



“Success stories in Estonia and a vision for the Baltic Region”

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Chairman of the board, EWPA

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Nordic-Baltic renewable energy producer

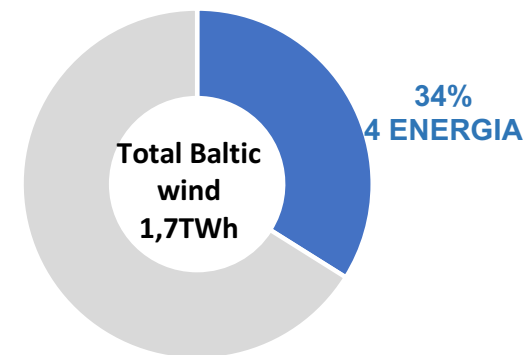


12 y of experience in wind and bioenergy

- Assets 450 MEUR
- EBITA 37 MEUR



Baltic's largest wind power producer



WWW.NELJAENERGIA.EE

Estonian pilot off-shore wind farm: Hiiumaa



Status

- Marine spatial planning and Strategic Environmental Impact Assessment (EIA) approved in 2016
- Cooperation agreement with Hiiumaa Municipality in 2017.
- Detailed EIA report submitted for approval of Ministry of Environment
- Seabed right and building permit process ongoing

Fact sheet

General

Developer	Nelja Energia AS
Capacity	700MW - 1 100MW
Nr. WTGs	100-160
Foundations	Ice-proof gravity foundations

Location

Location	Hiiumaa, Estonia
Distance from shore	Min. 12 km
Sea depth	10m - 30m
Total area	200 km ²
Distance to on-shore grid connection point	45 km

Production

Annual production	3TWh-5TWh
Capacity factor	Ca 50%
Average wind speed	Ca 9 m/s

Regional cooperation to develop Baltic Sea offshore wind power since 2014



The Baltic Sea Declaration has been approved on the 15th of June, 2017 by the following members of the Baltic Sea Offshore Wind Forum:

Danish Wind Industry Association (DWIA)	Jan Hylleberg
Estonian Wind Power Association (EWPA)	Martin Kruus
Finnish Wind Power Association (FWPA)	Anni Mikkonen
German Offshore Wind Energy Foundation (SOW)	Andreas Wagner
Latvian Wind Energy Association (VEA)	Paulis Barons
Lithuanian Wind Power Association (LWPA)	Aistis Radavičius
Polish Wind Energy Association (PWEA)	Janusz Gajowiecki
Swedish Wind Energy Association (SWEA)	Charlotte Unger Larson

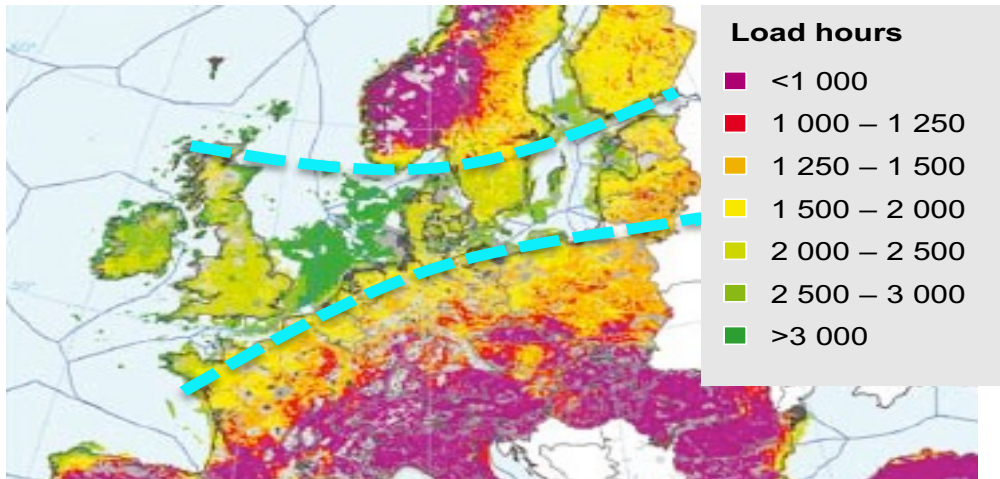
The Baltic sea declaration is about

- Turning cost-effective offshore wind resources to the feasible renewable baseload, export of green electricity and this way boosting economy of the region.
- To develop industry supply-chain, electricity market design, transmission grids, renewable energy cooperation mechanisms, spatial planning
- <http://www.tuuleenergia.ee/wp-content/uploads/Baltic-Sea-Declaration.pdf>

