



Kundziņsala Wind Hub - a Large-scale Offshore Wind Component Manufacturing & Logistics Complex

Freeport of Riga Authority, Latvia

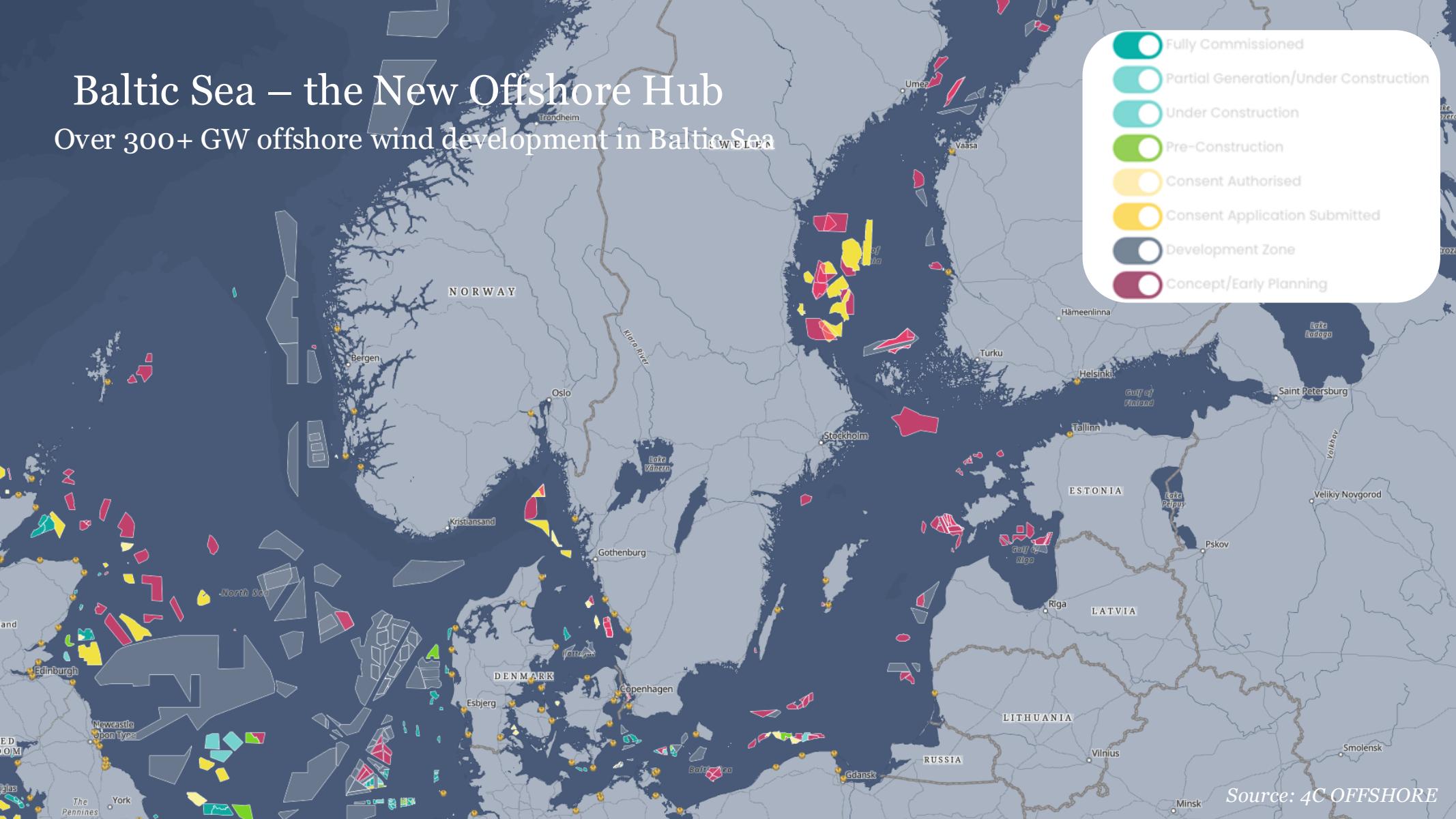




Baltic Sea – the Next Frontier for the European Wind Industry

Baltic Sea – the New Offshore Hub

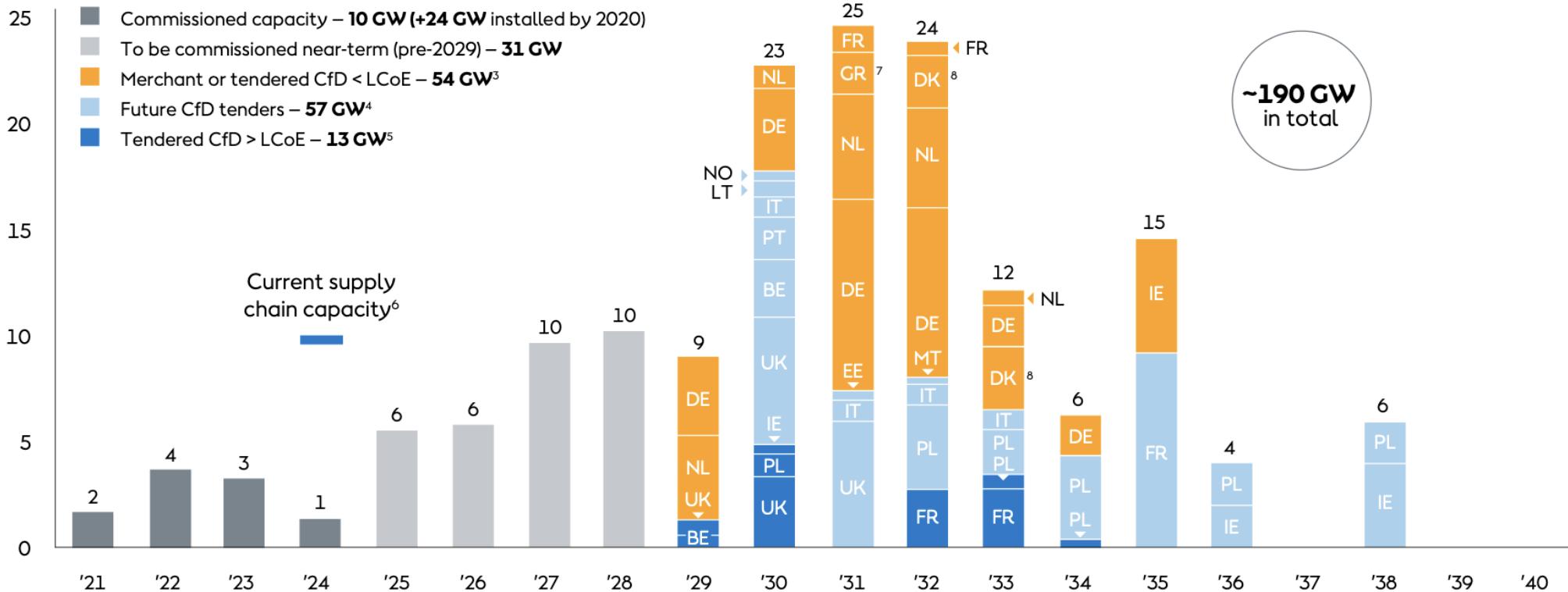
Over 300+ GW offshore wind development in Baltic Sea



Source: 4C OFFSHORE

European Offshore Wind Development

By 2040 over 190 GW of offshore wind projects confirmed & Communicated in Europe



Source: Orsted report "Offshore wind at crossroads"

European Offshore Wind Development

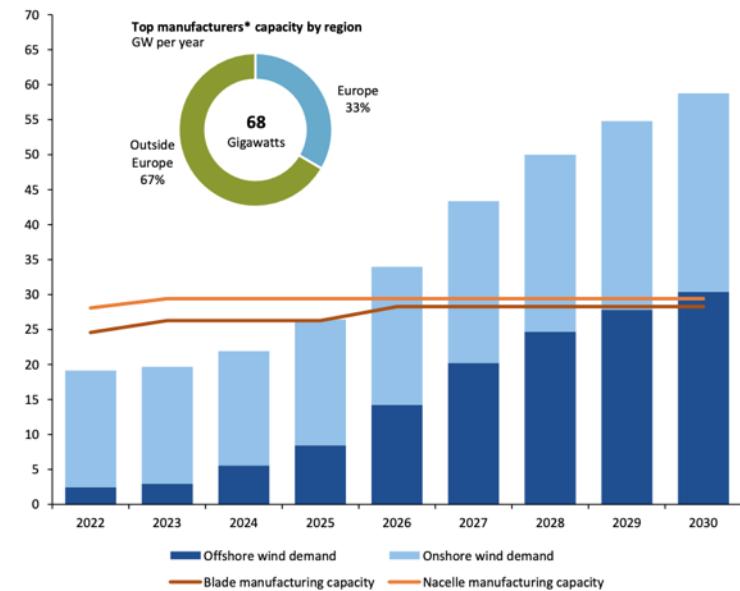
