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FIRST OFFSHORE WIND
PROJECT OF INDIA

Project Funded by
European Union (http://eeas.europa.eu/delegations/india/index_en.htm)



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European Countries

FOWPI team has tried to gather the latest policies documents and related material pertaining to offshore wind industry for various European countries.

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Article / Policy documents



UK Offshore Wind Industrial Strategy

As per 'Global Offshore 2016 and beyond' part of 'GWEC – Global Wind 2016 Report' published by Global Wind Energy Council (GWEC), the status of UK's offshore wind industry stands as:

Capacity and pipeline

- The UK is the world leader in offshore wind with just under 36% (5.156 GW) capacity installed – at the end of 2016
- Capacity addition are from 4MW in 2000 to 5.156 GW in 2016
- 1,472 turbines installed by 2016
- A strong pipeline of projects with about 12 GW of wind farms

Generation

- Offshore wind generation has peaked at over 5% of energy supplied in October 2013 and is expected to grow to 10% by 2020.
- Average load factor is 37.2% for offshore wind
- Supplies enough energy for 4.5 million households till 2016


Sources:

<http://www.renewableuk.com/page/OffshoreWind> (<http://www.renewableuk.com/page/OffshoreWind>)

<http://www.gwec.net/wp-content/uploads/2017/05/Global-Offshore-2016-and-Beyond.pdf> (<http://www.gwec.net/wp-content/uploads/2017/05/Global-Offshore-2016-and-Beyond.pdf>)

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Germany's Offshore wind

In Germany, the use of offshore wind energy waters predominantly takes place outside the 12-mile zone in the exclusive economic zone (EEZ). The major projects are sited in the offshore waters of the German North Sea and Baltic Sea.

By December 2015, the installed capacity of German's offshore power was 3,295 megawatts (MW). With the plans of federal government, it is targeted to raise this capacity up to 15GW by the year of 2030.

The legal norms of Germany are segregated into three major categories:

1. Renewable Energy Sources Act (EEG) which regulates the tariff for the energy generated by the offshore wind power plants and in addition to the amount and structure of remuneration, the law stipulates the remuneration

period.

2. Energy Industry Act (EnWG) which regulates the connection of the offshore wind power plants to the electricity grid.

Broadly, TSO's develops an offshore network development plan (O-NEP), which identifies all the measures that must be taken in the next 10 or 20 years to secure the expansion of the grid connections as well as offshore capacity expansion. The Federal Maritime and Hydrography Agency (BSH) compiles the annual federal offshore plan. In the 12-mile zone, the BNetzA is responsible for this in co-operation with the coastal countries within the scope of the network expansion acceleration law (NABEG). The interconnection points at which the power cables get connected to the coast are also defined in the federal budget. The federal offshore plan includes in the pan-German federal network plan according to NABEG.


3. Maritime Ordinance (SeeAnIV) is a legal ordinance issued by the Federal Ministry of Transport, Building and Urban Development (BMVBS) to regulate the conditions for the approval (and also the implementation) of offshore wind parks and also responsible for occupational safety and health or offshore safety facilities.

Germany's Renewable Energy Sources Act (EEG) (as of 07/2014) can be downloaded from here. The document is in German language.

For more information, please log on to: **Germany's Renewable Energy Information Portal** (<http://www.erneuerbare-energien.de/EE/Navigation/DE/Technologien/Windenergie-auf-See/Rechtlicher-Rahmen/Rechtsnormen/rechtsnormen.html#doc153034bodyText2>)

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(https://www.fowpi.in/uploads/download_document/germany__renewable_energy_sources_act__eeg__34651491466.pdf)


France's Offshore Wind

France has the second largest offshore wind resource in Europe after Great Britain. The first offshore wind project of France- Hautes Falaises (Fécamp) is expected to commission by Mar 2018 having a capacity size of about 500MW. It is targeted to raise offshore wind power capacity to 6000 MW by 2020.

