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RCG Insight

Belgium: offshore wind

Market profile

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1 OVERVIEW

An early adopter of offshore wind technology, Belgium now represents a maturing market.

Belgium currently has 0.7 GW of operational offshore wind capacity.

The Belgian Federal Government is committed to generating a minimum of 13% of the nation's primary energy demand from sustainable sources by 2020; it is expected that around 10% of energy demand will be met by offshore wind.

Growth in offshore wind has been impressive, given the limited coastline (<100km) available to Belgium. This has been facilitated by spatial planning. A zone within the Belgian North Sea was created by a Royal Decree of 17 May 2004 reserving the area for the production of electricity, with later adjustment in 2011. It is located between two major shipping routes: the north and south traffic separation schemes.

Seven areas for offshore wind farms have been allocated, representing an installed capacity of around 2.2 GW. Three wind farms are operational (C-Power/Thornton Bank, Belwind/Bligh Bank, and Northwind/Lodewijkbank) and the other projects are under construction or development.

The Nobelwind project (165 MW) has moved into the construction phase and is expected to be complete by the end of 2017. The Rentel project (309MW) has achieved financial close, with construction expected to commence in 2017. The project is planned to complete by end-2018. The Norther project is expected to reach financial close in Q4 2016 or Q1 2017.

Prior to installing a wind farm, developers must obtain a domain concession within the wind energy development zone reserved for an environmental permit.

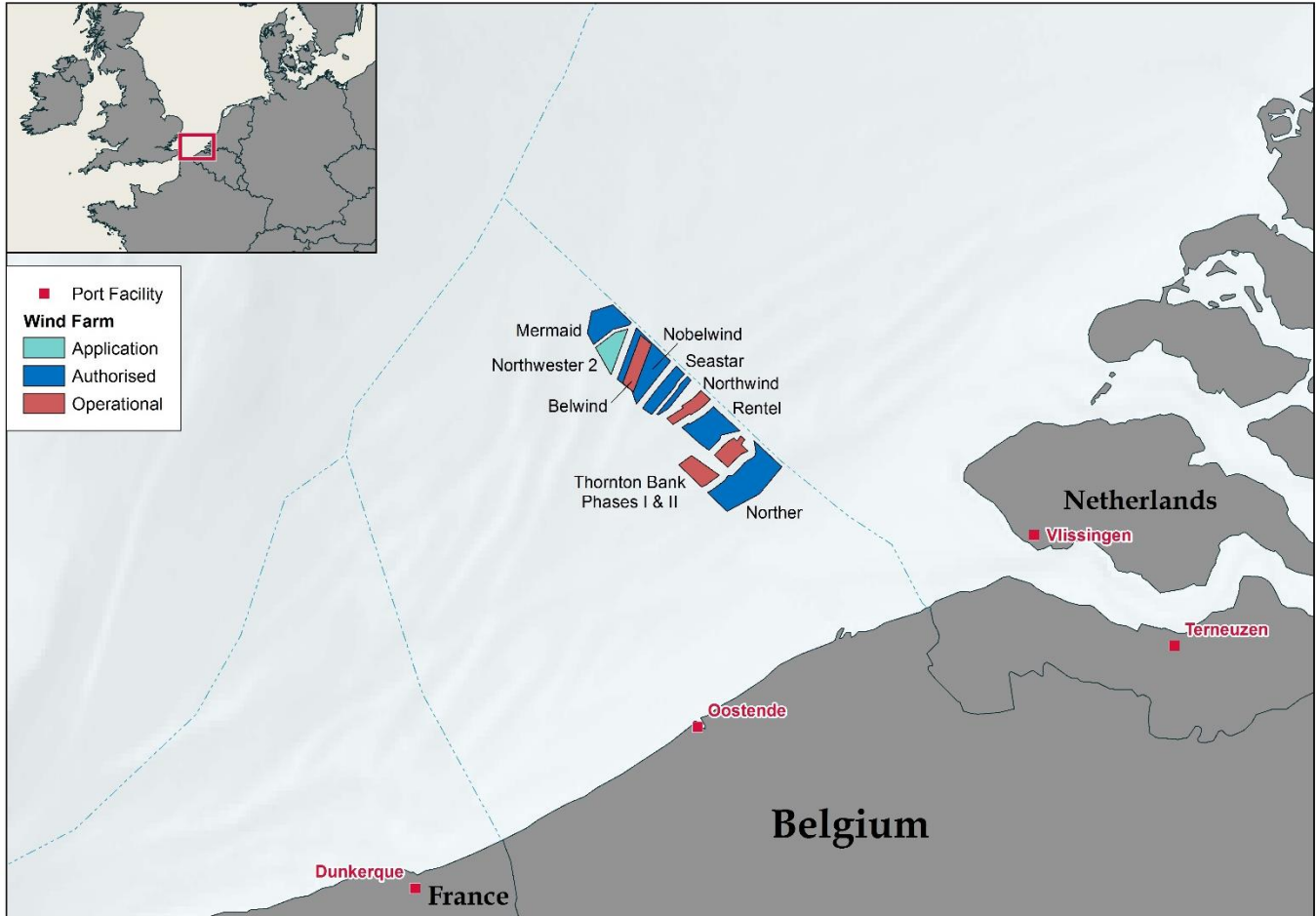
Projects cannot be built without the environmental permit, even if a domain concession was granted.