European supply chain is lacking production capacity to satisfy turbine component demand

European supply chain additional capacity requirements



Source: Orsted report “Offshore wind at crossroads”

Figure 24: Wind turbine manufacturing capacity and demand in Europe
Gigawatts (GW)



Source: Wind Europe

Baltic Region Ports – the Unused Manufacturing Potential

Baltic region is suitable for new greenfield manufacturing projects of next-gen turbines

Figure 26: European wind turbine manufacturing capacity and demand by size group
Gigawatts (GW)

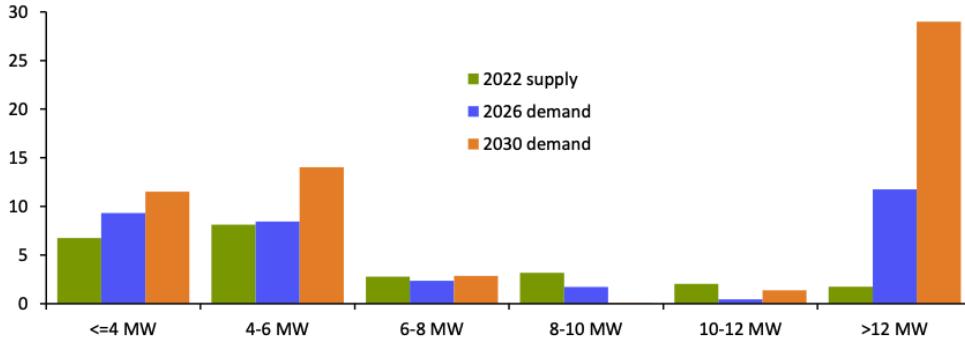


Figure 27: Wind turbine manufacturing capacity and demand for >12 MW turbines
Gigawatts (GW)