Baltic Sea advantage

Large weather window and less extreme winds lowering CAPEX and OPEX

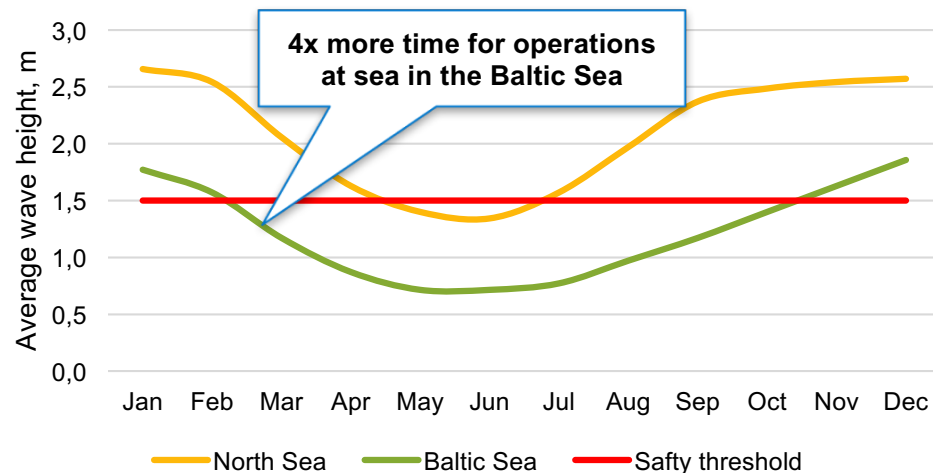
Wind conditions



Distribution of full load hours in Europe (80 m hub height onshore, 120 m hub height offshore)

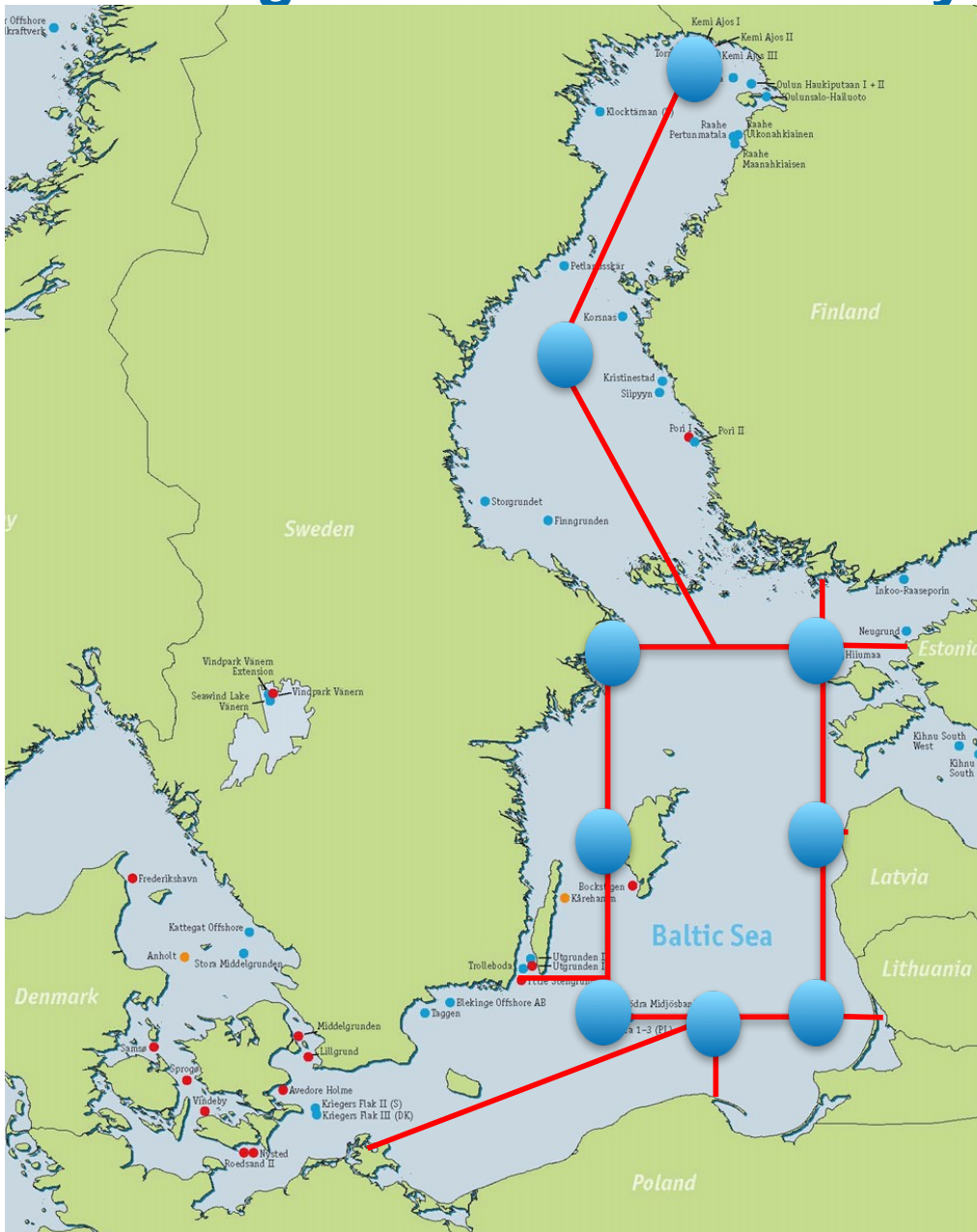
- Average wind speed in the west of Hiiumaa islands is ca 9 m/s.
- Due to calmer seas the wind park sites are accessible for most of the year.
- Shorter construction periods, less standby hours, less cost for heavy installation equipment, more time to carry out maintenance works.
- Higher technical availability, lower O&M, and lower CapEx.

