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**Baltic InteGrid**

# ***Finnish Framework for Wind and Offshore Energy: State and Outlook***

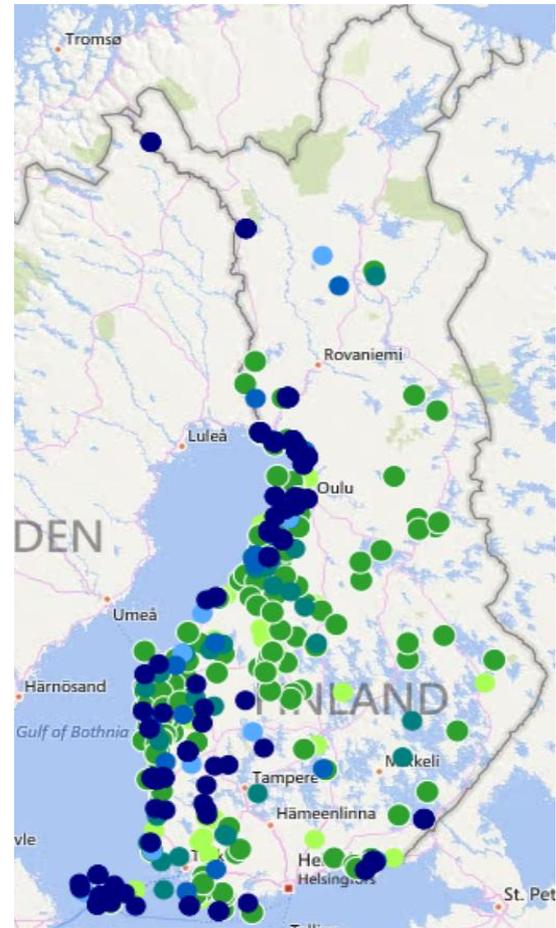
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# Wind energy in Finland

- Total production capacity 1005 MW,
- 387 wind power plants by the end of 2015
- Total electricity production in 2015 was 2.3 TWh (2.8 % of the total electricity consumption)
- 110 % growth from 2014

Map: Finnish Wind Power Association

<http://www.tuulivoimayhdistys.fi/hankelista>



# Offshore wind energy in Finland

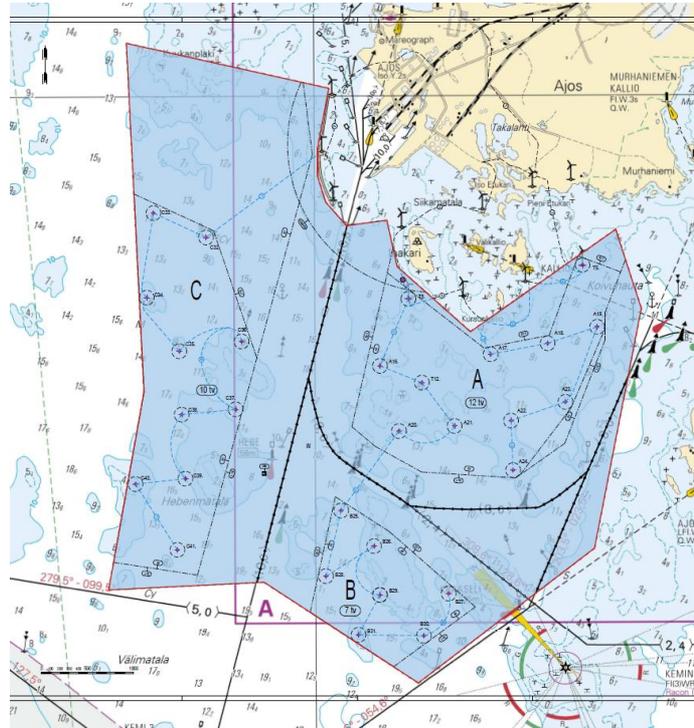
- No wind offshore wind parks currently in operation, couple of "offshore plants"
- 19 new offshore wind power plants under planning/ process (2200 MW), 2 of them preparing for construction (16.4.2015)
- One wind power plant has received the required permissions (Suurhiekkä)

