Logistics@Offshore

Transport of 6.0 and 7.0 MW

Henning Stenfeldt Riddersholm

Outline

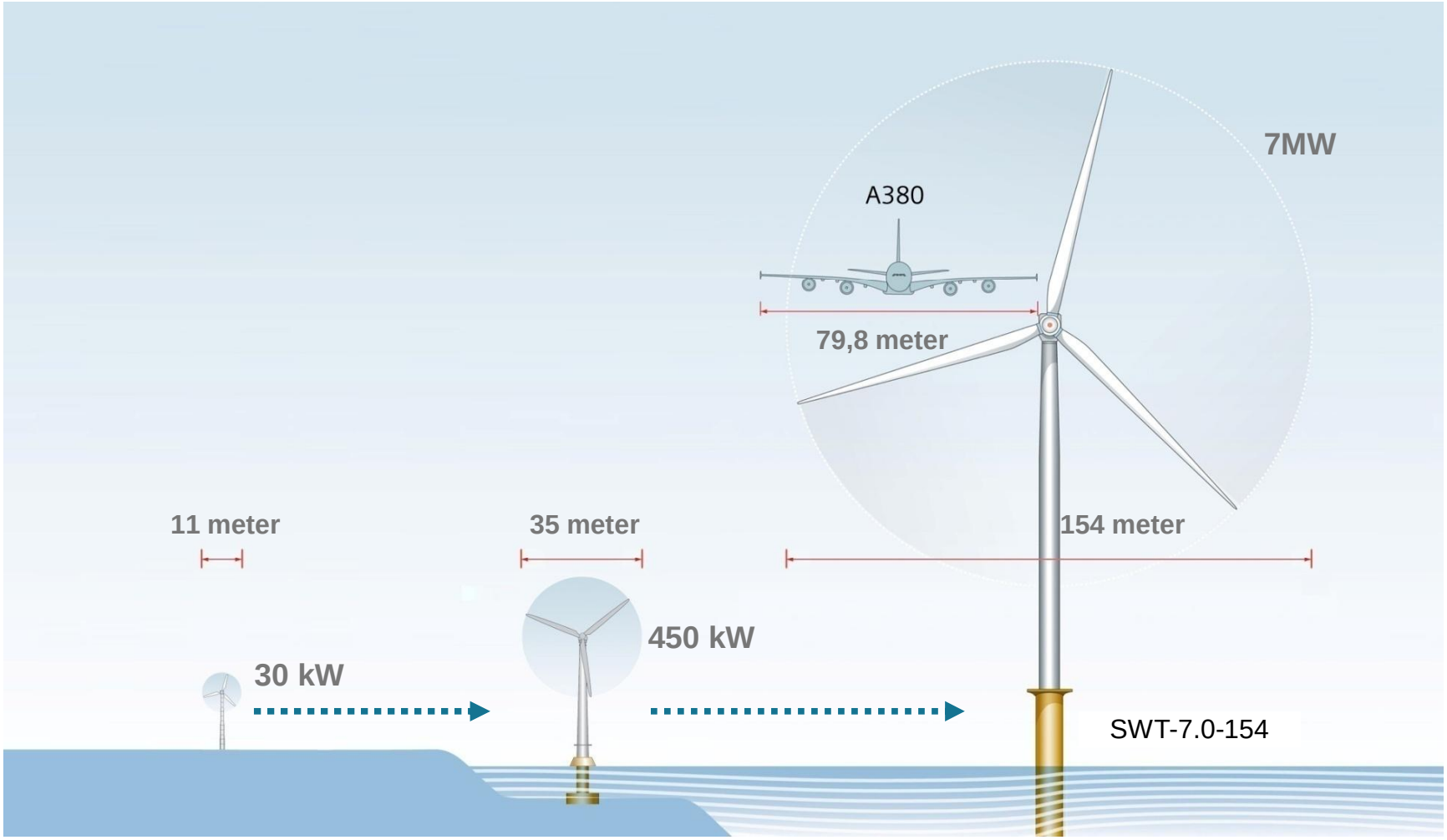
❑ Transport Challenges for 6.0 and 7.0 MW components

