

WIND POWER IN LATVIA

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Board member



Offshore wind Riga May 2017



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Today

Offshore wind in Europe

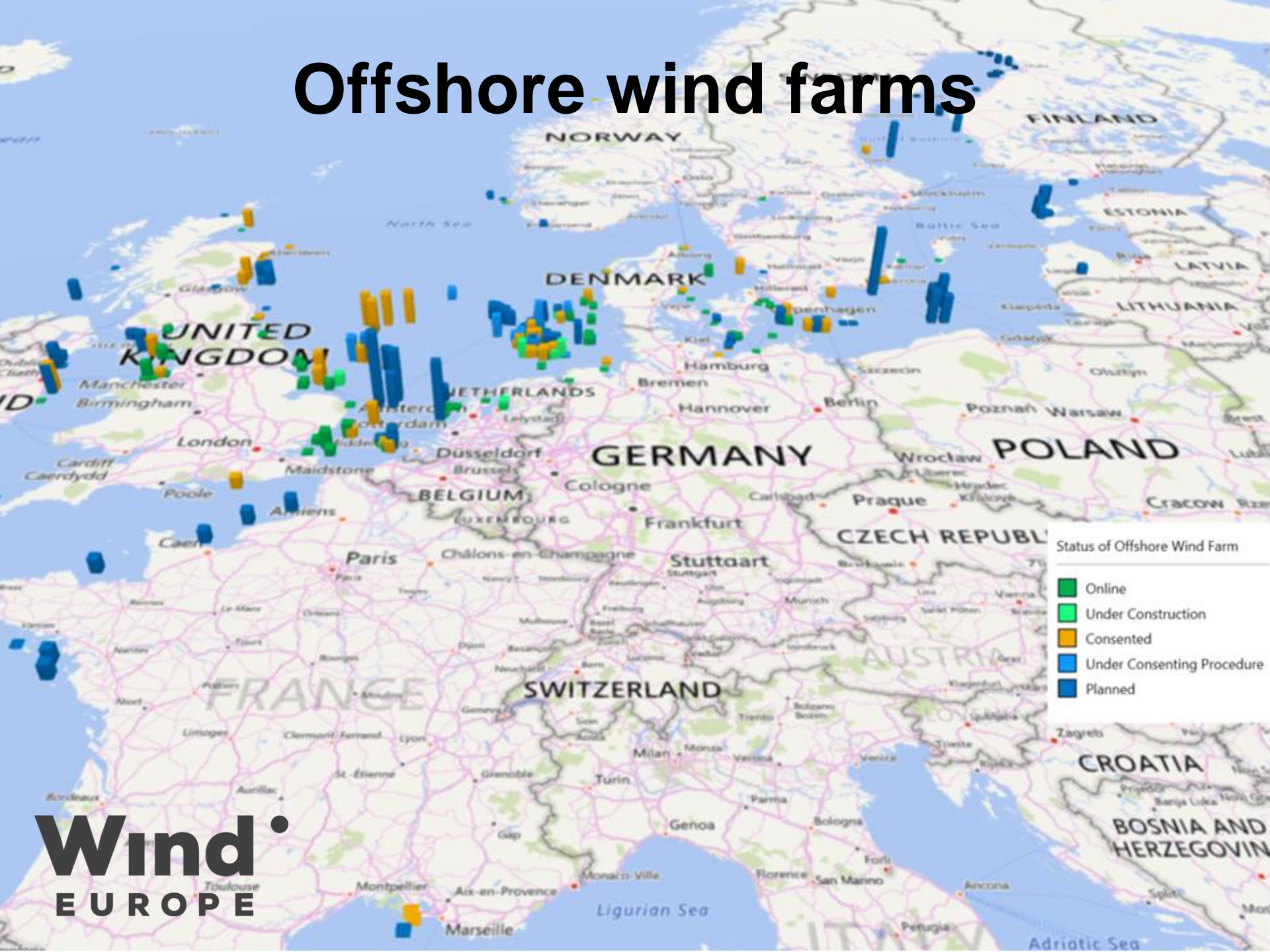
WindEurope

information

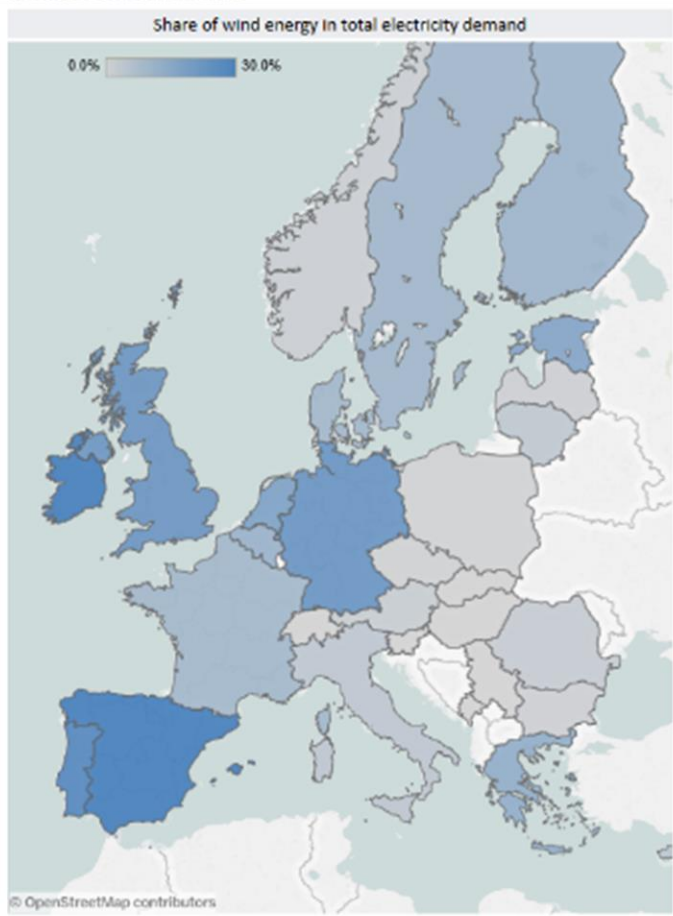
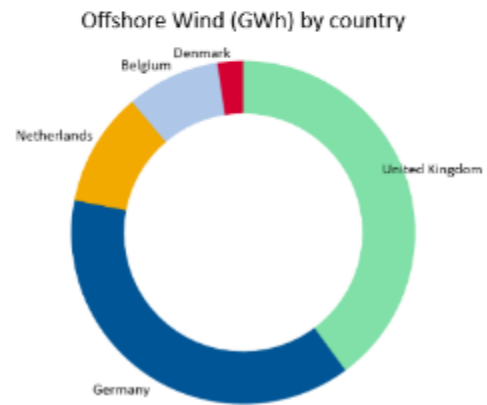
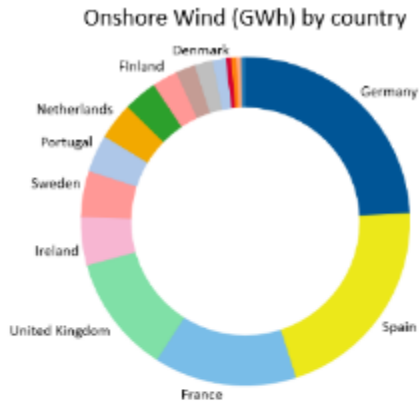
About Latvia:

wind, sea, harbours, geology, environment,
economy , electrical grid and market, regulation