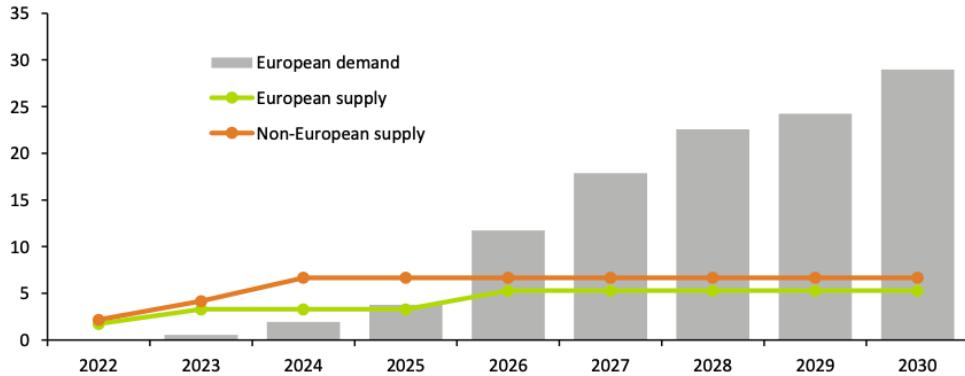
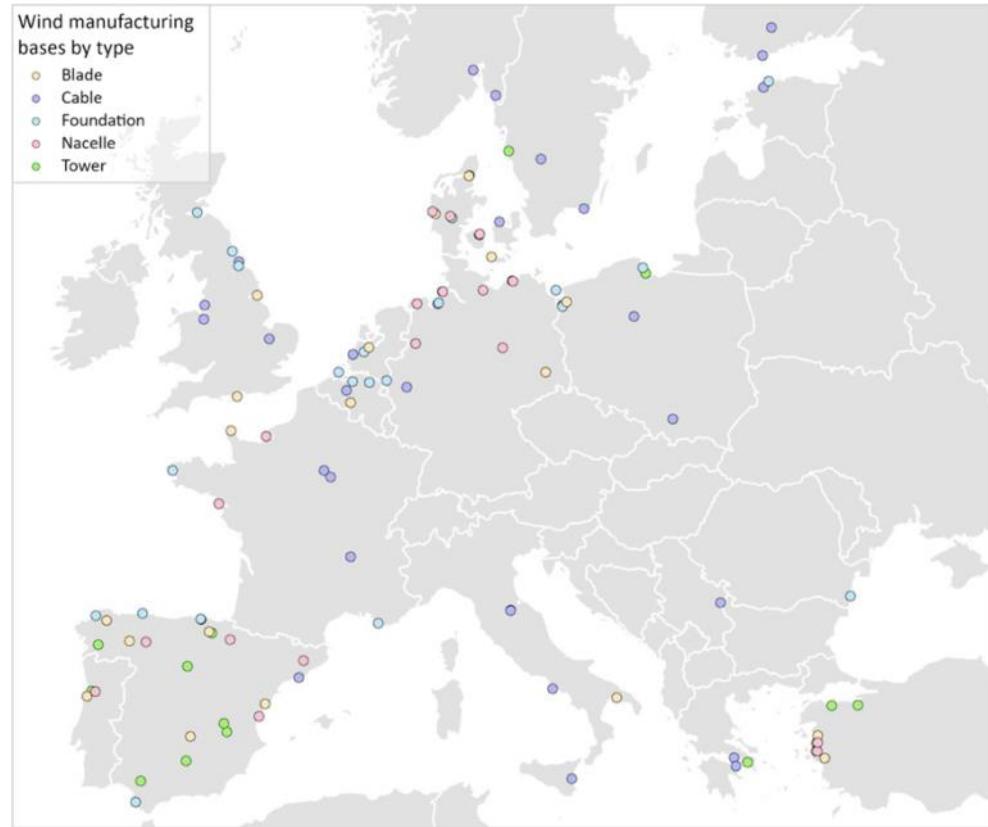


Figure 2: Manufacturing facilities for main wind power components in Europe*



Source: Wind Europe



Freeport of Riga – the Regional Leader in Connectivity & Economic Development

Freeport of Riga – 11 % of the City of Riga, the largest agglomeration in the Baltic states



