ABN·AMRO

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Corporate & Institutional Banking

# European Offshore Wind: Acceleration of Ambition

Lisa McDermott

**4th Asian Offshore Wind Day – 18 September 2018**

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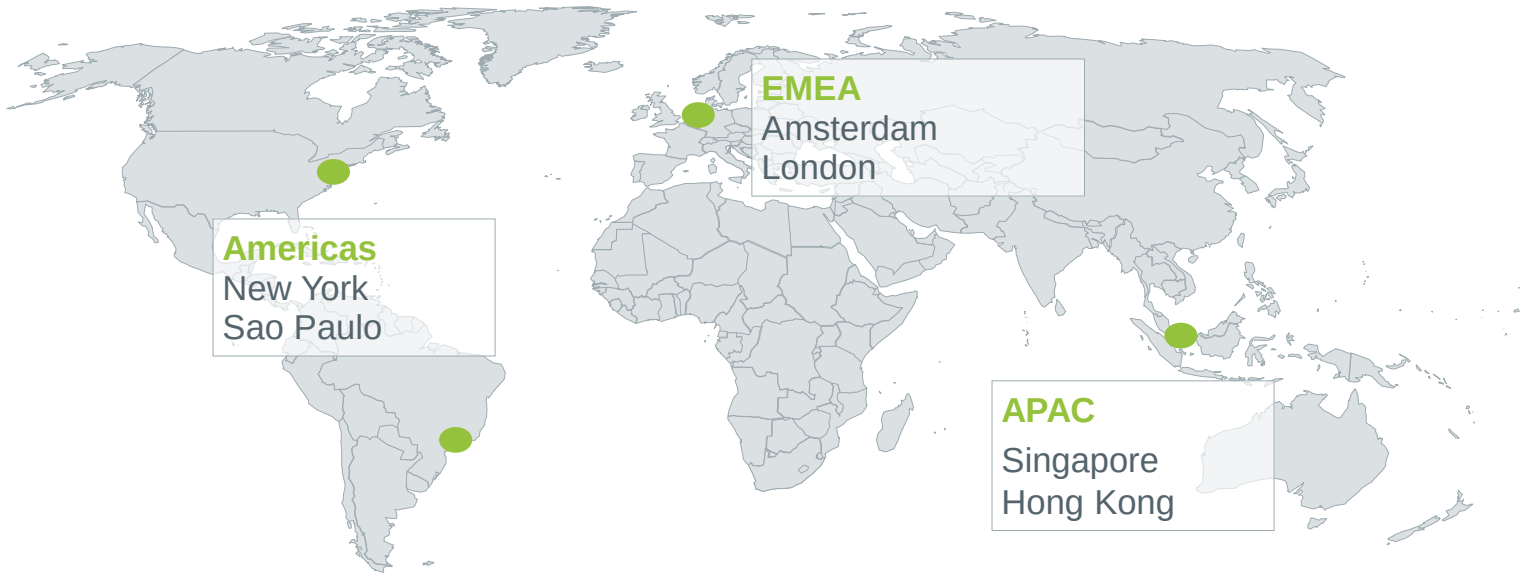
# 1. ABN AMRO and renewable energy