and restrictions, legal acts, strategy

Offshore wind farms



Daily wind power numbers



Share of wind energy in electricity demand

12.9%



Onshore Wind (GWh)
1,098
Offshore Wind (GWh)
185

WHICH COULD POWER



Equivalent EU households*
129 million

OR

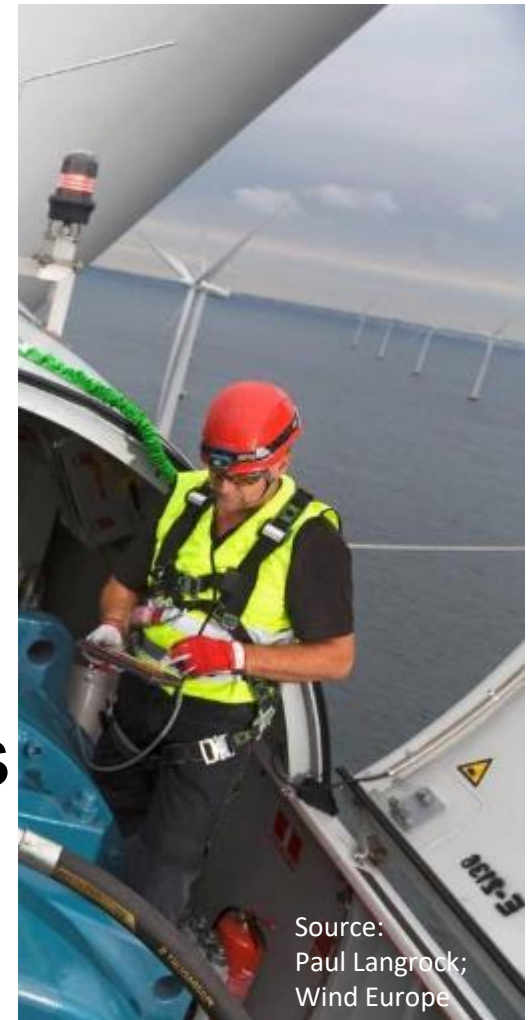


Average industrial electricity demand**
45%

* Elaborated on the electricity demand of an average EU28 household in 2015, Eurostats
** Elaborated on the industrial electricity consumption of each EU28 country in 2015, Eurostats