France's offshore wind target expects to contribute towards the achievement of 40% renewable electricity target set by the Energy Growth Transitional Green Growth Act of 2030

The regulatory framework is segregated under 2 code of implementation:

a) General code of ownership of public persons, for the occupation of the public maritime domain

The wind farms (the wind turbines themselves and their connection to land) must be subject to a dominical title of occupation, with a fee fixed by the tax authorities (L2124-1 to 3). 

Decree No. 2004-308 of 29 March 2004 on concessions for the use of the public maritime domain outside ports constitutes the regulatory framework for this State procedure. This decree provides for the possibility of imposing financial guarantees for the dismantling and restoration of the site.

b)Under the Environmental Code

Offshore wind farms are also subject to authorization under the provisions of Article L214-2 (Water Act).

The same code requires operators of offshore wind turbines to provide financial guarantees: the terms and conditions for the constitution of these guarantees will be set by decree to be published in mid-2011 in the same code.

Finally, an impact study and a public inquiry are requested under these codes.

For more information, please log on to: **France's Offshore Wind** (<http://www.developpement-durable.gouv.fr/eolien-en-mer>)

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Norwegian Offshore Energy Act

The Offshore Energy Act is related to offshore renewable energy production of 4 June 2010 No. 21 (the Offshore Energy Act) that regulates offshore renewable energy production and offshore conversion and transmission of electricity. The Act that establishes the right to utilize offshore energy resources belongs to the State. The Act applies within Norwegian territorial waters outside the baselines and on the continental shelf, but provisions of the Act can also be made applicable to coastal waters. The establishment of installations for production, conversion or transmission of power in areas covered by the scope of the Act requires a license. Applications for licenses for installations within the baselines can also be processed pursuant to the Energy Act.

For more information, please log on to: **Norwegian Offshore Energy Act** (<https://www.regjeringen.no/en/id4/>)

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(https://www.fowpi.in/uploads/download_document/norwegian_offshore_energy_act_24970126385.pdf)



Danish Energy Agency- Offshore Wind Policy

“One-Stop-Shop” to serve the all stakeholders towards necessary permits and procedures for exploiting energy from offshore wind sources.

Under part-3 of ‘Promotion of Renewable Energy Act’ (Act no. 1392 of 27 December 2008), it is stated that offshore wind energy can be extracted within the territorial waters and the exclusive economic zone (up to 200 nautical miles) around Denmark belongs to the Danish State.

For setting up an offshore wind farm in Denmark, three **permits** are required to be approved from Danish Energy Agency as:

1. License to conduct preliminary investigations
2. License to install and commission the offshore wind turbines (only given if preliminary investigations are satisfied)
3. License to exploit wind power for a certain number of years, and an approval for electricity production (given if conditions in license to establish project are kept).

Additionally, Environmental Impact Assessment (EIA) is also necessary to perform if the project is expected to have an environmental impact.

So far, it has been required to perform an EIA for all of the existing Danish offshore wind farms.

The specific procedure for the EIA regarding offshore wind farms is described in Executive Order no. 68 of January 26th 2012.

The development of offshore wind turbines can follow two different **procedures**:

- a) Tender procedure or
- b) Open-door procedure


For both procedures, the project developers must obtain all four licenses mentioned above.

More information can be obtained from **Danish Energy Agency** (<https://ens.dk/en/our-responsibilities/wind-power/offshore-procedures-permits>).

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Source of Information: Danish Energy Agency

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(https://www.fowpi.in/uploads/download_document/promotion_of_renewable_energy_act__extract_91903033993.pdf)

Dutch Offshore Wind

As per the National Energy Agreement, the aim is to have 16% sustainable energy by 2023 agreed with over forty stakeholder including Ministries, Power organisations, Employers organisations, Unions, NGO's and others through a road map to increase offshore wind capacity from 1,000 MW to 4,500 MW by 2023 on an annual escalation of 700MW from 2015 to 2019 through tendering process.