# ABN AMRO Renewable Energy – Global Hubs

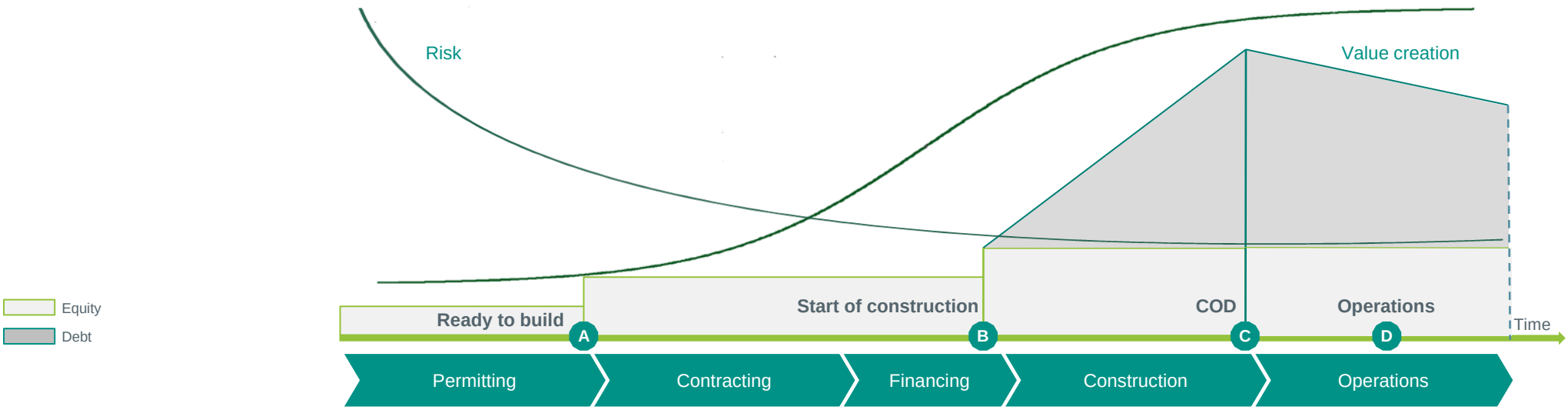
**RENEWABLE ENERGY**

- Offshore & onshore wind
- Solar PV & CSP
- Energy from waste
- Interconnectors
- Energy storage




- ✓ The energy transition and sustainability are key themes at ABN AMRO
- ✓ Financing renewable energy is a key growth area for the bank
- ✓ ABN AMRO was the first Dutch commercial bank to issue a Green Bond
- ✓ First ever sustainable shipping financing transaction