Total land area of the port: 6,348 ha

Available land for investment: 500 ha

Cargo handled: 18.1 million tons

Max draft: 15m

Open cargo areas: 2,250,914 m²

Number of employees: ~4,000

Freeport of Riga

Regional Leader in Port Connectivity & Logistics



Riga Airport –
the largest air hub
in Eastern Europe

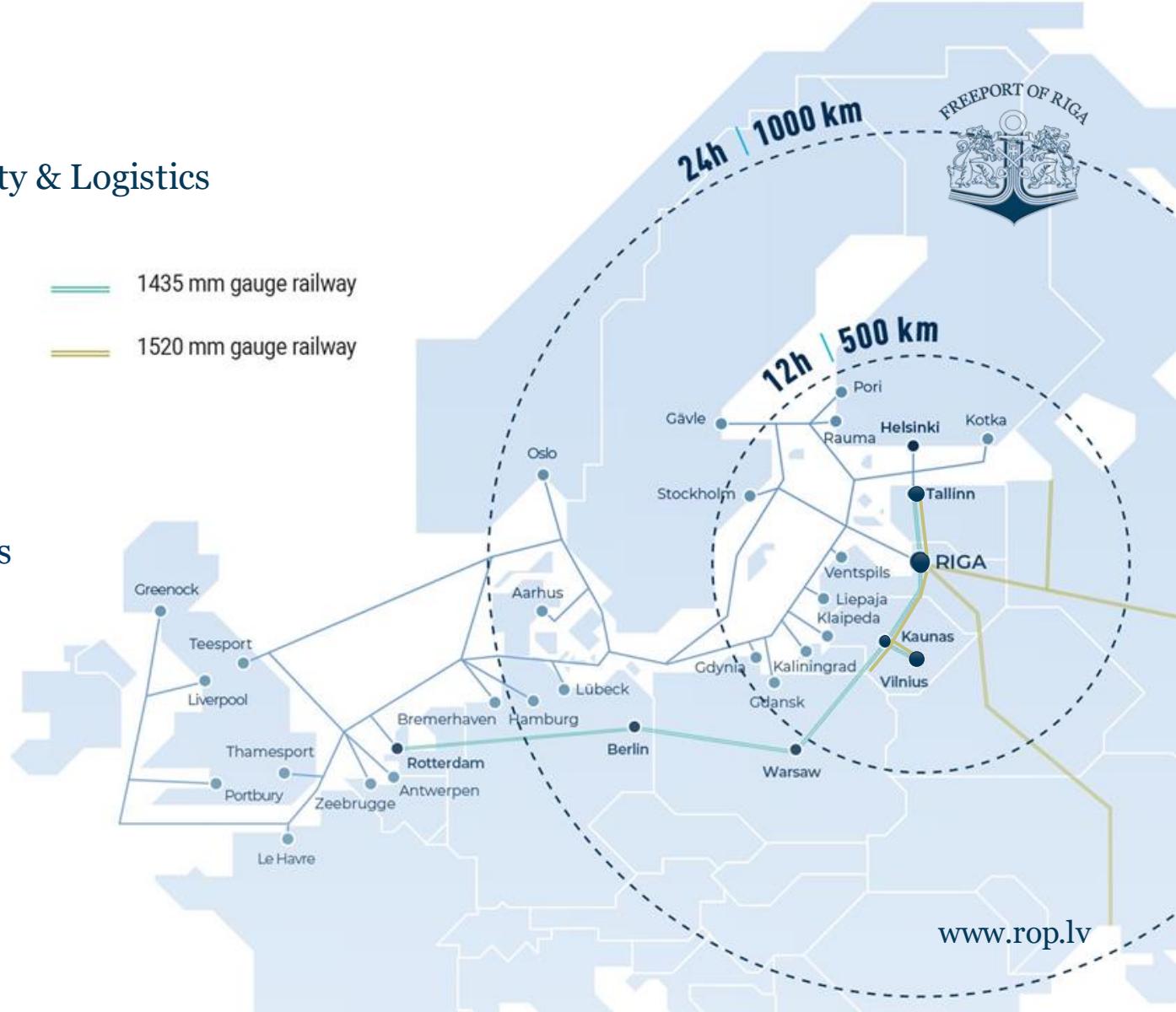


Maritime connections
with more than 50
countries



Convenient
road and railway
connections

1435 mm gauge railway
1520 mm gauge railway



Freeport Status & Tax Benefits



Special Economic Zones Regulation

Accumulated direct tax relieves can amount to
30 – 50 % of total capital investment in the project:

- 30% - large companies
- 40% - medium companies
- 50% - small companies

Maximum accumulated direct tax relieves may amount to EUR 22.5 mln. for large investment projects (i.e., exceeding EUR 50 mln.)

COMMISSION REGULATION (EU) No 651/2014

National Tax Regulation

Company Income Tax – 20% (0% on reinvested profit)

Value Added Tax – 21%

Personal Income Tax – 25,5%



Long-term land lease

- up to 45 years

Free zone regime

Tax reliefs:

- VAT (fixed assets) 100 %
- Excise tax (fuel) 100 %
- Reinvested profit 0%

Status of a licensed company

Tax reliefs:

- Income tax up to 80 %
- Real estate duty up to 100 %
- Reinvested profit 0%

National Support for Large Investments



The Coordination Council For Large and Strategically Significant Investment Projects

The Coordination Council for Large and Strategically Significant Investment Projects, led by the Prime Minister and key ministers, manages large, strategic investment projects in Latvia. It reviews necessary regulation changes, support mechanisms, and infrastructure needs to ensure successful project implementation.

The Council consists of:

- The Prime Minister;
- The Minister of Economics;
- The Minister of Finance;
- The Minister of Smart Administration and Regional Development;
- The Minister of Transport;
- The Minister of Foreign Affairs.