❑ Transport Vessel availibility

❑ Port Restrictions

❑ Ro-Ro concept

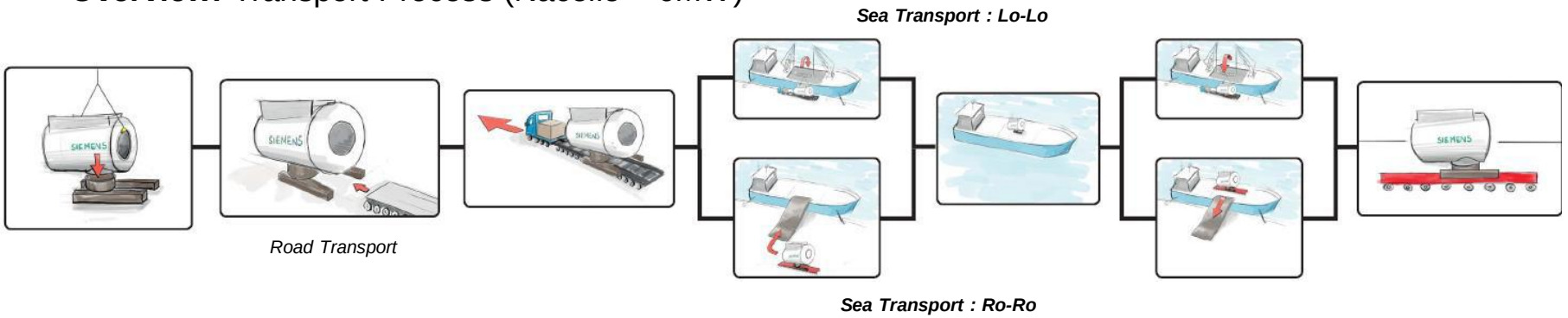
Technology Development of Siemens Wind Power
From 30 kw to 7 MW in 30 years



6.0 MW Nacelle Transport - *Example*

- The 6.0MW Nacelle **(approx. 17m. lenght and 7m. diameter)** is transported on dedicated frame mounted already from production
- Nacelle **weight bigger than 300.000 kg**
- Produced in Brande and trucked to Esbjerg
- Future manufacturing facilities to be established in port of Cuxhaven, DE

Overview: Transport Process (Nacelle – 6MW)

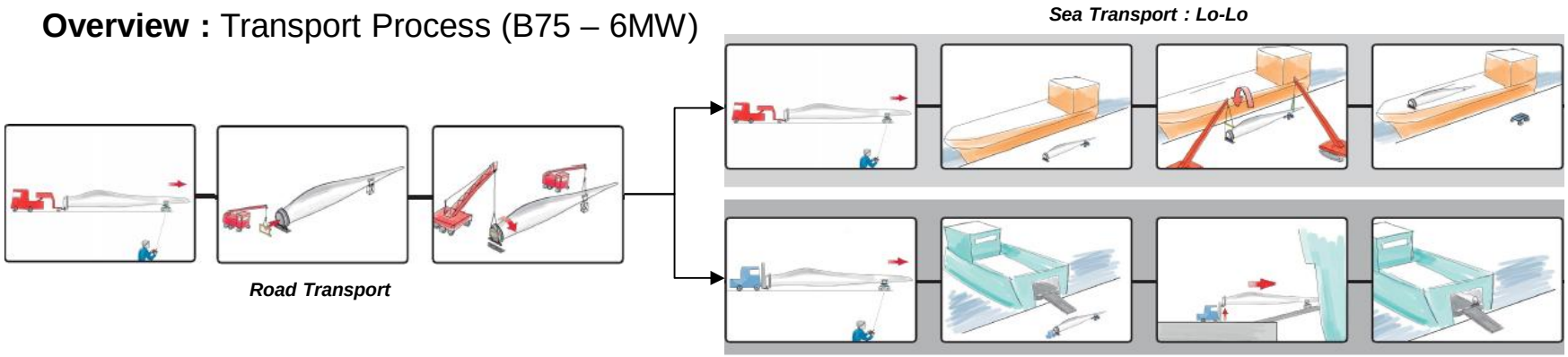


6.0 MW Blade Transport - *Example*

- B75 is the **worlds' largest Blade** to date with lenght of 75m , and (large) diameter of 5.41m.
- Blade **weight up to 30.000 kg.**
- **Transported by truck or sea** from Aalborg, DK
- Future manufacturing facilities to be established in port of Hull, UK

B75 Blade transported by truck

Overview : Transport Process (B75 – 6MW)



Blade Size Matters:
Siemens Builds the World's Largest Rotor Blade

Sourcing of Main components (6.0 and 7.0 MW): Example

SIEMENS

Sourcing of Main components

Location	Component
Aalborg	Blades
Brande	Nacelle
Lindø	Generator
Esbjerg	Clicked Nacelle
Hull	Blades
Cuxhaven	Nacelle

Current Sourcing locations

Future Sourcing locations

Port of Hull Restrictions

- Investment by Siemens & ABB in wind turbines production and installation facilities in Hull
- Limits for acces via liock Vessel length: 154 meter, width: 23,7 meter

Moving from LO-LO to RO-RO concept

Why RO-RO ?

- Saver operations due to eliminated lifting operations
- Faster operations due to fewer handling at port
- Elimination of weather sensitivity

Demand towards the market for building RO-RO vessels for transport of 6.0 and 7.0 MW

Your contact

Riddersholm, Henning Stenfeldt
(WP OF PM TEN&LOG LOG)

henning.riddersholm@siemens.com