# We offer a full scale of products for renewable project developers

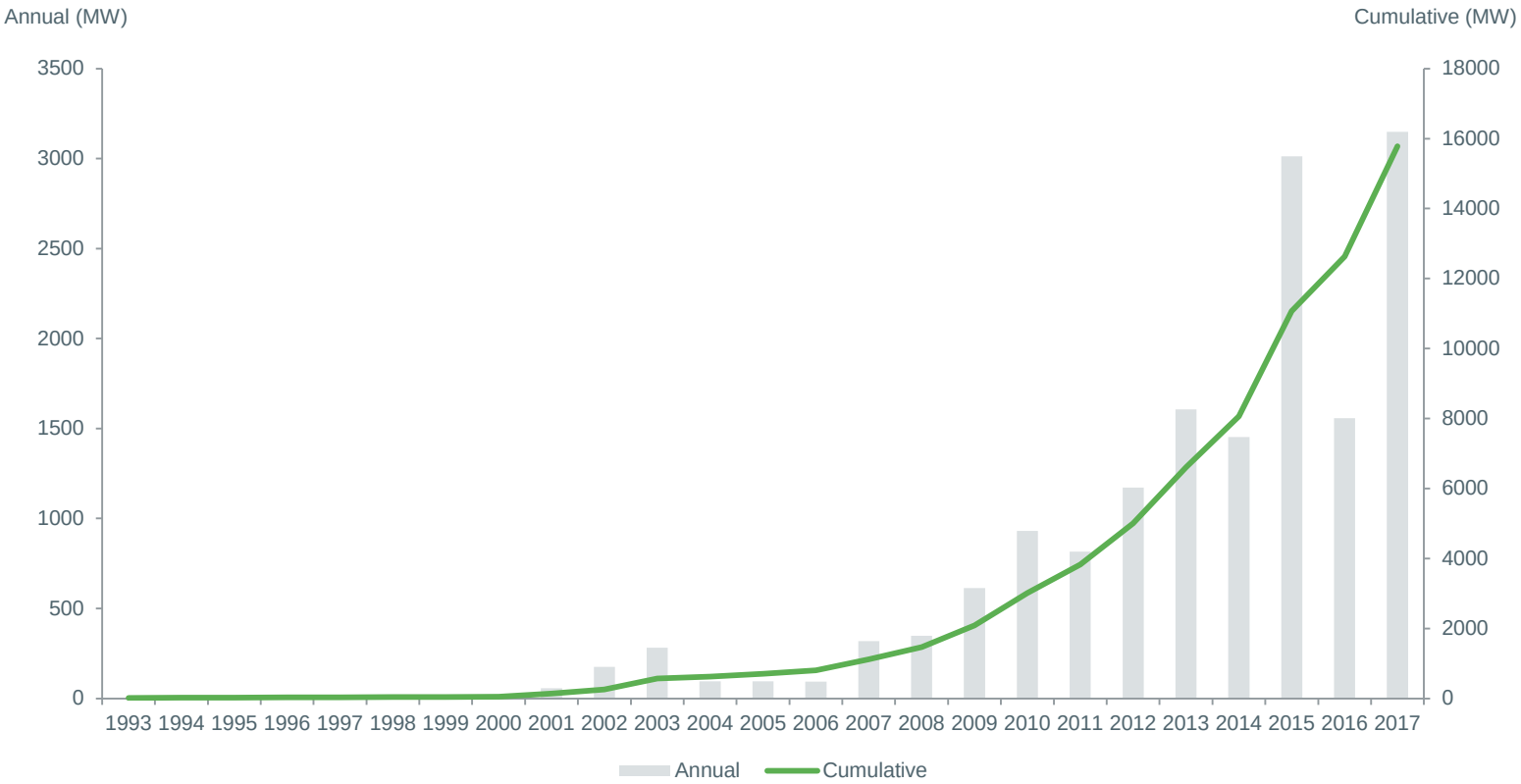



| | Permitting | Contracting | Financing | Construction | Operations |
|---|---|---|---|---|---|
| 1. Principal finance | | ◆ | ◆ | ◆ | ◆ |
| 2. Construction financing | | | | ◆ | |
| 3. Term loan | | | | | ◆ |
| 4. ECA covered financing | | | | ◆ | ◆ |
| 5. Letters of credit / performance bonds | | | ◆ | ◆ | |
| 6. Debt advisory | | ◆ | ◆ | ◆ | ◆ |
| 7. Equity advisory (M&A) | ◆ | ◆ | ◆ | ◆ | ◆ |
| 8. DCM take out | | | | ◆ | ◆ |
| 9. Interest rate hedge provider | | | | ◆ | ◆ |
| 10. Account bank | | | | ◆ | ◆ |
| 11. Escrow | | ◆ | ◆ | ◆ | ◆ |

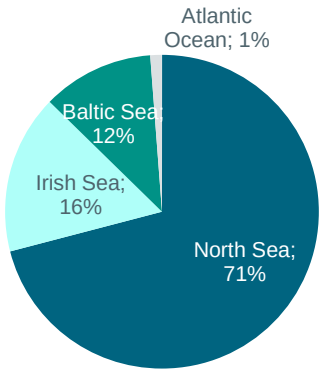
# 2. Development of European offshore wind