Freeport of Riga – the Opportunity for European Offshore Businesses

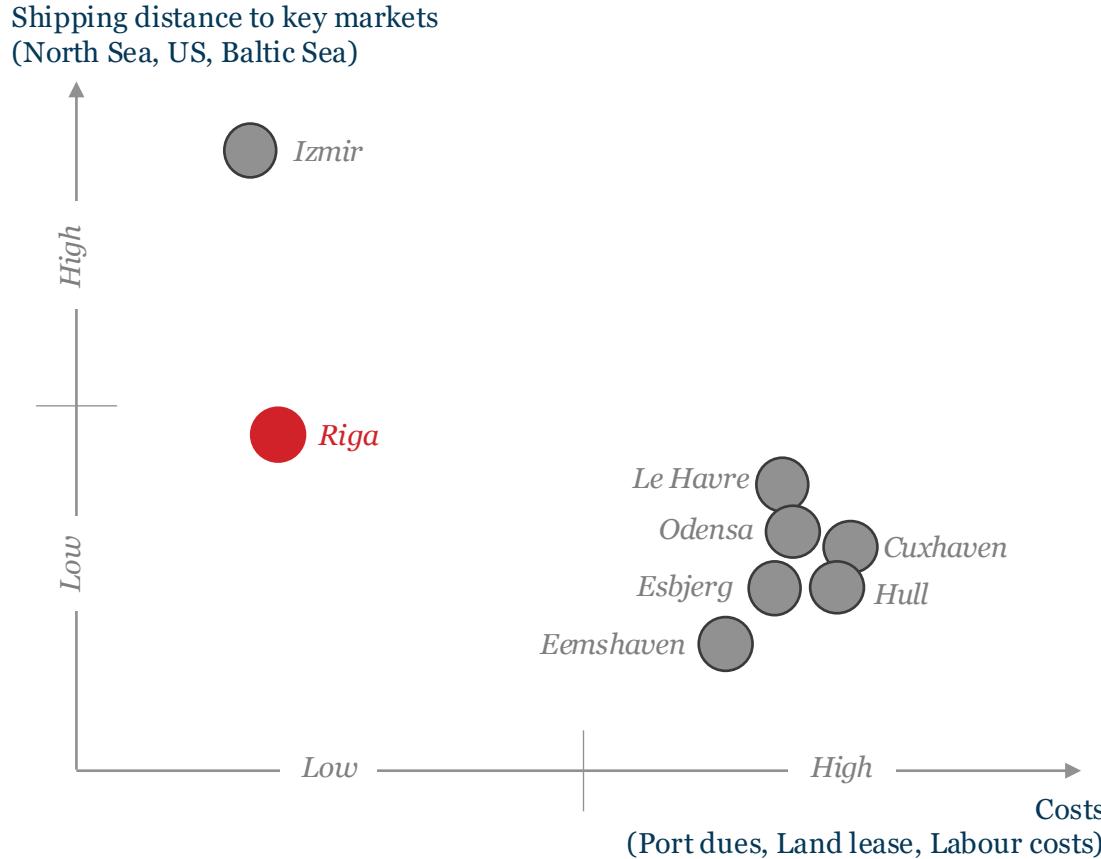
Roles of Ports in Offshore Wind

Import/export ports	Manufacturing ports	Marshaling / Assembly ports	Installation ports	Operation and maintenance ports
<ul style="list-style-type: none">✓ Multimodal (rail, road, water connections✓ Cargo handling infrastructure✓ Short-term storage areas✓ non-standard cargo handling infrastructure	<ul style="list-style-type: none">✓ Sufficient large-scale manufacturing facilities 15-25ha✓ Deep-water high-load quays and port infrastructure✓ Electricity connection for manufacturing✓ Availability materials for manufacturing✓ Resources and trained staff✓ Commercial benefits	<ul style="list-style-type: none">✓ Proximity to offshore wind parks✓ Large-scale areas for component storage 4-20 ha✓ Assembly and test facilities✓ Turbine and component handling infrastructure✓ Service and installation vessel access✓ Resources and trained staff	<ul style="list-style-type: none">✓ Proximity to offshore wind parks✓ Cargo ship access✓ Multimodal connections✓ Large-scale areas for storage of wind-park construction components (incl. concrete blocks)✓ Handling infrastructure	<ul style="list-style-type: none">✓ Proximity to offshore wind parks✓ Long-term and short term storage facilities 2-3ha✓ Berthing of multiple small service and crew vessels✓ Facilities for service crew✓ Minimal vessel access restrictions

Freeport of Riga
focus segments

Picture: Siemens-Gamesa factory & port terminal in Cuxhaven

Competitiveness Comparison of Regional Offshore Ports



Freeport of Riga - the most competitive location for offshore wind manufacturing

- ✓ Salary & Tax level below EU average
- ✓ Competitive Port dues & Land lease rate
- ✓ Financial aid for large-scale investment
- ✓ Close proximity to next offshore key market – Baltic Sea region
- ✓ Availability of sufficient land (70+ ha) for new large-scale manufacturing
- ✓ Development of tailor made offshore port infrastructure for next-gen components handling
- ✓ Located in the heart a major European capital with 1+million agglomeration
- ✓ Leading country in R&D research



Kundzinsala Wind Hub- Opportunities for Investors and Manufacturers

Kundzinsala Island

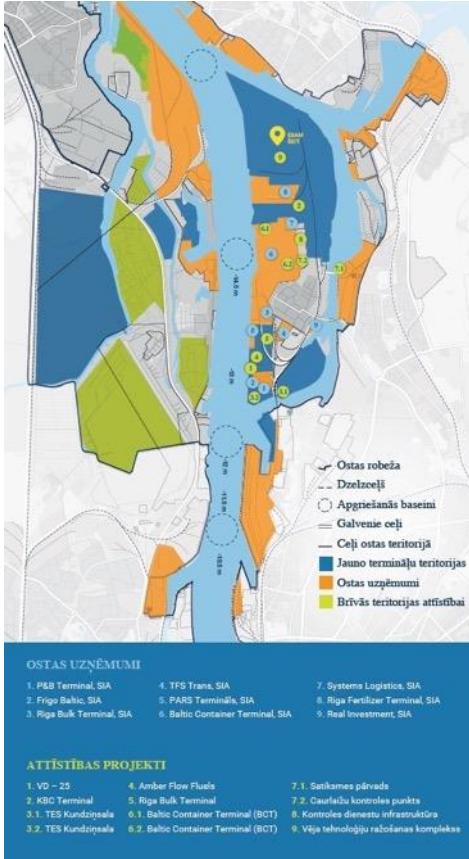
Prime development territory of the Freeport of Riga

- Total development **area 92,2 ha**
- Located **6 km from the city center** (a 15-minute drive)
- **Special Economic Zone** offering tax benefits and favorable conditions for importing, exporting, and storing goods
- The most **strategically significant area** of the port
- **Deep-water** access
- Modern **customs facilities & new overpass connecting to TEN-T network**
- Well-developed **road & rail infrastructure**
- **Existing container terminal** (Baltic Container Terminal)
- Located near «**University mile**»



Kundzinsala Island: The NEW RIGA PORT

Fastest growing and a priority development territory in the Freeport of Riga, **Additional 500 million EUR investment until 2030**



Kundzinsala Wind HUB



Increase capacity of Baltic Container Terminal



New bridge, digital-first port access gate & New customs and border control center



HVO fuels production plant



Kundziņsala Wind Hub



Renewable Energy Component Production Complex

The Freeport of Riga Authority is developing a large-scale offshore **wind component manufacturing complex** and is making **90 hectares** of land available for the development of **Renewable Energy Production facilities** and building the necessary port infrastructure.