For projects before 2014, offshore wind was supported via a green certificate system with a price floor (a *de facto* feed-in tariff premium). For new developments, this has been replaced by a system of premium to a contract for difference (CfD). The reform aims to minimize costs to consumers, while securing a reasonable return to investors, benchmarked at 12%.

Projects will receive a total fixed price of €138/MWh. This is subject to reassessment, on a project-by-project basis, every three years.

Pressure on Federal budgets means that the level of support is likely to decrease for future projects. The Government is examining the low-cost outcomes from the recent offshore wind auction in the Netherlands.

Exhibit 1: Belgium: Offshore wind projects map



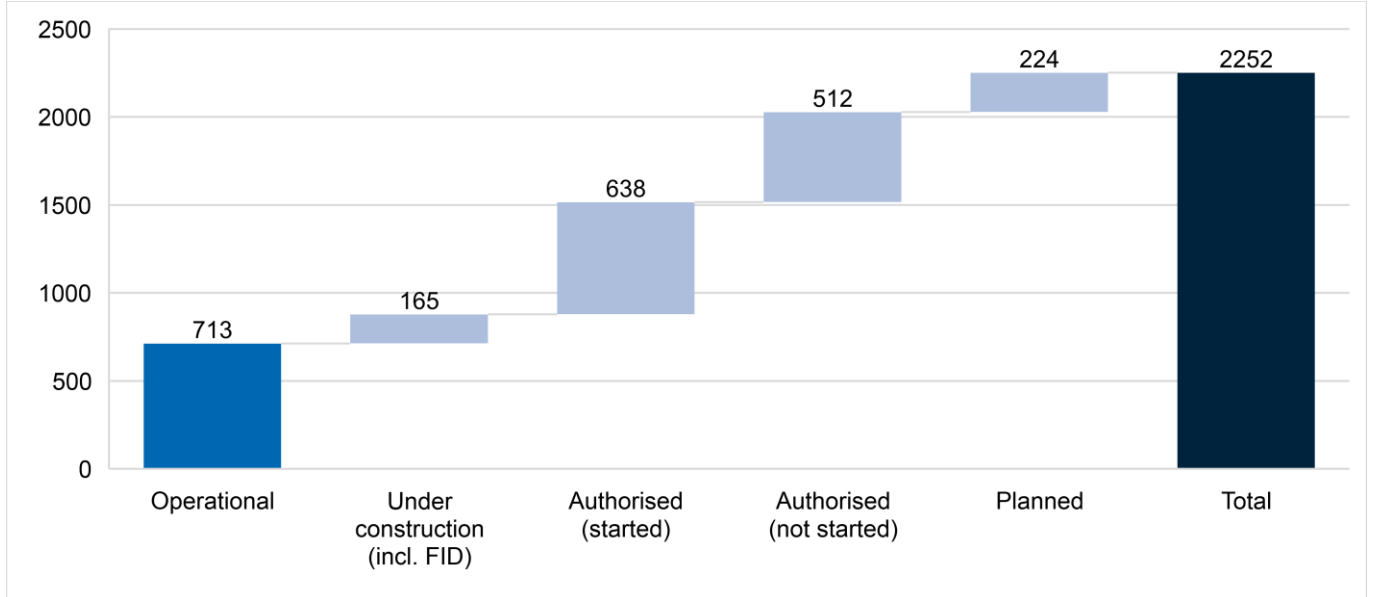
Source: RCG