# European offshore wind capacity development since the 1990s

## Cumulative and annual offshore wind installations in Europe (MW)

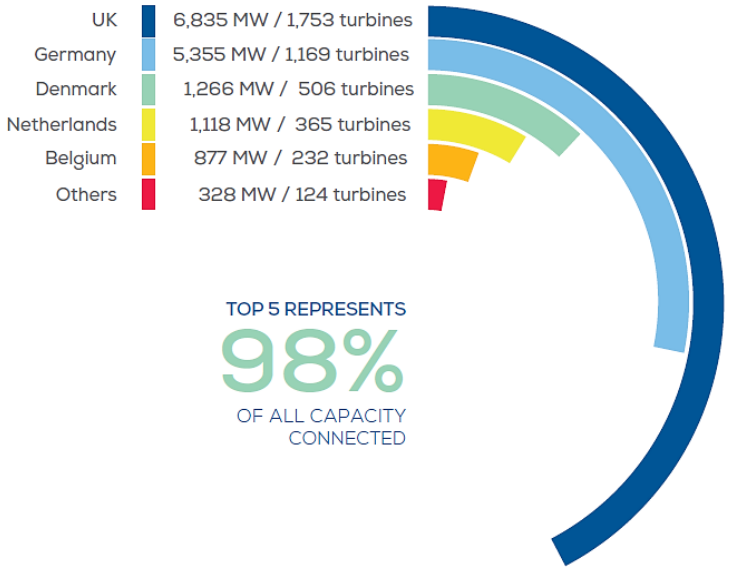



## Installed capacity by sea basin (%)




Source: WindEurope

# 11 countries active in OSW but UK and Germany dominate

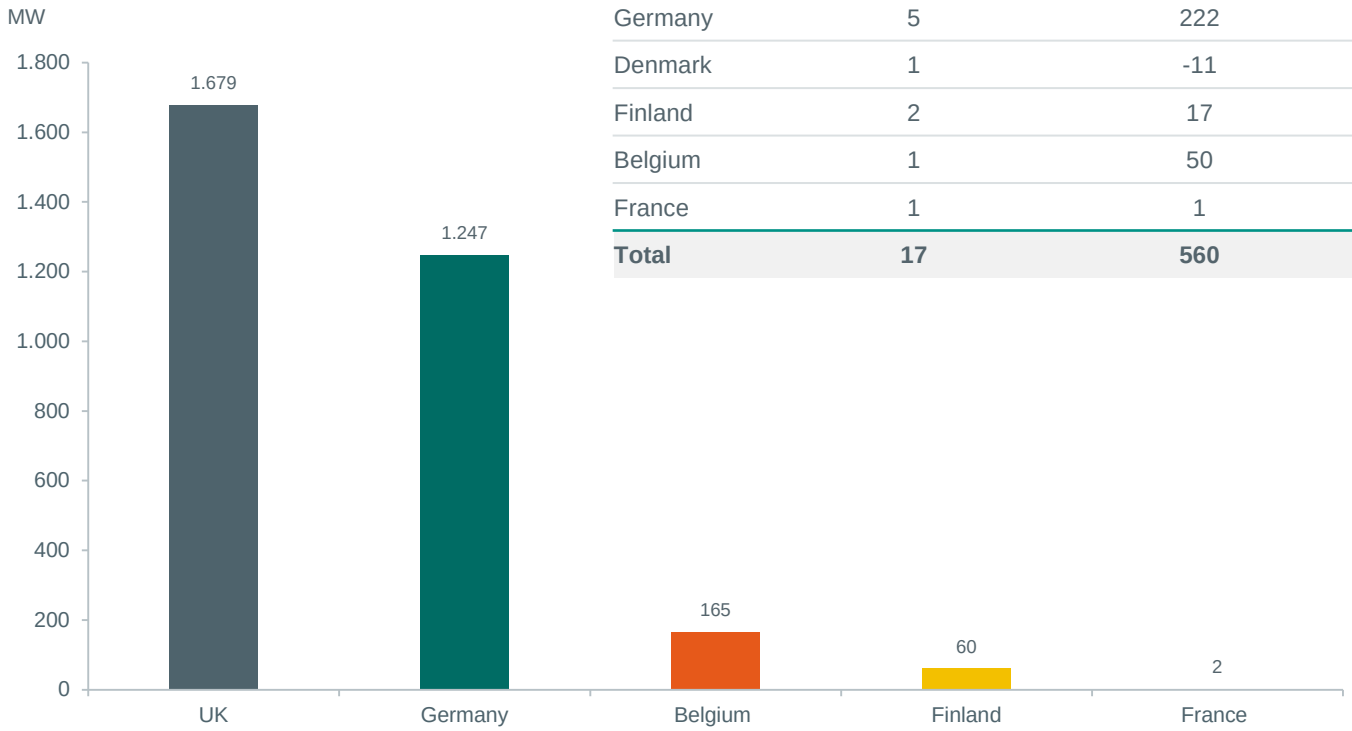



| | N° Farms | N° Turbines Connected | Capacity Installed (MW) | Capacity Installed Decommissioned 2017 (MW) |
|---|---|---|---|---|
| UK | 31 | 1,753 | 6,835 | 1,679 |
| Germany | 23 | 1,169 | 5,355 | 1,247 |
| Denmark | 12 | 506 | 1,266 | -5 |
| Netherlands | 7 | 365 | 1,118 | 0 |
| Belgium | 6 | 323 | 877 | 165 |
| Sweden | 5 | 86 | 202 | 0 |
| Finland | 3 | 28 | 92 | 60 |
| Ireland | 2 | 7 | 25 | 0 |
| Spain | 1 | 1 | 5 | 0 |
| Norway | 1 | 1 | 2 | 0 |
| France | 1 | 1 | 2 | 2 |
| **Total** | **92** | **4,149** | **15,780** | **3,148** |