# Suurhiekkä (planning/permitting done, not yet built)

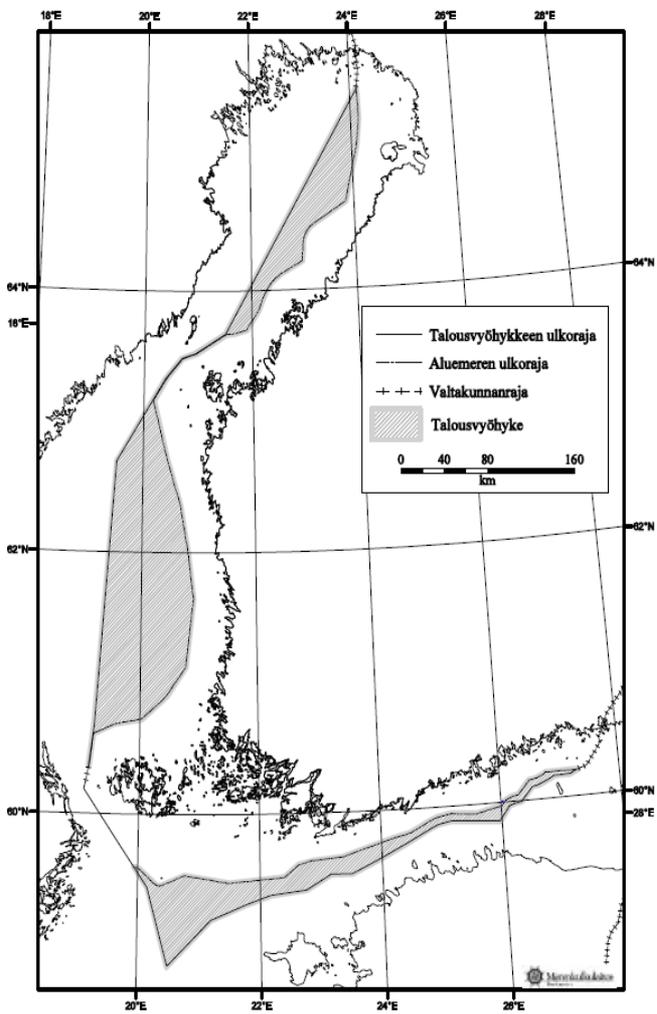


- In Ii, northern Finland
- 25 km from the coast
- The local master plan approved
- 80 mills of which capacity is around 5 MW each

# Ajos, offshore plant



- In Kemi, Northern Finland
- Coastal and water areas
- Renovation of the power plant in process
- In 2017, the production capacity will be 42 MW
- IKEA will acquire the plant after the renovation



## *Finnish territorial water areas and exclusive economic zone*

# Applicable (relevant) legislation in the EEZ

- Act on Finnish Economic Exclusive Zone (1058/2004)
  - Water Act (587/2011)
  - Act on Environmental Impact Assessment (468/1994)
  - Environmental Protection Act (527/2014)
  - River Basin and Marine Areas Management Act (1299/2004)
  - Underwater Cable Protection Act (145/1965)
  - Nature Conservation Act (1096/1996)
  - Waste Act (partly) (646/2011)
  - Legislation on fishing and hunting