Elia, the Transmission System Operator (TSO) plans to develop an offshore 'power socket' to ensure that the North Sea wind farms are optimally connected to the Belgian grid. The preference is for offshore direct-current infrastructure, potentially forming part of an offshore European grid.

Elia believes a shared connection is ideal from an economic, technical, and environmental viewpoint. Consultations are on-going with offshore projects next in line for construction on the best way to execute a shared connection.

Despite some investor uncertainty caused by retrospective changes to the onshore wind support mechanism, the pipeline of Belgium offshore wind projects provides good investment opportunities in offshore wind farm assets.

Exhibit 2: Belgium: Summary of offshore wind capacity pipeline (MWe)



Source: RCG analysis

2 OFFSHORE WIND PROJECTS

By 2020, around 1.6 GW of offshore wind capacity is expected to be operational in Belgium.

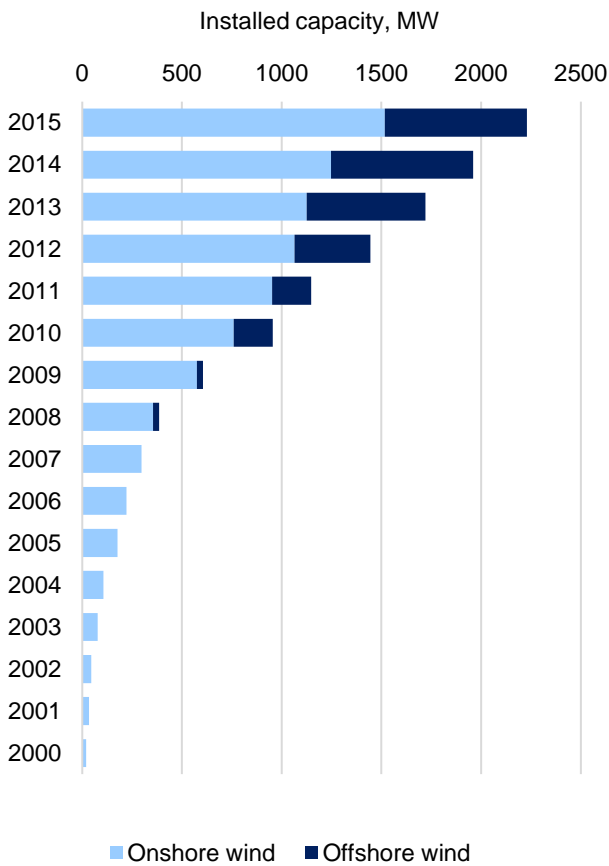
Exhibit 3: Belgium: Offshore wind projects