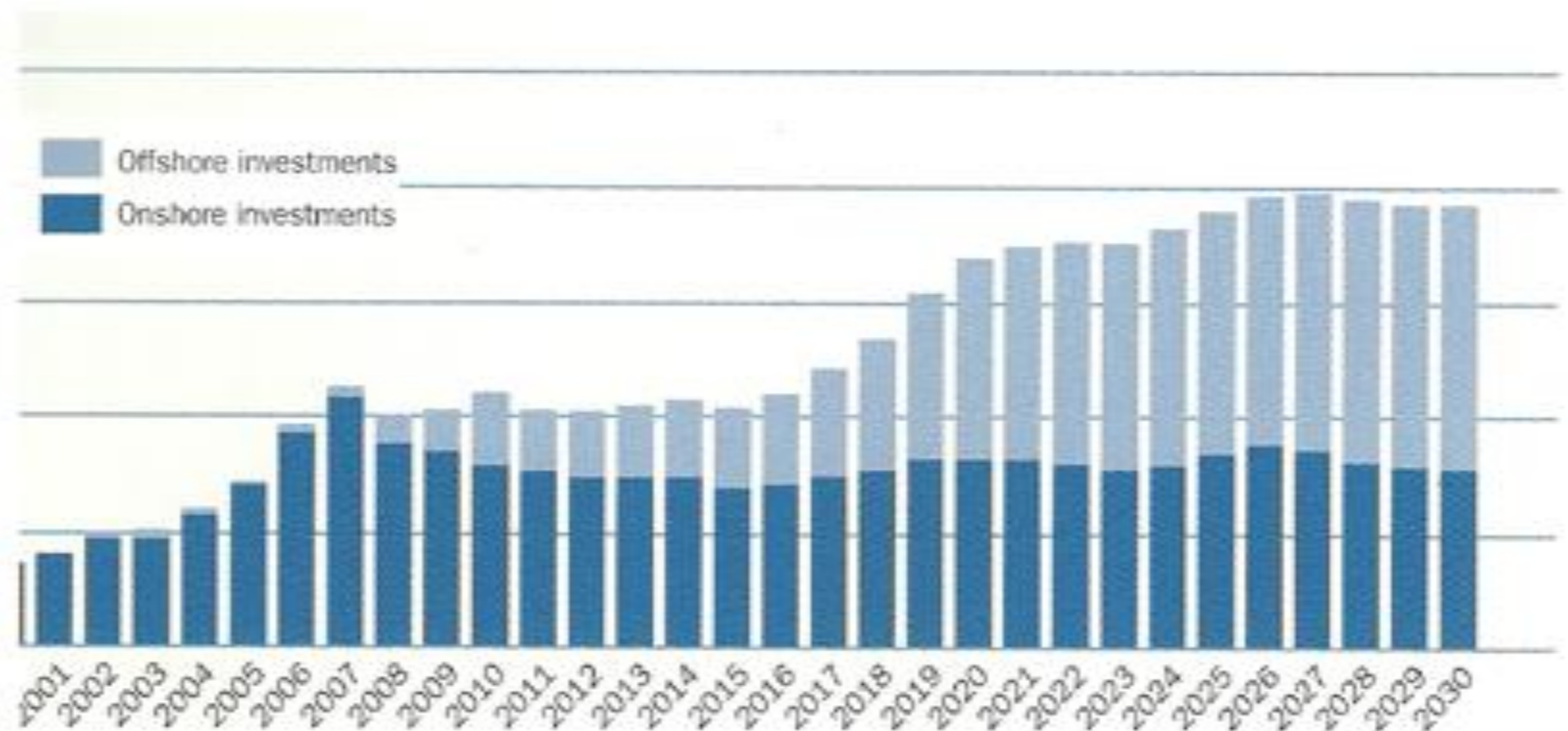
Economic output

- 330,000 jobs
- €72bn 2015 turnover
- €27.5bn invested in 2015
- €1bn EFSI direct investments