Sea conditions in the Baltics Sea versus North Sea



North Sea 1992-2007 monthly averages; Baltic Sea 1996-2012 averages

Vision of connecting Baltic Sea offshore windparks into integrated transmission system

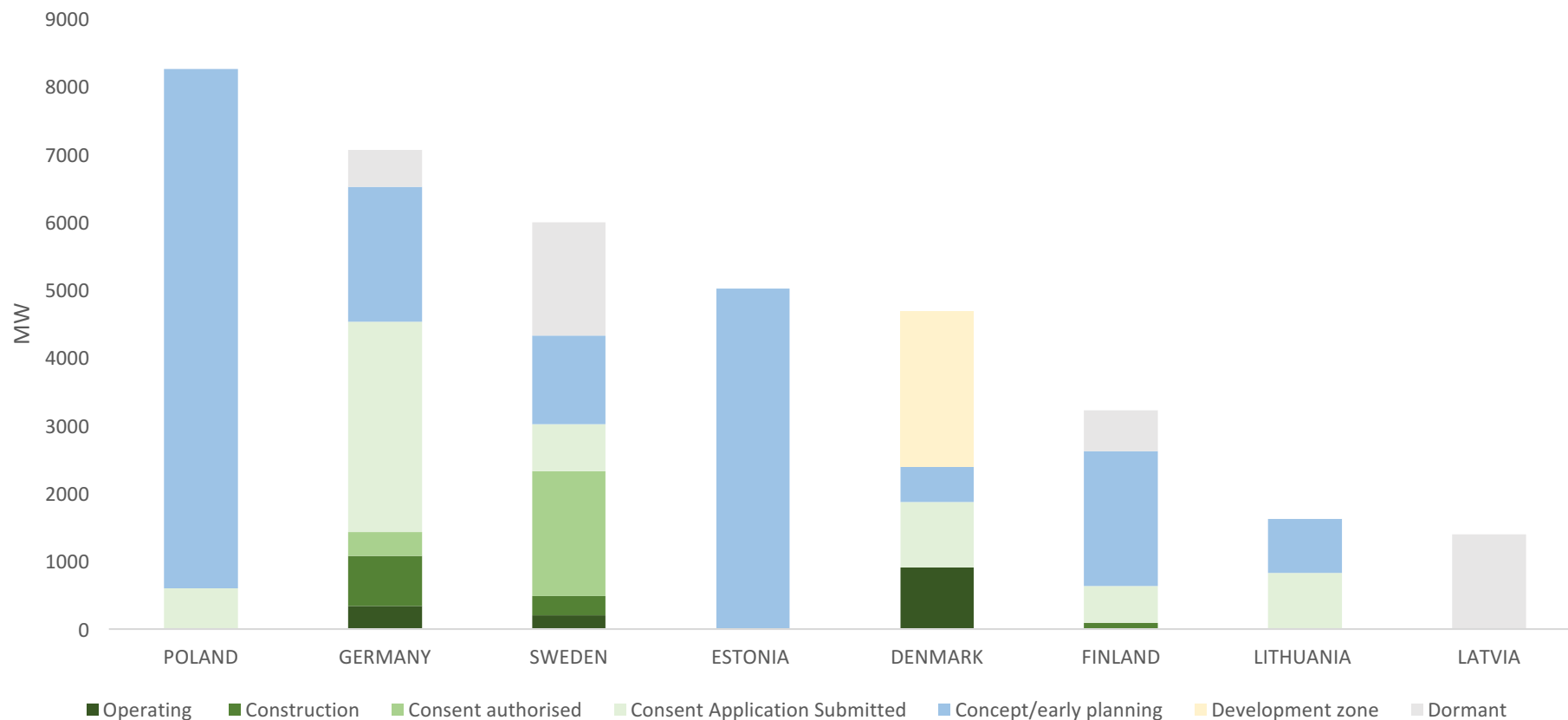


Renewable baseload.
Offshore wind energy combined with hydropower, strong interconnectors and smart grid applications can provide renewable baseload in the Baltic Sea region but it can also supply clean energy to the Central Europe.

More energy security
By connecting offshore windparks directly across the Baltic Sea it is possible to create Baltic-Nordic synchronous system, thus desynchronize Baltic States from Russia's power system.

Last but not least
Its more environmental friendly to develop future transmission grid with cables at the sea instead of massive overhead lines onshore .

Baltic Sea offshore developments



The overall offshore project pipeline in the Baltic Sea is ca. 30 GW

Source: www.4coffshore.com/offshorewind,
Benefits of the Meshed Grid, European Commission

RES Cooperative Mechanisms

What are RES Cooperative Mechanisms?

- According to the European Directive (2009/28/EC, Art 6 - 8) it is **possible for Member States to cooperate** in order to jointly achieve their national renewable targets.