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# Planning and permissions

*Offshore wind energy*

# Planning process of the offshore energy

Activity	Legislation	Authority/ actor
Negotiations with the land owners (right to use the land/ water area)		Owners of land and water areas: Metsähallitus, the public utility managing state owned land and water areas / Private owners
<u>Environmental Impact Assessment (always when at least 10 turbines or capacity at least 30 MW)</u>  'Natura 2000 assessment' if applicable	<u>Act on Environmental Impact Assessment (468/1994)</u>  Nature Conservation Act (1096/1996)	The Centres for Economic Development, Transport and the Environment (the wind power undertaking carries out the assessment)
Negotiations with the electricity network operator (normally TSO)	(Electricity Market Act (588/2013))	Fingrid (TSO) or local high-voltage distribution network operator
Assessment of the impacts of the planning	Land Use and Building Act (132/1999)	Municipality/ Province
<u>Local master plan</u> where areas reserved for the wind park (in accordance with the regional land use plan)	<u>Land Use and Building Act (132/1999)</u>	Municipality
Statements from the Finnish National Defence Forces regarding the possible detrimental effects to radars	Act on Territorial Surveillance (755/2000), Act on Defence Forces (551/2007)	Finnish National Defence Forces
Statements from the Finnish Border Guard (in water areas) and Finnish aviation service provider regarding the possible detrimental effects to aviation	Aviation Act (864/2014)	Finnish Border Guard, Finnish aviation service provider (Finavia)

# Required permissions, offshore energy

Permission	Legislation	Authority
Permission from the Government to practice economic activity in the EEZ	Act on the Finnish Exclusive Economic Zone (1058/2004)	Government
If needed, redemption of the right to use the land (not applicable in th EEZ)	Act on Redemption of Immoveable Property and Special Rights (603/1977)	National Land Survey of Finland / Government
<b><u>Permission according to Water Act</u></b>	<b><u>Water Act (587/2011)</u></b>	The Regional State Administrative Agency (of the Southern Finland in the EEZ)
Permission according to Environmental Protection Act, if detrimental effects to nature or neighbors (noise typically)	Environmental Protection Act (527/2014)	The Regional State Administrative Agency (of the Southern Finland in the EEZ)
Permission for the aviation obstacles	Aviation Act (864/2014)	Finnish Transport Safety Agency (Trafi)
<b><u>Connection to the electricity network</u></b>	<b><u>Electricity Market Act (588/2013)/ Connection Terms</u></b>	<b><u>Energy Authority, TSO/ DSO</u></b>
Notification to the Energy Authority after the construction decision (if the capacity at least 1 MW)	Electricity Market Act (588/2013), Governmental Decree on Electricity Market (65/2009)	Energy Authority
" <u>Radar compensation</u> " if wind power plant constructed in the compensation area	Act on Wind Power Compensation Areas (490/2013)	Energy Authority
Construction permission/ consent by the Government	Land Use and Building Act (132/1999) (not applied in the EEZ) / Act on the Finnish Exclusive Economic Zone (1058/2004)	Municipality/ Government in the EEZ

# Planning phase of the underwater cable

Activity	Legislation	Authority/ actor
Negotiations with the land owners for the right to use the land/ water area		Owners of the land and water areas: private owners or the public utility Metsähallitus
Assessment of the impacts in the planning	Land Use and Building Act (132/1999)	Municipality/Province
Detailed or master plan where the cable route has been marked	Land Use and Building Act (132/1999)	Municipality
Environmental Impact Assessment (together with the wind park)  'Natura 2000 assessment' if applicable	Act on Environmental Impacts (468/1994)  Nature Conservation Act (1096/1996)	The Centres for Economic Development, Transport and the Environment
Permission for the examination of the seabed in Finnish territorial waters	Act on Territorial Surveillance (755/2000)	Defence Command
Negotiations with the TSO/ High-voltage DSO	(Electricity Market Act (588/2013))	TSO/DSO

# Permissions for the cable

Permission	Legislation	Authority
Permission from the Government to practice economic activity in the EEZ	Act on the Finnish Exclusive Economic Zone (1058/2004)	Government
<b><u>Permission according to Water Act</u></b>	<b><u>Water Act (587/2011)</u></b>	The Regional State Administrative Agency (of the Southern Finland in the EEZ)
Connection to the electricity network	Electricity Market Act (588/2013)/ Connection Terms	Energy Authority, TSO/ DSO
Permission for the construction of a high-voltage cable (at least 110 kV)	Electricity Market Act (588/2013)	Energy Authority
Permission for the construction of a cross-border cable	Electricity Market Act (588/2013)	Ministry of Employment and the Economy
If needed: redemption of the right to use the land	Act on Redemption of Immoveable Property and Special rights (603/1977)	National Land Survey of Finland / Government
Permission by the municipality if the process of Act on redemption of immoveable property and special rights (693/1977) is not applied and the cable has not been marked to the plan	Electricity Market Act (588/2013)	Municipality



