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A bankers view on the European wind energy market

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Rabobank and Clean Tech



Rabobank's investments in Clean Tech

In bln Euros

Rabo Greenbank	€ 4.0
Rabo Ventures	0.2
Project Finance Renewable Energy	1.2
SAM (CH)	6.5
Robeco Sustainable Engagement	5.4
<u> Robeco Clean Tech I and II</u>	
Sarasin (CH)	0.8
Low energy Real Estate	0.7
<u> Total</u>	<u>0.9</u>
20	

Rabobanks global clean tech ambitions:

- Sustainability is engrained in the genes of Rabobank and all its core activities
- Climate is a priority and viewed as a crucial theme in sustainability
- Ambition to engage actively in the transition towards a low-carbon economy

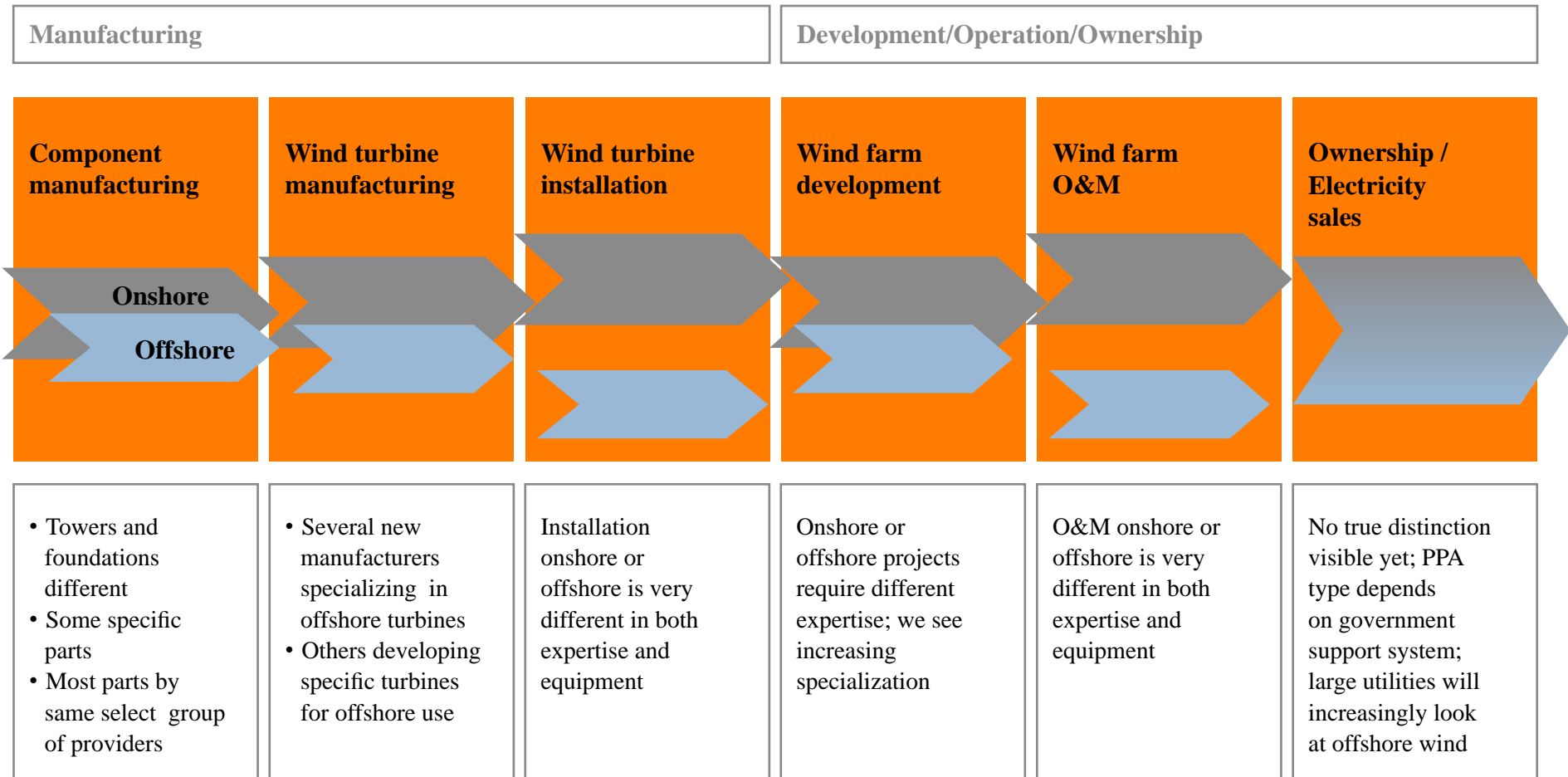
<p>Q7 The Netherlands</p> <p>120 MW OffShore Windfarm EUR 218m in Project Financing Senior Facilities EUR 166m in Mezzanine Facility EUR 160 LC Facility</p> <p>Financial Advisor, Lead Arranger and Joint Underwriter</p> <p>2006</p>	<p>C-Power Belgium</p> <p>First phase of 300 MW Offshore Windfarm</p> <p>Mandated Lead Arranger</p> <p>2007</p>	<p>Growind The Netherlands</p> <p>Onshore Wind Farm 63 MW</p> <p>EUR 70,000,000 Mandated Lead Arranger Senior And Mezzanine Facilities</p> <p>2007</p>
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Wind value chain increasingly split up