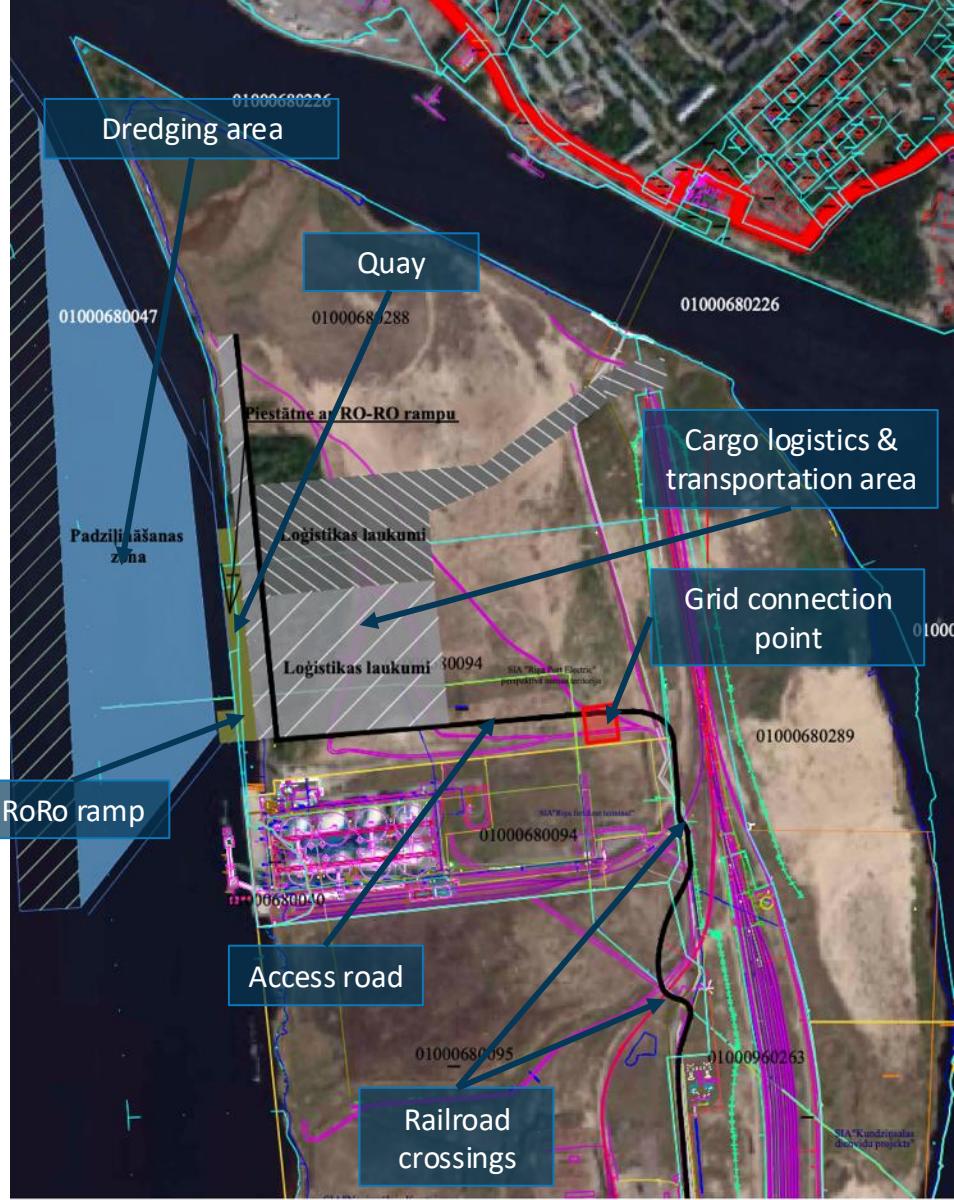
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Port infrastructure to be developed by 2029

- **Site preparation** (site planning, amendments to existing land lease agreements, etc.)
- High-load (25 t/m²) **deep-water quay** (290 meters lenght, 13.5 meters depth)
- High-load (25 t/m²) **Ro-Ro ramp** (area 60x50 meters)
- 15 ha high-load (25 t/m²) **cargo logistics and transportation areas**,
- Reconstruction and construction of **road and railway** infrastructure (2.3 km total lenght),
- New **water & sewage** infrastructure,
- New **electricity connection** and substation (up to 10 MW),
- **Dredging** of the main waterway to 13.5 meters.
- Co-funded by the EU under the **Strategic Technologies for Europe Platform (STEP) Regulation**.
- Total **CAPEX 86 million EUR**



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For Investors & Developers

- **Lease of the new port infrastructure** for cargo handling
- **Lease of 70 hectares** of land around the port infrastructure:
 - Land plot A - 18 ha – leased;
 - Land plot B – 30 ha – available for lease;
 - Land plot C – 28 ha – leased.
- **Brownfield territory with necessary infrastructure** for the development of large-scale Renewable Energy Component Production facilities
- Infrastructure supporting **next-gen offshore wind components: nacelle (>2'000 tons) & blade sizes (120+metres)**
- **Process for lease rights award** will take place **until end of Q1 2026**





Kundzinsala Wind Hub- Timeline and Infrastructure Lease



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Infrastructure & Land Lease

- **Competitive auction** for the lease rights of:
 - Port infrastructure (Quay, RoRo ramp, Cargo logistics areas)
 - Development land plots (A, B and C)
- **Qualification criteria for leasors:**
 - Lease of port infrastructure + at least 1 land plot (A, B or C)
 - Development of offshore /onshore wind component manufacturing facilities
 - Minimum investment– EUR 40 million, 10% of which is invested by the end of 2029
- **Special terms:**
 - At least **25 year lease** period
 - **Lease price compensation** based on achieved cargo turnover
- **Initial annual lease price (EUR without VAT):**
 - Port infrastructure: EUR 2'600'000,00 (incl. CAPEX reinvestments). *To be proportionally shared with the lessors of land plot A and land plot C) starting from January 1, 2030*
 - Land plot B: EUR 80'000,00



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Project Timeline

Development timeline

The port infrastructure will be completed by December 31, 2029.

