

Wind energy in Lithuania

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Wind energy within Lithuanian power system



System hourly consumption: Pmax ~ 1800 MW (h) Pmin ~ 750 MW (h) Year 2015:

- Annual consumption 11.8 TWh (including pump storage.)
- Wind energy acounted:
 - for 18% of total production
 - \circ $\,$ and 7% of consumption $\,$
- Offshore wind energy 0%



Wind capacity evolution in Lithuania

- Wind energy activity started in 2006
- All wind farms on-shore
- Growing interest in offshore wind parks

development opportunities

654 129 157 223 538 600 636 12 106 472 GWh 49 68 91 161 188 274 281 287 438 52 MW MW MW MW MW MW MW MW MW MIM 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Currently no legislation governing the development of off-shore wind farms. The development of legalisations is expected in future.



On-shore wind potential in Lithuania



According Lithuania's climate conditions, the seashore is the most attractive location for wind energy development



Studies and analysis for off-shore wind possibilities

iksas (8-37) 324144 lektros ir valdymo inžinerijo os sistemų katedr Jūros vėjo energetikos plėtros perspektyvos pietryčių Baltijoje VĖJO ELEKTR ANALIZĖ STUDIIA 2009 m. rugsėjo 1 d.

Analysis of wind power development opportunities, Lithuanian Energy Institute, 2009

> Offshore wind energy development prospects in Southeast Baltic, Klaipeda University Coastal Research and Planning Institute, Polish offshore wind energy community and Strategic Self-Management Institute, 2013

KLAIPĖDOS UNIVERSITETAS JŪROS MOKSLŲ IR TECHNOLOGIJŲ CENTRO BALTIJOS PAJŪRIO APLINKOS TYRIMŲ IR PLANAVIMO INSTITUTAS

VĖJO ENERGIJOS PARKŲ ĮRENGIMAS BALTIJOS JŪROS LIETUVOS EZ IR TERITORINIUOSE VANDENYSE

POVEIKIO APLINKAI VERTINIMO ATASKAITA



PAV ataukaitos redakcija 2014-04-15 guota pagal LR AM KRAAD pantaba Wind parks installation in the Baltic Sea territorial waters of Lithuania, Environmental Impact Assessment Report, Klaipeda University Marine Science and Technology Center Coastal Research and Planning Institute, 2014



Potential areas for off-shore parks



Potential location of off-shore wind farms identified taking into account:

- Port area and shipping routs;
- Fishing;
- Soil dumping and sand mining;
- Existing equipment and installations;
- Restricted areas;
- Protected areas.

Lithuania's Baltic Sea coastline is 99 km.



Transmission network capability

 330-110 kV network capability in Western part of Lithuania is fully utilized

On-shore wind potential:

- Taking into account natural conditions, free areas and topology of the 110 kV transmission network, ~400 MW of wind parks may additionally be built in mainland
- Connection to 330 kV network on mainland should be analyzed separately





Connection of off-shore wind farms



RES integration feasibility study till 2030, Kaunas university of Technology, 2014

For offshore wind connection transmission network development is necessary

Five 330 kV network development alternatives has been identified

Choice of alternative depends on capacity and location of off-shore wind farms.



Moving forward

- Creation of legal framework, governing the development of off-shore wind farms
- Identification of off-shore wind development volume
- Detailed analysis for necessary transmission network development



Thank you for your attention

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