Two distinct segments developing: onshore and offshore



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Onshore wind – continued growth

Fastest growth shifting to new regions; value chain creaking



- Growth continues, both globally and in Europe
- Fastest growth and largest volumes in the EU-27 are shifting
 - from 'traditional' wind countries (Germany, Spain)
 - to new ones (UK, Ireland, France, Italy)
- Value chain bottlenecks caused by high (global) demand
- Utilities play an increasingly large role
 - Large turbine supply contracts
 - On balance sheet financing and portfolio ownership
 - Wind profit optimising through energy trading expertise

Where to invest in onshore wind?							
	Level of subsidy	Security of subsidy	Wind potential	Grid'	Public opinion, planning process etc	Growth potential for new development	Total
Belgium	5	3	3	3	2	3	19
France	3	4	4	3	3	4	21
Germany	3	5	3	4	3	2	20
Ireland	2	5	5	4	4	5	25
Italy	5	3	3	3	2	4	20
The Netherlands	4	4	3	4	3	2	20
Poland	3	3	3	2	3	3	17
Spain	3	5	4	4	4	3	23
Turkey	1	2	4	2	3	4	16
UK	4	3	5	3	2	4	21

Source: Rabobank analysis, 2008.

Offshore wind – constrained growth



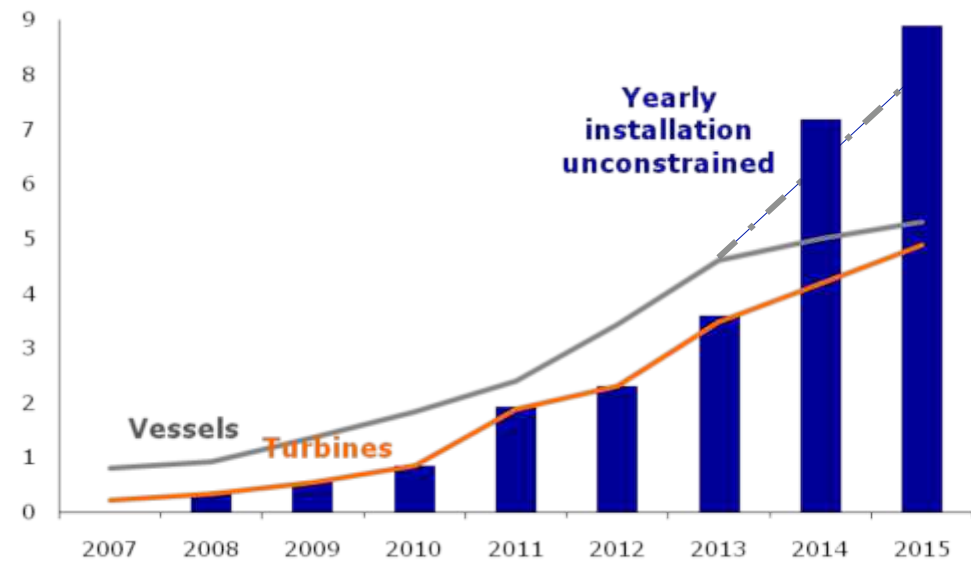
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Turbines and vessels could limit offshore segment development