Port infrastructure design
Investor selection process

2025

Investment
agreement signed

2026

Construction
of port infrastructure

2027

Port infrastructure is co-funded by the EU
under the Strategic Technologies for Europe
Platform (STEP) Regulation.

Completion
of port infrastructure

2029

Completion of RES
manufacturing facilities

Port infrastructure &
land lease rights auction

Design of RES
manufacturing facilities

RES manufacturing facilities
construction initiated



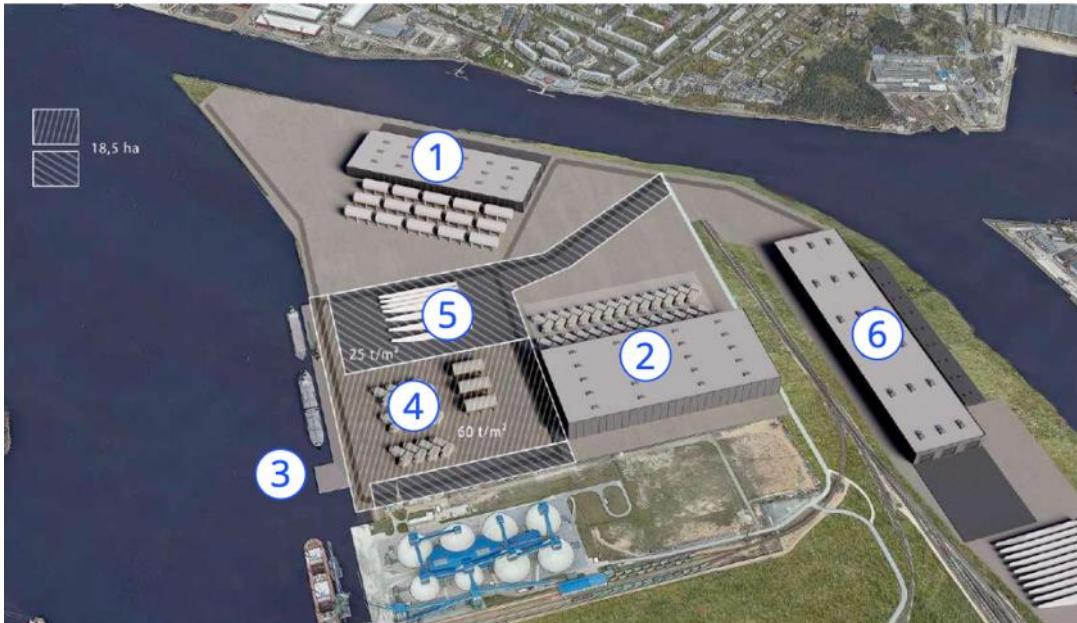
Picture: Vestas V236-15.0MW turbine loading



Kundzinsala Wind Hub- Development Scenarios for Manufacturing

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Scenario Summary for Blades, Nacelles & Towers



1 – Wind Turbine Towers factory
(length – 350 m; width – 120 m; height – 25 m)

2 – Wind Turbine Nacelles factory
(length – 350 m; width – 160 m; height – 40 m)

3 – Quay with Ro-Ro ramp

4 – Cargo logistics area with a load-bearing capacity of 60 t/m²

5 – Cargo logistics area (25 t/m²)

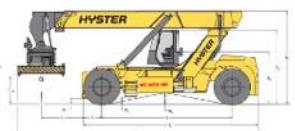
6 – Wind Turbine Blades factory
(length – 500 m; width – 120 m; height – 25 m)

Requirements	Towers factory	Nacelle factory	Blade factory
Min. plot size (factory + storage)	15ha	15ha	40ha
Plant	35.000m ²	45.000m ²	60.000m ²
Optimal outdoor Storage inbound	15ha (based on 4wks stock)	20ha (based on 4wks stock)	5ha
Optimal outdoor storage outbound	15ha (150 Towers) – 20ha for 200 Towers	15ha (150 Nacelles) – 20ha for 200 Nacelles	35ha
Min. plot length and width	L 300m/ W 200m	L 300m/ W 200m	L 800m/ W 400m
Plot shape (efficiency)	Rectangular (as much as possible)	Rectangular (as much as possible)	Rectangular (as much as possible)
Min. building height limitations	25m (manufactory part 1 floor; related auxiliary functions up to 3 floors)	40m (manufactory part 1 floor; related auxiliary functions up to 3 floors)	25m (manufactory part 1 floor; related auxiliary functions up to 3 floors)
Max. distance from factory to export quay	<0,3km (straight road)	<0,3km (straight road)	<0,3km (straight road or there need to be 150m turning radius)
Min. road width for transported goods	W 15m	W 15m	W 15m
Access	Unrestricted/ exclusive access to road	Unrestricted/ exclusive access to road	Unrestricted/ exclusive access to road
Min. load bearing capacity for roads	40t per axle	40t per axle	40t per axle
Min. length, width and depth for quay infrastructure	L 270m/ W 30m/ D 12m (LAT)	L 270m/ W 30m/ D 12m (LAT)	L 270m/ W 30m/ D 12m (LAT)
Min. baseline ground pressure	25t/m ²	60t/m ²	25t/m ²
Min. availability of export quay	100 days per year	100 days per year	200 days per year
Min. buffering area size at quay side (first/last place of rest)	5.000m ²	5.000m ²	10.000m ² (200m x 50m)
Min. Lo-Lo quay requirements e.g. weight and load distance	750t/ 2 meters from quay side	750t/ 2 meters from quay side	600t/ 2 meter from quay side
Min. channel depth/ width	D 12/ W 55m	D 12/ W 55m	D 12/ W 55m
Min. ship length/ width allowance	L 210m/ W 33m	L 210m/ W 33m	L 210m/ W 33m
Optim. ship turning radius	250m	250m	250m
Max. Crawler crane height	300m	120m	120m