- A Member State can ask another Member State to produce renewable energy for them by supporting such installations and getting green statistics in return.
- Therefore, the transfer of green statistics is only rational, when the cost of domestic green energy per MWh is significantly higher than the other Member State's cost.

What do State Aid Guidelines say?

- To facilitate the better functioning of the internal electricity market, the guidelines also promote the use of cooperation mechanisms to facilitate cross-border support of renewable energy where possible and appropriate.

Premise of the statistics transfer

Project country

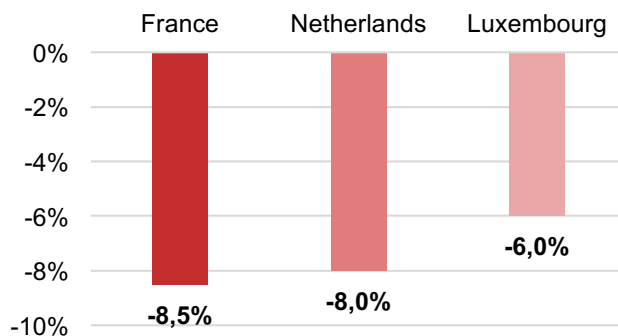
- Renewable energy statistics
- Capital return if sponsor country invests

- Renewable energy subsidy
- Option for equipment and service exports
- Option for investment

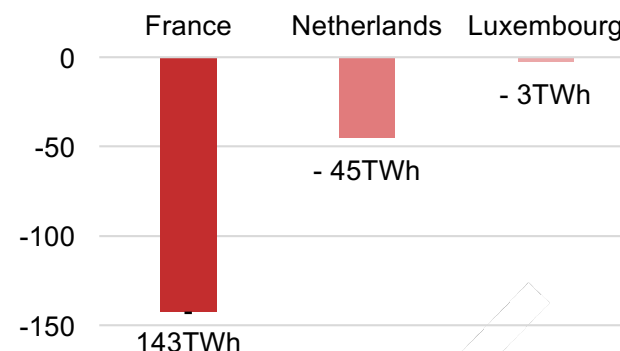
Sponsor country

Distance to 2020 renewable energy targets of countries missing their 2015 trajectory targets

As % of gross final consumption



Missing in TWh, based on 2015 consumption



Source: EC Renewable Energy Progress Report, 2017; Eurostat

Thank you!
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