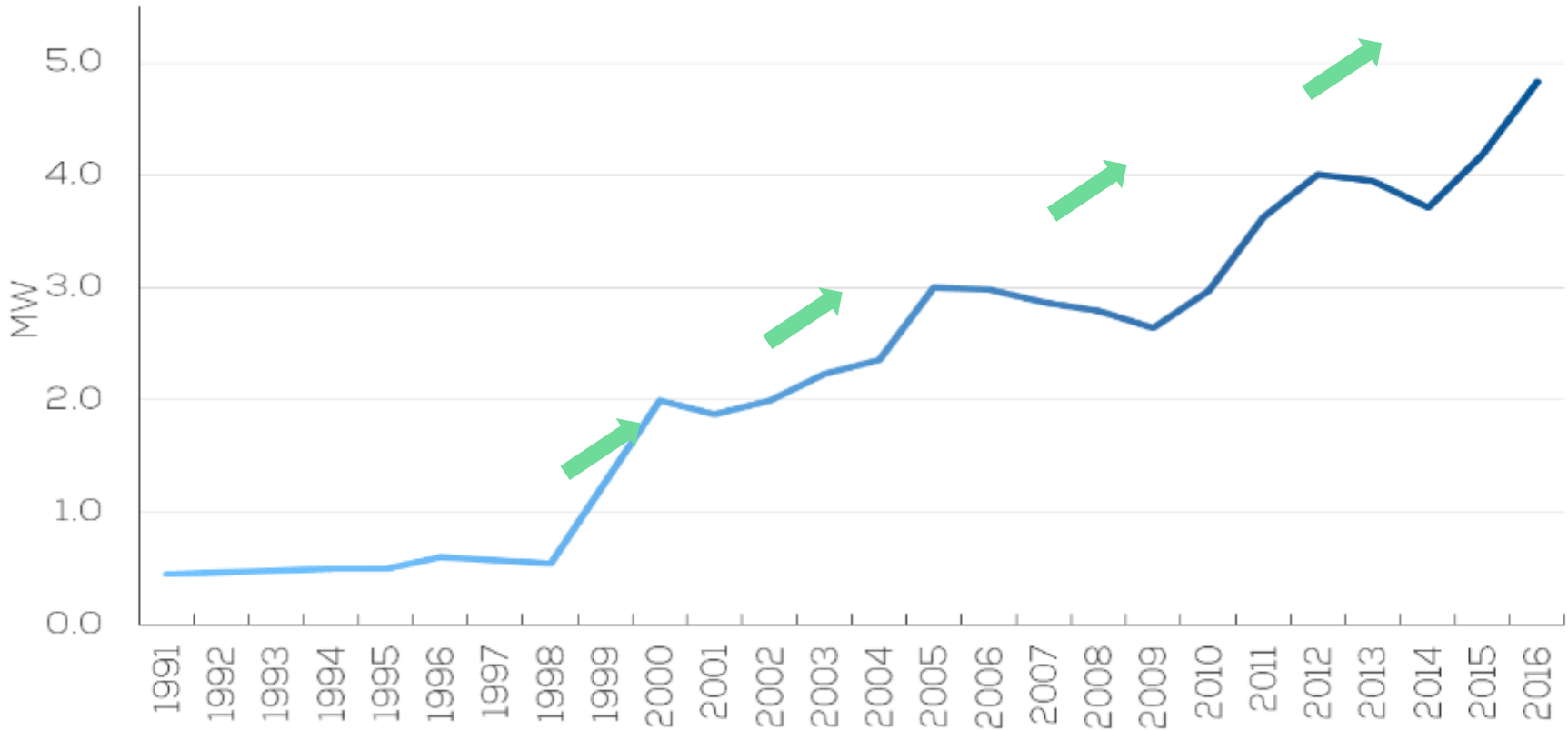
Source:
Paul Langrock;
Wind Europe

Wind energy investments 2000 - 2030



Offshore turbine development

Turbines are **15% larger** than in 2015



Offshore outlook

- Market still focused on North West Europe
- Stable pipeline next 4 years
- Uncertainty after 2020 in some countries

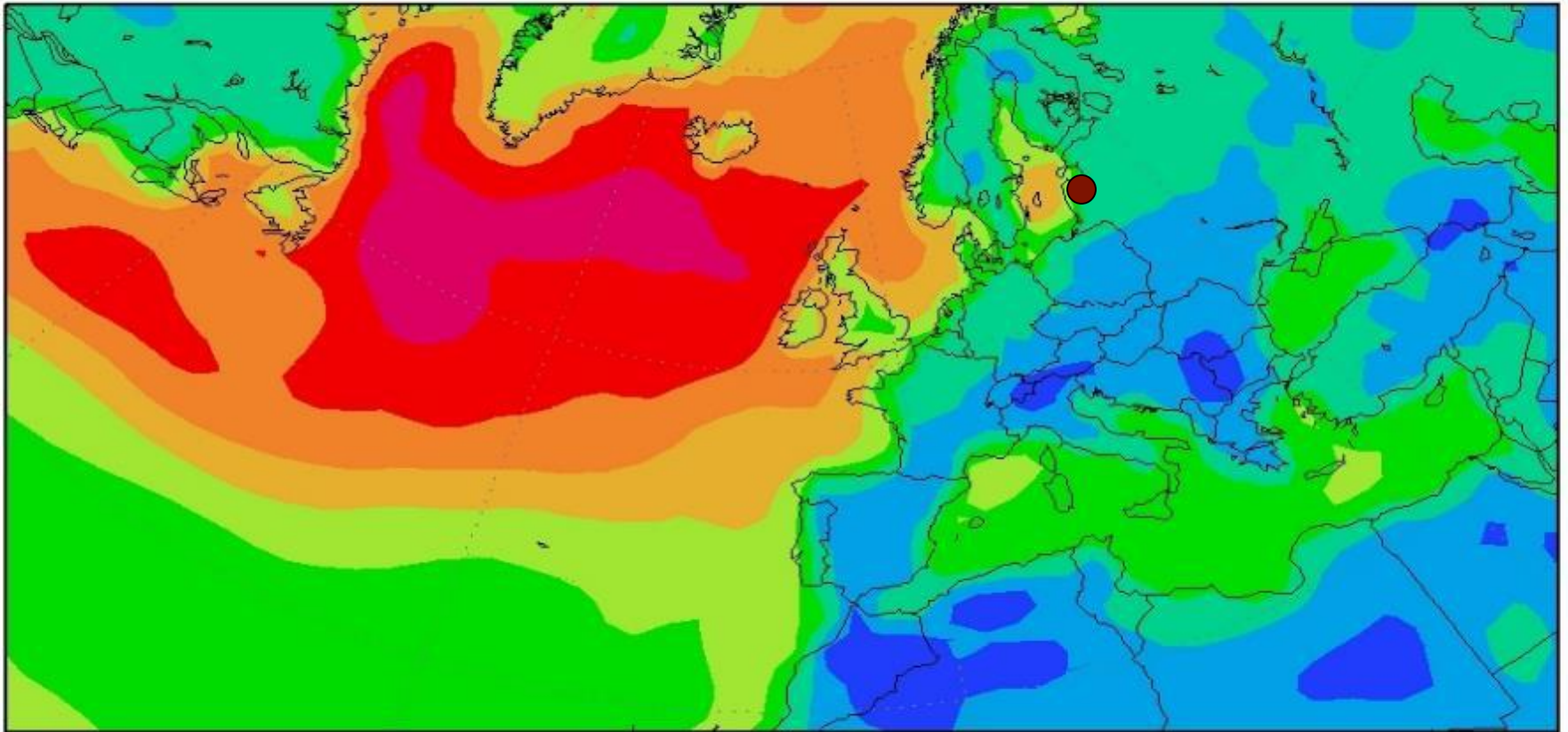
- Positive outlook
- Uncertain outlook
- Poor outlook