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Scenario for Blade manufacturing

Description	Metric	Imperial
Service weight	35,000 kg	77,175 lbs
Payload	61,667 kg	135,976 lbs
Contact load	96,667 kg	213,151 lbs
Axle load frontal mode	48,334 kg	106,575 lbs
Per wheel assy	24,167 kg	53,288 lbs
Per wheel load	12,083 kg	26,644 lbs
Contact area	1,660 cm ²	3,660 cm ²
Ground pressure	7.28 kg/cm²	16.05 lb/cm²
ROOT LOAD	61,667 kg	135,976 lbs
Axle loading	48,334 kg	106,575 lbs
Wheel loading	24,167 kg	53,288 lbs



Pre-assembly and storage areas - Ground pressure (σ)

Area	Component	Weight (t)	Baseline ground pressure σ_{bas} (t/m ²)	Spreading measure for baseline
Storage	Blade	83	25	steel plate



1 – Wind Turbine Blades factory
(length – 500 m; width – 120 m; height – 25 m)

2 – Blades storage area

3 – Quay with Ro-Ro ramp

4 – Cargo logistics area with a load-bearing capacity of 60 t/m² is recommended, though not required, as other scenarios may also provide this capacity

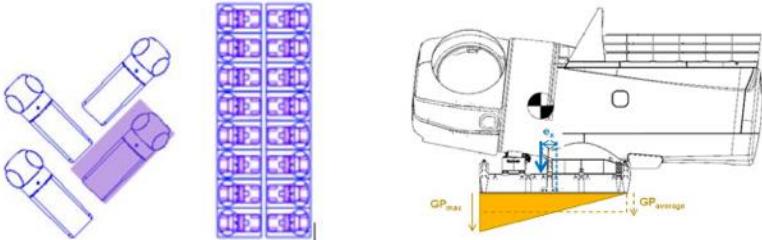
5 – Cargo logistics area (25 t/m²)

6 – Potential development area

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Scenario for Nacelle manufacturing

Pre-assembly and storage areas - Ground pressure (σ)				
Area	Component	Weight (t)	Baseline ground pressure σ_{bas} (t/m ²)	Spreading measure for baseline
Storage	Nacelle on transport Frame + load spread blocks + SPT	1400	60.0	Timber mats or Concrete block footprint
Axle Weight predicted:		1400t with 2 files of 17 axles with 34 axles total = 34t/axle line		
Max Inclination:		3 degrees ~ 5% (Preferred slope for pre-operations and drainage is 1.5% (+/- 0.5%))		
Load case		Value	Unit	
TF dimensions		10	m	
Length (L) - CIRCA		10	m	
Width (W) - CIRCA		5	m	
Beam width (b) - CIRCA		0,6	m	
Ground pressure				
Local scale - point load (GP_{max}) without large spreader blocks		60	t/m ²	
Local scale - average ($GP_{average}$) with large spreader blocks		35	t/m ²	
Medium scale (LxW)		8	t/m ²	
Large scale (indicative only)		2.5	t/m ²	



1 - Wind Turbine Nacelles factory
(length - 350 m; width - 160 m; height - 40 m)

2 - Nacelles storage area

3 - Quay with Ro-Ro ramp

4 - Cargo logistics area (60 t/m²)

5 - Cargo logistics area (25 t/m²)

6 - Potential development area

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Scenario for Tower manufacturing

Towers storage areas – Ground pressure (σ)

Area	Component	Weight (t)	Baseline ground pressure σ_{bas} (t/m ²)	Spreading measure for baseline	
Storage	Towers	100	25	Timber mats or Concrete block footprint	
Max Inclination:		Preferred slope for operations and drainage is 1.5% (+/- 0.5%)			



Description	Metric	Imperial
Service weight	35,000 kg	77,175 lbs
Payload	61,667 kg	135,976 lbs
Contact load	96,667 kg	213,151 lbs
Axle load frontal mode	48,334 kg	106,575 lbs
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1 – Wind Turbine Towers factory
(length – 350 m; width – 120 m; height – 25 m)

2 – Towers storage area

3 – Quay with Ro-Ro ramp

4 – Cargo logistics area with a load-bearing capacity of 60 t/m² is recommended, though not required, as other scenarios may also provide this capacity

5 – Cargo logistics area (25 t/m²)

6 – Potential development area

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Recommended scenario – Development scenario for Blades, Towers & Supporting Components



1, 2, 3 – Available lease land (approximately 90 hectares in total are designated for development, of which approximately 70 hectares of land are available for lease (1. - 26,8 ha; 2. - 15,9 ha; 3. - 27,7 ha)

4 – Cargo logistic area (25 t/m²)*

5 – Quay with Ro-Ro ramp (25 t/m²)*

* Theoretical load-bearing capacities for blades and towers manufacturing scenarios (excluding the possibility of nacelles production) have been set at a minimum of 25 t/m² for the cargo logistics zone and quay. This solution should be evaluated in due time, with the final decision made during the design stage.

Contact information

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