Pertaining to this the Dutch government has identified 3 zones: Borssele zone with 1,400 MW capacity, South Holland coast wind farm zone with 1,400 MW capacity and North Holland coast wind farm zone with 700 MW capacity each.

The bidding plan for realising the offshore wind farms shall be as shown below:

Year and Capacity	Wind farm zone
2015- 700MW	Borssele wind farm zone
2016- 700MW	Borssele wind farm zone
2017- 700MW	South Holland coast wind farm zone
2018- 700MW	South Holland coast wind farm zone
2019- 700MW	North Holland coast wind farm zone

As per the country's Offshore Wind Energy Law, The government shall support on:


1. Allowing designated wind zones to develop the offshore wind farms
2. Consents for the Wind farm sites subjected to an Environmental Impact Assessment (EIA) study
3. Providing the site data which includes Geological and geomorphological data, Archaeological and Unexploded Ordnance analysis, Metocean data, Wind resource assessment and Geophysical and geotechnical data (based on surveys).
4. TSO TenneT realises grid connection with mainland grid
5. Dedicated call for tender under the Stimulation of Sustainable Energy Production

A comprehensive policy document about Dutch Offshore wind can be downloaded from here.

For more information, please log on to: **Netherlands Enterprise Agency (RVO.nl) (<https://english.rvo.nl/>)**

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(https://www.fowpi.in/uploads/download_document/offshore_wind_energy_in_the_netherlands_19108233927.pdf)

About Belgium Offshore Wind Power Regulation

The regulatory framework for wind energy in EU Member States: Belgium

The zone reserved in the Belgian part of the North Sea for offshore wind energy exploitation is set by the Royal Decree of 17 May 2004. The designated area covers 270 km² for a total capacity of 2 000 MW. The Federal Authority is responsible for marine spaces that are under Belgian jurisdiction pursuant to the international law of the sea. Accordingly, the renewable energy installations in the North Sea are subject to federal competence [3]. To develop an offshore wind farm, a candidate developer requires:

- A domain concession (right to occupy a parcel) in the zone reserved for wind development: the Law on the organization of the electricity market stipulates the conditions and a specific procedure that must be fulfilled for granting an offshore concession.
- An environmental permit: this procedure has several steps, including a public hearing where the public concerned can express their objections. The Management Unit of the North Sea Mathematical Models of the Royal Belgian Institute of Natural Sciences renders advice on the possible environmental impact of the future project to the Minister responsible for the marine environment by also taking into account the environmental impact study carried out by the project developer.
- Authorization for the construction and operation: this is issued by the Ministry of the Environment to carry out a specific activity under specified conditions and during a given period.

Furthermore, a monitoring programme to assess the effects of the project on the marine environment is imposed once the environmental permit is granted.

Belgium has set up a scheme of green certificates and guaranteed minimum prices to support the development of electricity generation from renewable sources

Grid connection

The offshore grid connection procedure is the competence of the federal authorities.

The general process is very similar to the onshore case. The first step is optional; the plant developer requests an orientation study about the estimated costs of connection. Next, the plant developer applies for connection to the transmission system operator which will perform a detailed study by proposing the technical solution for the grid connection, and a cost proposal. If the applicant accepts, the parties sign a connection agreement.

The plant developer bears the costs of the grid connection to the onshore substation (shallow approach). Nevertheless, these costs are partially subsidized by 33 % of the investment up to a maximum of 25 M€. The subsidy is spread over five years (by providing 20% each year) and is covered by the transmission system operator.


References:

1. The regulatory framework for wind energy in EU Member States from JRS Scientific and Policy Reports, Part 1 of the Study on the social and economic value of wind energy – WindValueEU
2. Najdawi, C., Spitzley, J.B., Pob?ocka, A., Bauknecht, D., Hamman, F.. RESIntegration. Country Report Belgium. Integration of electricity from renewables to the electricity grid and to the electricity market.
3. Belgium's National Renewable Energy Action Plan, November 2010



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