Offshore wind power and interconnectors; Legal perspectives from Finland

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Wind power in Finland (2015)

- Total electricity production in 2015 was 2.3 TWh (2.8 % of the total electricity consumption)
  - 110 % growth from 2014

- Total production capacity 1005 MW in the end of 2015

- 387 wind power plants in the end of 2015

- Target 6 TWh/year by 2020 and 9 TWh/year by 2025
  - With the permitted plants, the target of 6 TWh would be reached
Offshore wind power - in Finland?

- Several projects in different planning phases (mainly early phases)
  - Approx. 2000 - 3000 MW has been planned

- Pori Tahkoluoto II is under construction
  - 40 MW, distance to shore 600 m – 2000 m
  - Investment subsidy
  - Pori Tahkoluoto I a pilot plant

- Kemi Ajos
  - In artificial islands/ onshore
  - 10 turbines are to be changed to bigger ones

- Suurhiekka has received the permit under Water Act (587/2011) and the master plan for wind power has been approved
Offshore transmission

- **Maritime transmission cables**
  - **Sweden – Finland**
    - Fenno-Skan 1 (HVDC, 550 MW)
    - Fenno-Skan 2 (HVDC, 800 MW)
  - **Finland – Estonia**
    - Estlink 1 (HVDC, 350 MW)
    - Estlink 2 (HVDC, 650 MW)
  - **Finland - Åland**
    - Ål-link (HVDC Light, 100 MW)

- The transmission lines in the maritime areas are currently interconnectors
  - Connection cables belong to the production unit
The Finnish TSO Fingrid prepares the ten-year network development plan in every two years
• The plan is not legally binding
• Also general obligation for network operators to develop their networks according to Electricity Market Act (588/2013)

• The development of the network according to the reasonable needs of users in an economically feasible way
• Fingrid makes scenarios on electricity production and consumption
• Obligation to connect to network (Section 20 of EMA)
• Quality requirements for transmission network operation (Section 40 of EMA)
• Fingrid carries also the system responsibility (Section 45 of EMA)
• **Fingrid is responsible for the**
  • System reliability and transmission
  • Maintenance of the balance and voltage
  • Imbalance settlement

• **Decree of Ministry of Economic Affairs and the Employment on the System Responsibility of the Main Grid Operator (635/2013)**

• **Fingrid as a company**
  • Private company but the biggest owners State and National Emergency Supply Agency
  • Economic Regulation (rate of return model with incentives)
• **Connection Agreement**
  • Rights, duties, division of costs
  • Detailed elaboration of ownership
  • **NB! Wind power provider owns the connection cable**
  • Annexes
    • General Connection Terms (2013)
    • Specifications for the operational performance of power generating facilities (2013)

• **Main Grid Contract**
  ➢ **Contracts but also instruments to bind the users of network to comply with the technical requirements**

• **The capacity of the network directs mainly the selection of the connection place**
  • Reinforcements can also be carried through
• **Finnish Energy and Climate Strategy (2013)**
  - Separate target for wind power 6 TWh by 2020 and 9 TWh by 2025
  - **No separate strategy for offshore wind power**, mentioned in the Strategy and later reports
  - **No separate targets for offshore transmission**

• **Act on Production Subsidy for Electricity Produced by Renewable Energy Sources (1396/2010)**
  - ‘Feed-in-tariff system’: guaranteed price for wind power 83.5 €/MWh for 12 years
    - Compared to the Finnish Nord Pool Area average price of three months
    - Subsidy covers the difference
    - Limit 30 €/MWh
  - Quota for wind power full (2500 MVA)
  - Investment aid for an offshore wind power pilot
Energy and Climate Strategy 2016 (24.11.2016)

- **Renewable energy >50 % of final energy consumption in 2020’s**
  - Emphasis in bioenergy
  - Carbon neutrality in the long term

- **The rate of self-sufficiency in energy production should be raised to 55 % by the end of 2020’s**
  - Mainly increasing energy efficiency and share of renewable energy

- **Finland will abandon energy use of coal by the end of 2020, though security of supply requirements are to be taken into account**
Wind power

• In the longer term the target is a market-based system without subsidies
• In the transition phase, a new subsidy system for renewable electricity

• ‘Technology neutral’ tendering for renewable electricity 2 TWh during 2018–2020
  • In 2020, approx. 13 million
  • In 2021–2030, 265 million

• Investment aid for ‘innovative projects’
  • Among others offshore wind power in artic conditions

• In spatial planning, large exploitation of wind power will be taken into account
  • The wind parks should be located in larger units to avoid health effects

• Health and environmental assessment on wind power will be conducted
**Implementing the plans**

- **Spatial planning (Land Use and Building Act (132/1999))**
  - Hierarchal system of plans
  - In maritime areas new maritime spatial plans are to be implemented (not legally binding instrument)
  - Wind power parks and cables often based on special master plan for wind power

- **Construction in general should be based on a plan >> permit**
  - In case of wind power local plan or special master plan for wind power (also in maritime areas)
  - Construction permit required for the plant
  - The power cables don’t require construction permit
  - The municipalities have possibility to affect the cable routes
Authorisation

- ‘Project permit’ under Electricity Market Act (Section 14)
  - Permit required in case of the construction of at least 110 kV
- Permit under Water Act (587/2011)
  - When detrimental effects to water environment, fishing, harm to waterborne traffic, larger dredging...
- Permit under Environmental Protection Act (527/2014)
  - Neighbours (noise/ flickering)
- Research permit under Act on Territorial Surveillance (755/2000)
  - Surveying of seabed
- Possibly expropriation permit (Expropriation Act (603/1977)), Water Act in some cases
  - Right to use the area for cables if not based on contracts
- Aviation Obstacle Permit (Aviation Act (864/2014))
- No one stop shop -principle
• **Act on the Finnish Exclusive Economic Zone (1058/2004)**
  - In artificial islands, devices and other structures, the Finnish legislation is applied as it is applied in the nearest territorial water area > how does this affect?

• **Applicable permits:**
  - Water permit
  - Permit for high-voltage cable (Ministry of Economic Affairs and the Employment)
  - Theoretically a construction permit if artificial island?

• **Consent from the Council of State**
  - to exploit the EEZ (Section 6)
  - build in the EEZ, if the building could hinder the right of Finnish state to use its rights under international law (Section 7)
Key points

• Offshore wind power in very early stages in Finland

• Fingrid Oyj liable for transmission network operation and system responsibility

• Connection cable is not legally part of the transmission network

• Permitting and spatial planning procedure takes time

• Effects of the brand new Energy and Climate Strategy?