



Norseman Wind AS: Offshore wind in Norway – the big picture

November 2021



Strong consortium backing Norseman Wind AS



Reputable power companies and industry partners with substantial financial muscles



EnBW:

Main owner in Norseman Wind AS.
One of Europe's leading companies in offshore wind



NorgesGruppen / Asko Fornybar:

Will build offshore wind to cover its own power requirements



Greenstat:

Norwegian energy company focusing on green hydrogen, solar and wind power, as well as maritime zero-emission solutions



Norseman Wind:

The project company that will apply for a licence in SNII



Hitachi Energy:

Global leader of HVDC technology



Aker Solutions:

Will deliver foundations, the platform for offshore HVDC transformer stations and installation



National Oilwell Varco:

Globally leading supplier of solutions and technology for the installation and maintenance of wind turbines as well as digital solutions for offshore installations



Seafront Group:

Will develop logistics, warehouse and port solutions based in Agder, Norway



Energy Innovation:

Caera AS is responsible for supplying technical personnel and service support



OSM AS:

Will contribute with shipping and offshore crews, including leader training for offshore

We are a BIG industry project

**35 billion NOK
CAPEX**



**At least 50% to norwegian
supply chain**



**600 – 800 mill. NOK
Yearly O&M budget**

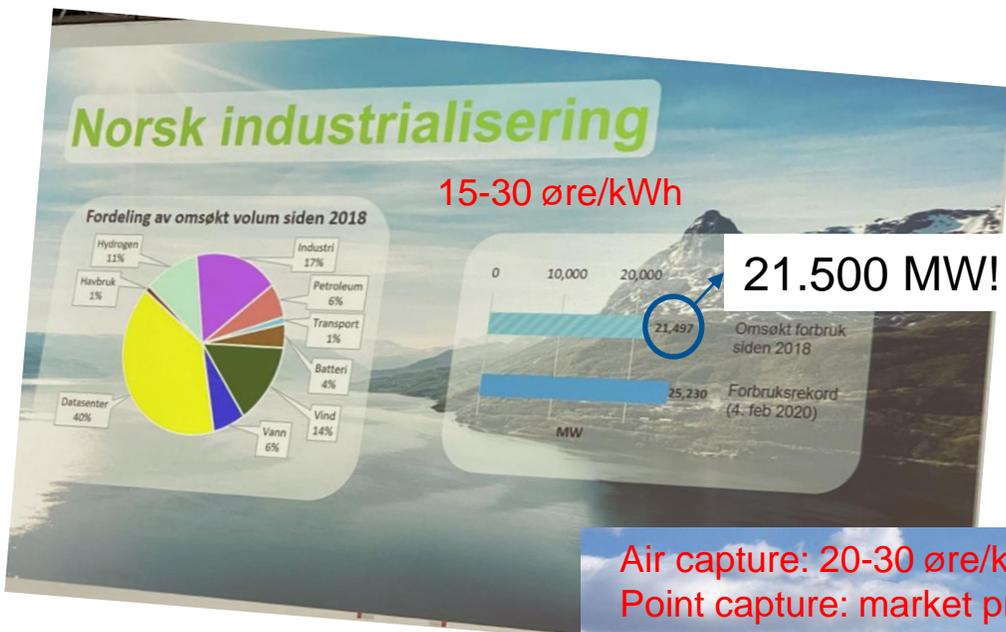


De-carbonisation equals electrification

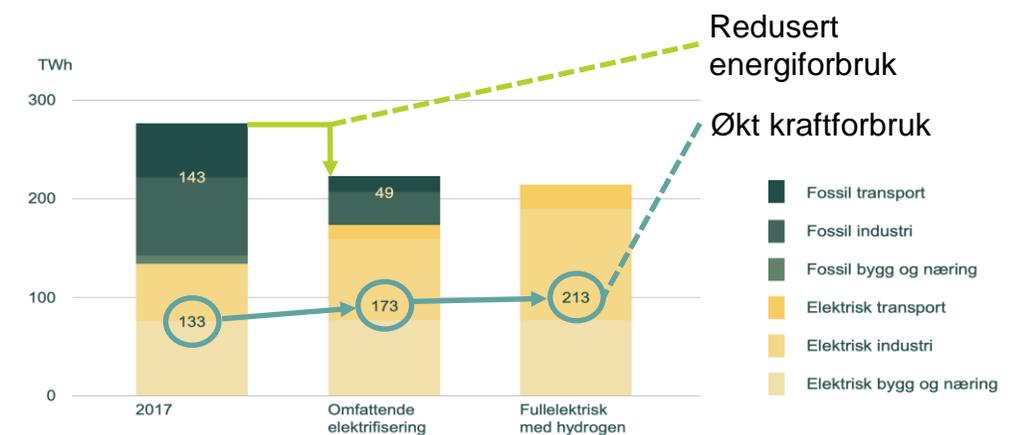
Norway is changing:

Has committed to a 55 %CO2 reduction in 2030, and 100% in 2050

Has high ambitions in re-industrialisation, replacing 160.000 jobs from the oil&gas sector over time



Volume and cost of energy is important to secure a competitive transition



Statnett sine scenarior for elektrifiseringen av Norge.

Estimated increased consumption

	2030	2050
De-Carbonisation*	44 TWh	80 TWh
Re-Industrialisation**	30 TWh	70 TWh
Sum	74 TWh	150 TWh
Buffer***	7,4 TWh	22,5 TWh
Total	Ca 80 TWh	Ca 170 TWh

Estimated increased production

	2030	2050
Energy efficiency	10 TWh	15 TWh
Sunpower	2 TWh	6 TWh
Hydro power	5 TWh	10 TWh
Offshore wind	0 TWh	80 TWh
Total	17 TWh	Ca 110 TWh

There is a need for approximately 60 TWh (15 GW) new production online before 2030!

Without major acceleration in development of offshore- and onshore wind, Norway will fail

*Statnett nettutviklingsplan 2019, assuming 55% decarbonisation in 2030 and 100% in 2050

**Assuming: - a reduction from 160.000 employed in the oil&gas sector today, to 100.000 in 2030 and 20.000 in 2050
 - 1 TWh equals app. 1.000 jobs in power intensive industry
 - about half of the job loss needs to be replaced by jobs in power intensive industry

***Assuming a 10% power surplus buffer in 2030 and 15% in 2050 given the dependency of production from nature (wind, hydro and solar)

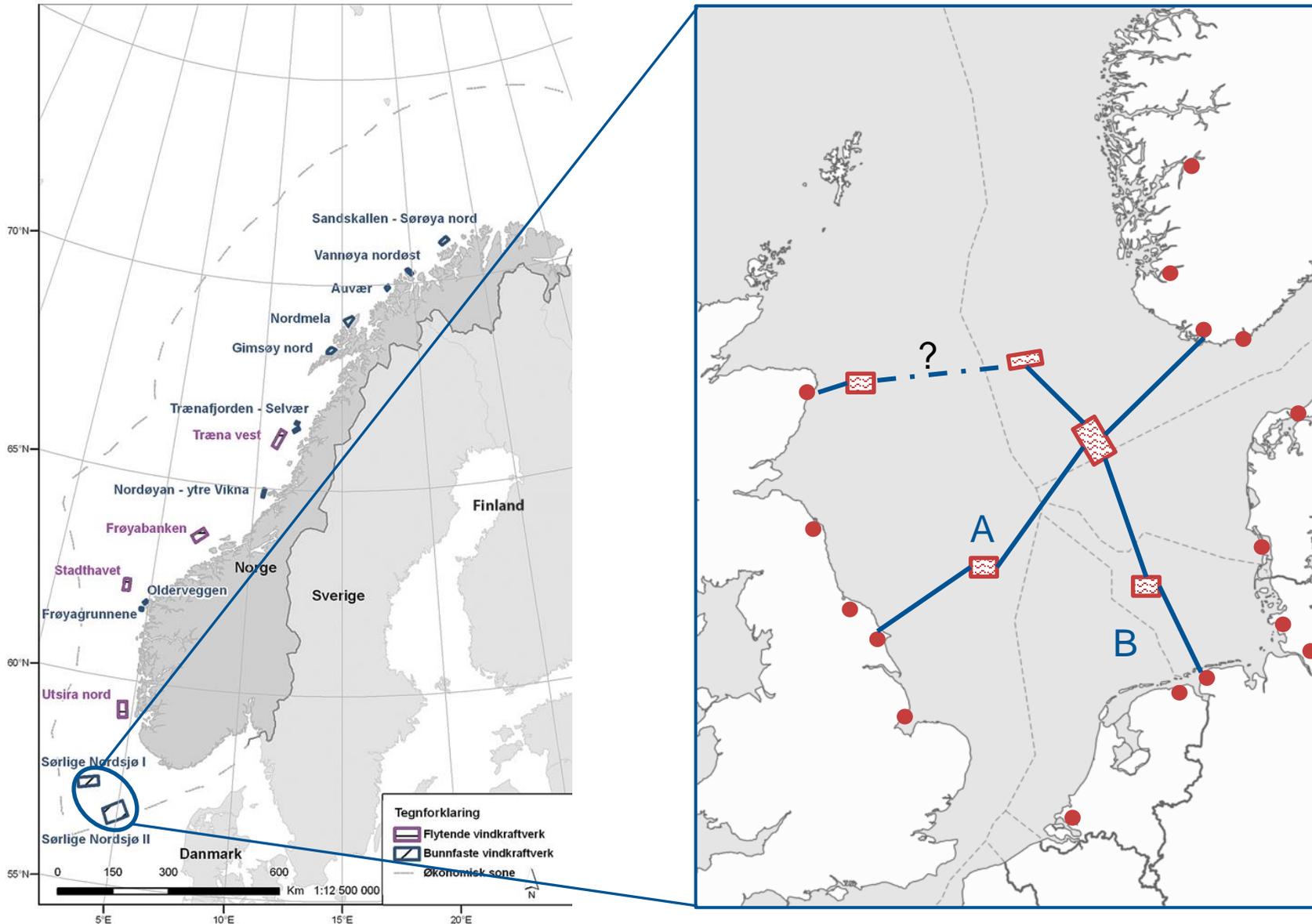
Offshore wind:

- Include area division, announcement, and pre-qualification processes into one process, finish Q1 2022
- Start area award process begin Q2 2022
- Award the areas in both SNII and Utsira North by summer 2022
- Short cut the concent and appeal processes
- Leave much of the in field EIA studies until the detail engineering phase
- Run the concent process in SNII in parallel with the Statnett hybrid process
- Open minimum areas equal to 1.000 MW per year from 2022 until 2042

Onshore wind:

- Immediately start the lisencing process
- In parallel finalize the legal framework
- Concent minimum 1.500 MW per year from 2022 through 2030

20 GW - a robust offshore wind development strategy



Norwegian offshore wind will be determined by two interlinked factors:

- Capacity at european landing points
- Domestic need

Landing points will probably be at offshore wind hubs

These could be designed for domestic offshore wind capacities only

Inteconnected to utilize residual capacities

Export success requires that we develop a comprehensive value chain with stable access to projects

Most projects in Europe over the next 10-15 years will be bottom fixed

It is important that we use Søndre Nordsjø II to establish competitive norwegian supply chain

A supply chain that will also be important for a future floating wind market that needs maturation

**Sørlige Nordsjø II:
bottom fixed**



**Utsira Nord:
floating**



Europe is a 450 GW market, 10-15% floaters

Diversity in supply chain and business models

Group	Applicants	Areas applied
Norwegian E&P backed	Equinor / Hydro REIN / RWE	Sørlige Nordsjø II
	Equinor / Vårgrønn (Eni & Hitech Vision)	Utsira Nord
	Vårgrønn / Agder Energi/GIG	Sørlige Nordsjø II
	Aker Offshore Wind / Statkraft / BP	Sørlige Nordsjø II
	Aker Offshore Wind	Utsira Nord
Norwegian non-E&P backed	Fred Olsen Renewables / Hafslund Eco / Orsted	Both
	Norseman Wind (ASKO Fornybar & EnBW)	Sørlige Nordsjø II
	Shell / Lyse / BKK	Both
	NorSea / Parkwind	Both
	Deep Wind Offshore (Knutzen/Haugland Kraft/SKL)	Both
	Seagust (Arendals Fossekompagni & Ferd)	Both
	Magnora Offshore Wind (Magnora & Technip FMC)	Utsira Nord
	Kvitebjørn Havvind	Utsira Nord
	RWE/NTE/Havfram	Utsira Nord

Utsira North should be divided into 5 areas, 100 km² each

Sørlige Nordsjø II should be divided into 3 areas, 400 km² each

No company should be awarded more than one area

This will enable:

- Supply chain diversity
- Business model diversity
- Most players will be given a development opportunity
- Robust by fall outs



Norseman Wind as

Thank you

Expected overall timeline/governmental dead lines