Wind farm	Owner	Capacity (MWe)	Status
Thorntonbank 1	Socofe, DEME, Nuhma, EDF, RWE, SRIW, Marguerite	30	Production
Thorntonbank 2	Socofe, DEME, Nuhma, EDF, RWE, SRIW, Marguerite	185	Production
Thorntonbank 3	Socofe, DEME, Nuhma, EDF, RWE, SRIW, Marguerite	111	Production
Belwind 1	Parkwind; Sumitomo; Meewind; Rabobank	165	Production
Northwind	Aspiravi; Parkwind; Sumitomo	216	Production
Belwind Haliade Demo	Alstom; Lydian	6	Production
Belwind II (Nobelwind)	Parkwind; Sumitomo; Meewind	165	Under-construction
Rentel	Elicio, Rent-A-Port, Otary, Aspiravi, Power@Sea, DEME, SRIW, Socofe, Nuhma	309	Pre-construction
Norther	Eneco; Elicio	370	Pre-construction
Mermaid	Otary; ENGIE (Electrabel)	266	Consented
Seastar	Elicio, Rent-A-Port, Otary, Aspiravi, Power@Sea, DEME, SRIW, Socofe, Nuhma	246	Consented
Northwester 2	Colruyt, InControl, WAGRAM, TPF, Transcor Astra	224	Planned

Source: RCG analysis

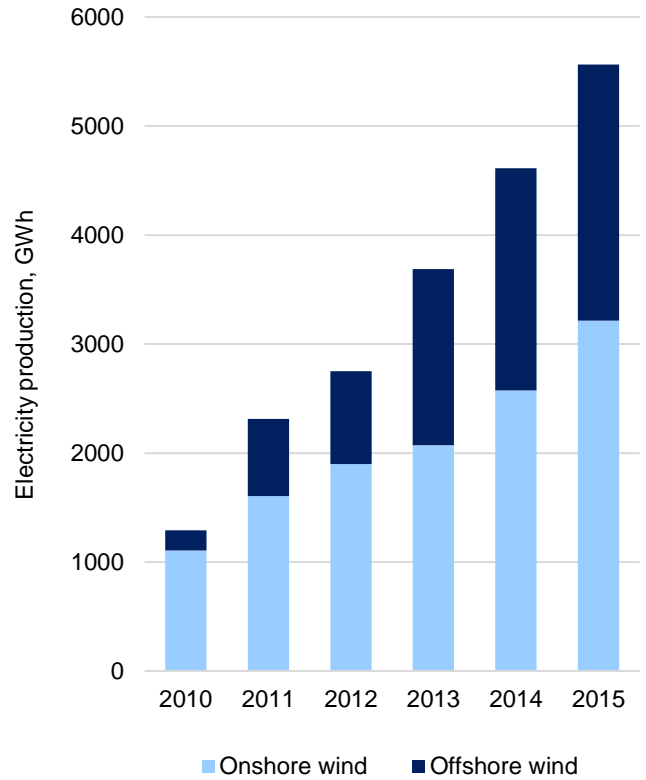
3 RENEWABLE ENERGY

Exhibit 4: Belgium: Installed wind turbine capacity



Source: IRENA Renewable Energy Capacity Statistics (2016), BP Statistical Review of World Energy (June 2016), RCG analysis

Exhibit 5: Belgium: Wind energy electricity production



Source: BP Statistical Review of World Energy (June 2016), L'Association pour la Promotion des Energies Renouvelables (APERe asbl) (2016), RCG analysis

Exhibit 6: Belgium: Electricity production mix

Source	GWh	%
Coal	4,402	6.1%
Oil	217	0.3%
Gas	19,292	26.5%
Biofuels	3,588	4.9%
Waste	2,083	2.9%
Nuclear	33,703	46.4%
Hydro	1,507	2.1%
Geothermal	0	0.0%
Solar PV	2,883	4.0%
Solar Thermal	0	0.0%
Wind	4,614	6.3%
Tide	0	0.0%
Other sources	399	0.5%
Total production	72,688	100.0%
Imports	21,791	
Exports	-4,188	
Domestic supply	90,291	

Source: IEA Statistics (2016) - data for 2014 production

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