WindEurope assessment based on regulatory signals, turbine orders and investment trends

Offs

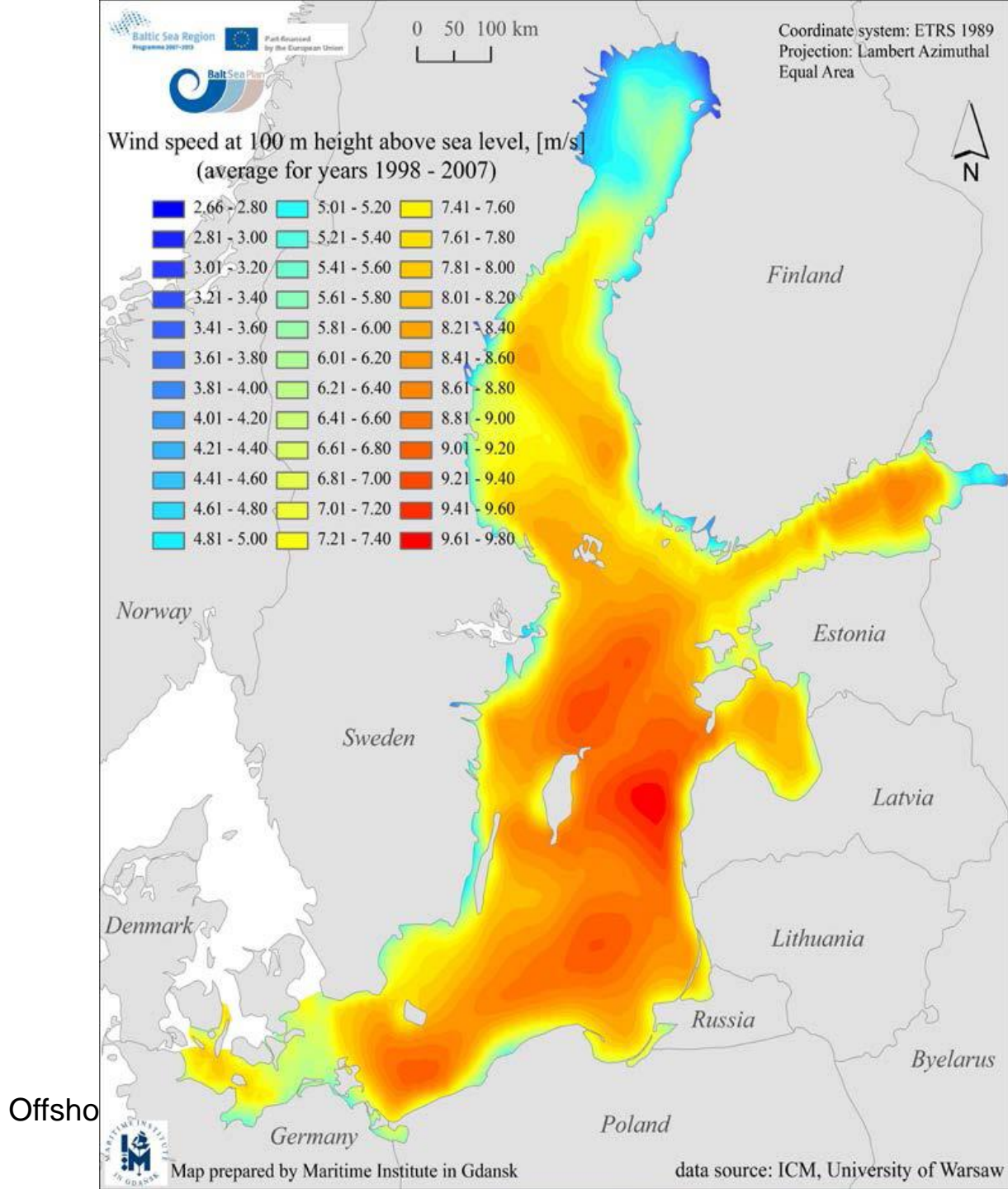
Mean Annual Wind Speeds in m/s