***Compensation area of the Bothnian Bay,  
Special legislation (Act on Wind Power Compensation Areas (490/2013)):  
Payment -> permission***



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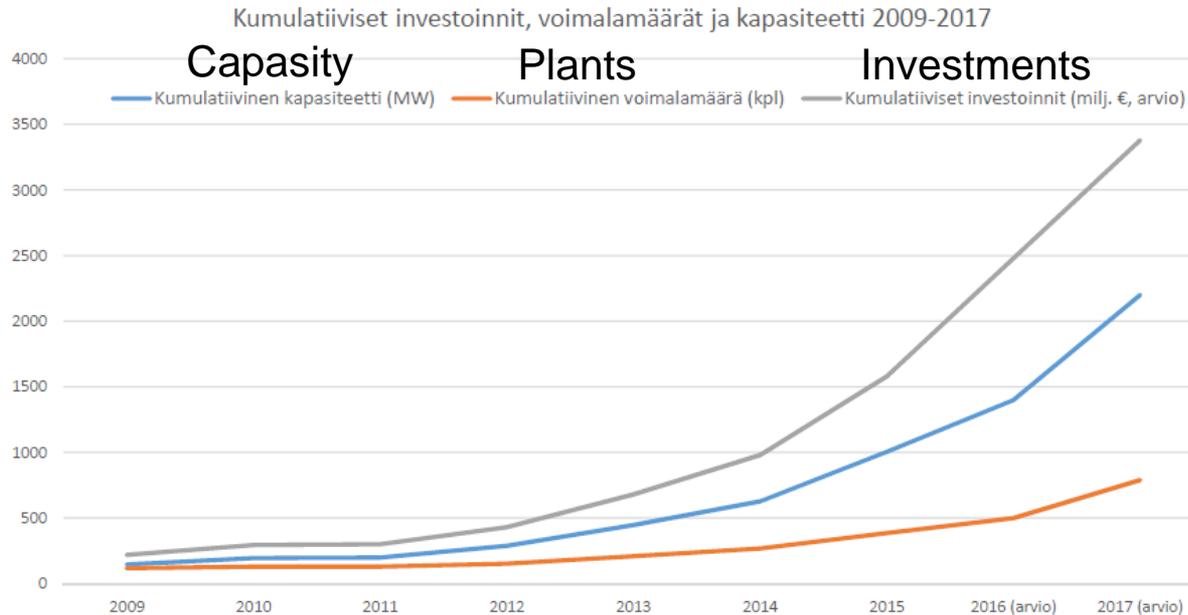
# Feed-in-tariff system, Finland

# General issues

- **Act on production aid for electricity produced by renewable energy sources (1396/2010)**
- **Feed-in-tariff for electricity produced by wind power, biogas and woodfuels**
- **Target price 83.5 EUR/MWh**
- **Quota for the wind power capacity is 2500 MW**
  - The applications to the system have reached the limit
- **Special off-shore windpower demonstration subsidy 2014, 20 milj.€, 2014**
  - Pori/Tahkoluoto, Suomen Hyötytuuli Oy, project 2015-2017 (total investment 108 milj.€), 12 to 32 plants, off-shore 11 plants
- **Working group, Ministry of Employment and the Economy**
  - New "feed-in-system" (or something else)

# Wind power capacity, number of wind power plants and cumulative investments (Source: Finnish Wind Power Association, Mikkonen)

## Tuotantotuki käynnisti tuulivoimarakentamisen Suomessa



Share of the electricity consumption:

Osuus sähkönkulutuksesta:

- 2011, ~ 0,5 %
- 2014, 1,3 %
- 2015, 2,8 %
- 2016, arvio 3 - 4 %