- No shortage of projects
- Government targets ambitious
- Turbine installation vessels:
 - Limited number of dedicated vessels available
 - Several more on order
 - Unpredictable availability
- Offshore turbines:
 - Production capacity limited
 - Established producers: competition with onshore production capacity
 - New producers: technology not proven; upscaling slow

Yearly installed offshore wind capacity in the EU-27

Rabobank predictions to 2015 in GW



➤ **Rabobank expects vessel and turbine availability could be limiting factors for offshore wind growth, starting from 2013/2014**



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Total capacity and investment needed

Money will have to come from other sources than banks alone

- Rabobank predicts cumulative installed wind capacity (onshore and offshore) to reach the following levels:

2010 79 GW
2015 132 GW
2020 184 GW

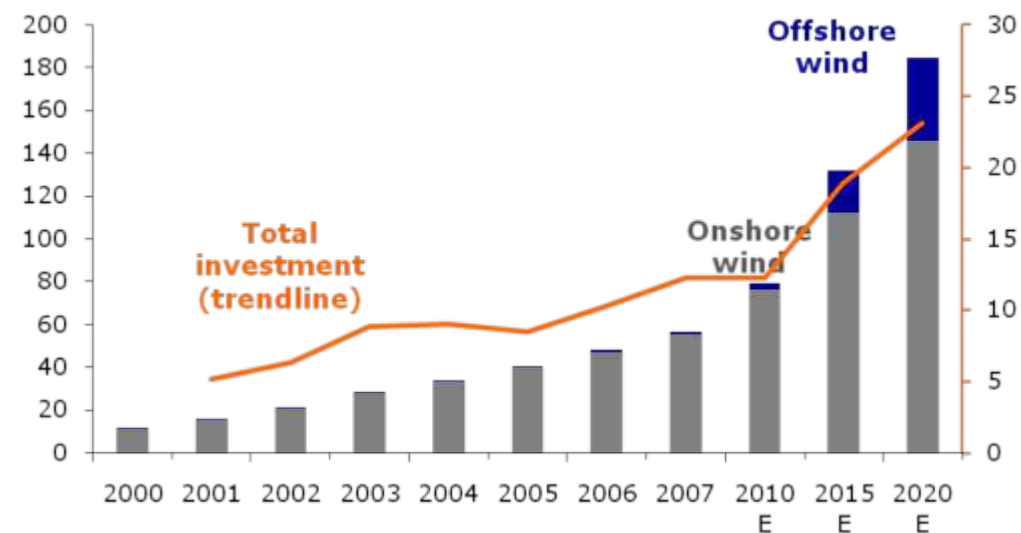
- Based on this, yearly new wind asset investments could increase from € 10 - 15 bln now to € 20 - 25 bln in 2020.

- Factors that impact the scenario:

- Value chain bottlenecks
- Grid access limitations
- Legislation / Subsidies
- Cost relative to fossil fuels
- **Availability of capital (credit crunch)**

Installed wind capacity and investments

EU-27, Capacity in GW, Investments in billion EUR



Source: Rabobank Clean Tech Research and EWEA

Conclusions



- The wind industry is increasingly separating into an onshore and an offshore segment;
- Onshore wind will continue growing in Europe, with growth focused in most attractive countries for investors;
- Offshore wind is on the verge of booming, but runs the risk of being constrained by value chain shortages;
- Large investments will be necessary to allow all this growth;
- The credit crunch will affect wind asset investments.

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