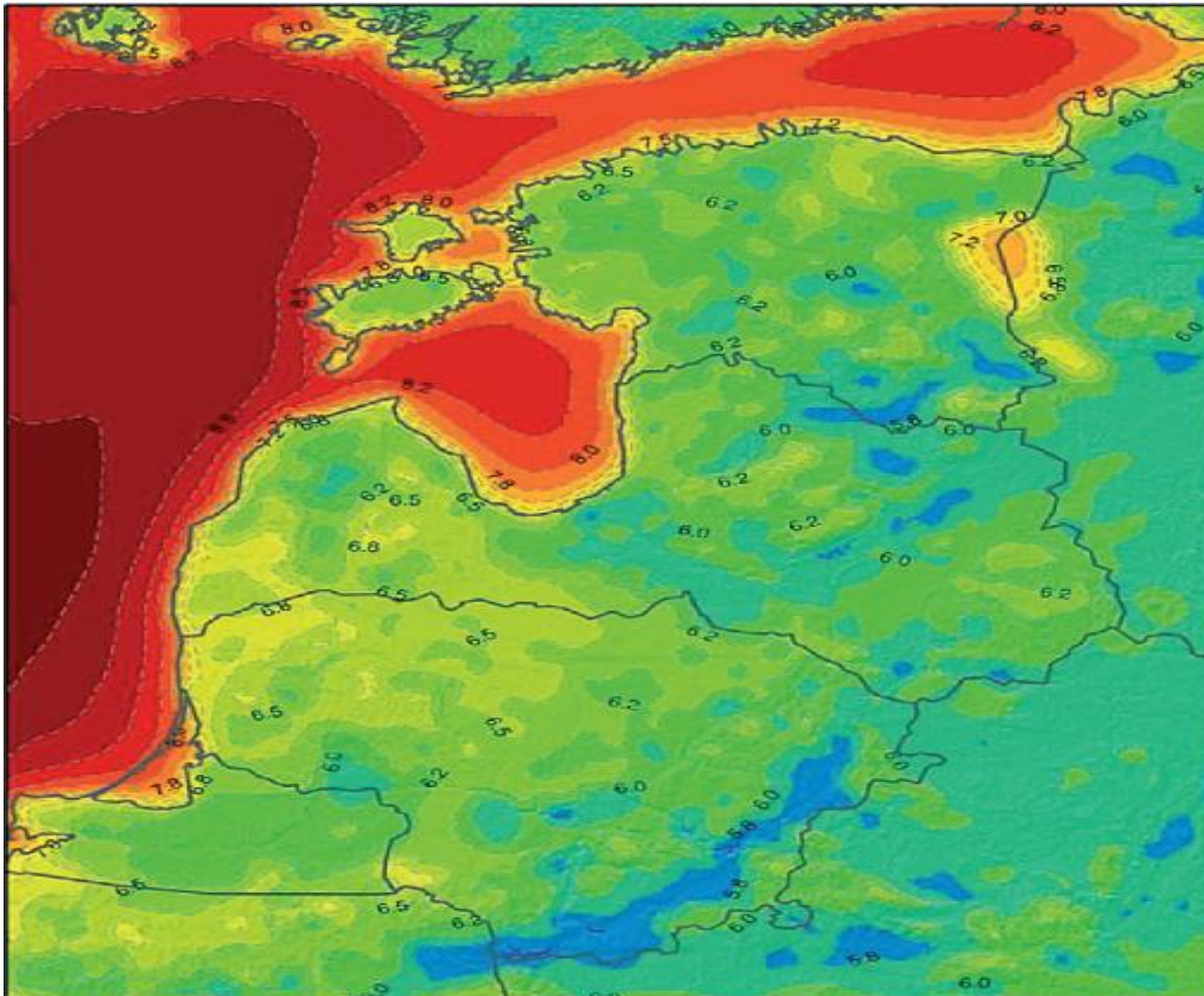
Reference NCEP Reanalysis

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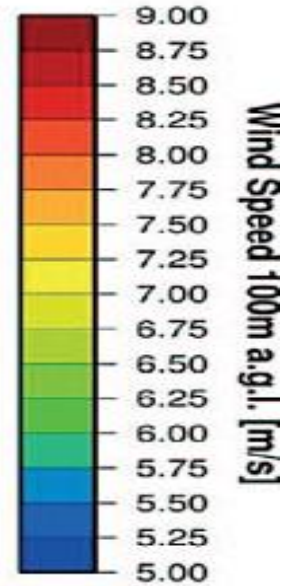
Baltic see wind speed



