangler effektive virkemidler og viden om de konkrete naturværdier for at kunne vende udviklingen.

I øjeblikket debatteres det flittigt, hvordan biodiversiteten i offentligt ejede skove kan forbedres. Men det løser ikke biodiversitetskrisen alene. Tre fjerdedele af skovene ejes i dag af private, og de private ejere har dermed en væsentlig rolle i forhold til at styrke biodiversiteten.

## Our vision

Let's create a  
world that  
runs entirely on  
green energy



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