Baltic states

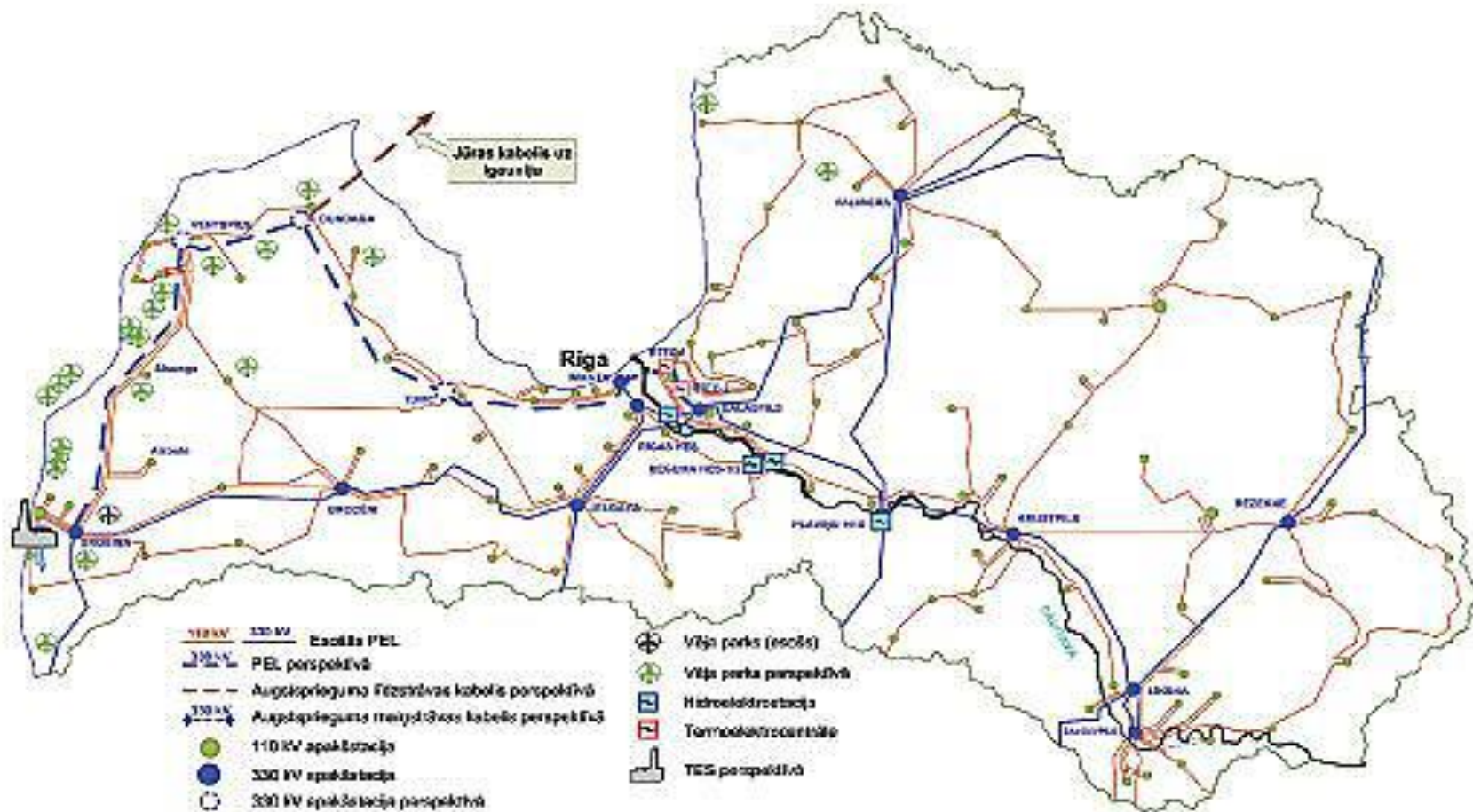


2009



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HV power grid



Latvia have 500 km sea coast line,
Good offshore wind conditions, developed HV grid,
INCE 2014 in Nordpool spot market

LATVIA IMPORTS ~1/3 ELECTRICITY ~ 2TWH = 83 m€

CO2 QUOTAS PRICE + 1 € / t CO2 = + 1 € / MWh

No wind measurement map, complicated legal environment,
Inefficient RES scheme supporting gas CHP
To Gazprom every day one milj euro

Developing spatial plans

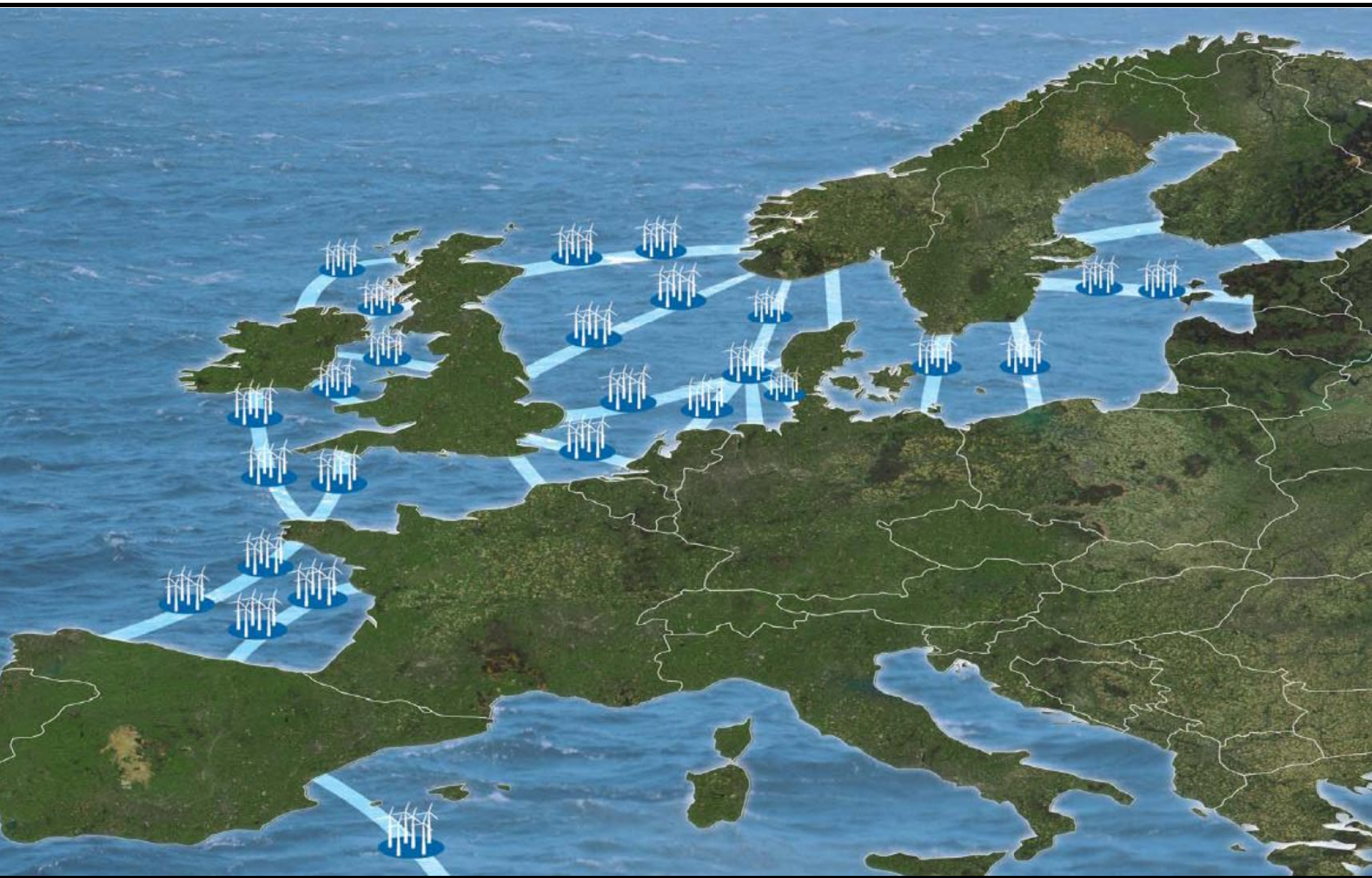
Ministry of Economy - energy , building permits ...

Ministry of Environment and Regional development – RES
, CO2 emissions, safety zones, biotops ...

Ministries :

Agriculture (fishery), Defence (space), Culture
(archaeology), Transport (Ships, planes, communications),
Finances (budget, OIK), Foreign affairs borders), Internal
affairs (safety) .Justice ...

+ various public organizations and groups



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Latvians are everywhere

A photo of the jack-up vessel Seajacks Scylla installing one of the 67 Siemens 6MW turbines at the 402MW **Veja Mate offshore** wind farm using a 1,500mt Huisman Leg Encircling Crane.



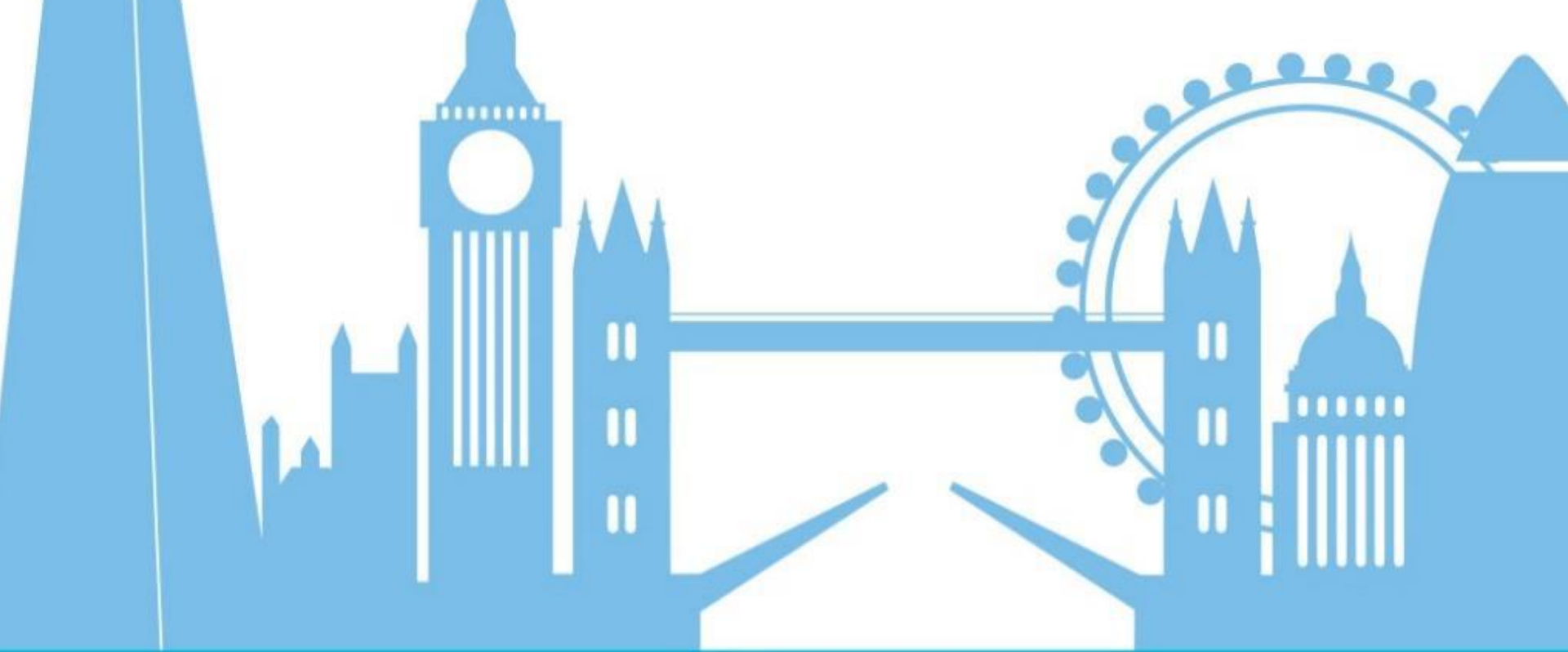
Source: Huisman Equipment

Veja Mate is a EUR 1.9 billion offshore wind project owned by the Highland Group Holdings Ltd, Siemens Financial Services, and CI II, managed by Copenhagen Infrastructure Partners. The wind farm is expected to be fully operational by late 2017/early 2018
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GLOBAL
WIND DAY
15 JUNE

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