Source: WindEurope

# A closer look at 2017

## Net installed capacity (MW)



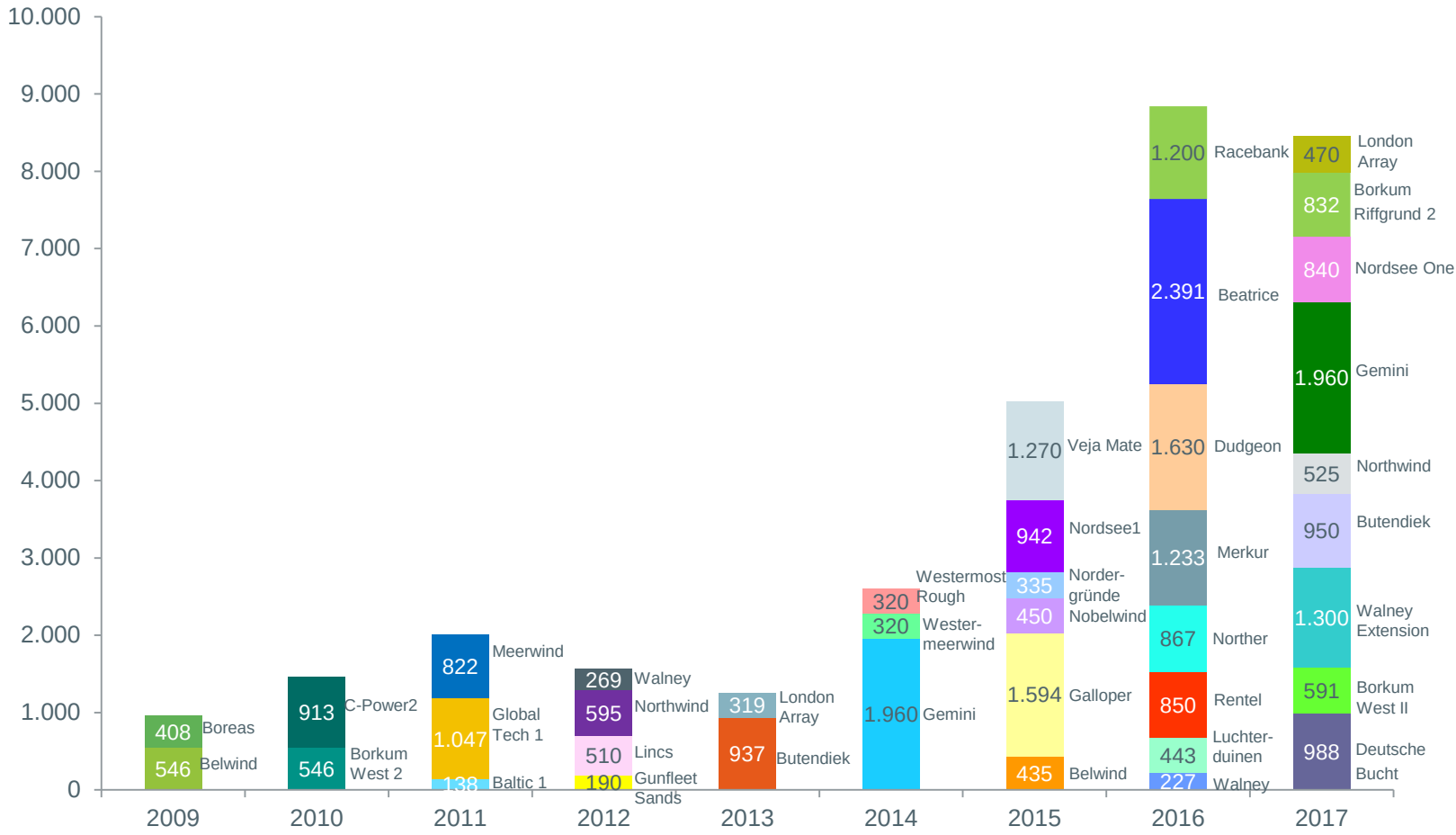

| | N° Farms | N° Turbines Connected | Net MW connected to grid |
|---|---|---|---|
| UK | 8 | 281 | 1,679 |
| Germany | 5 | 222 | 1,247 |
| Denmark | 1 | -11 | -5 |
| Finland | 2 | 17 | 60 |
| Belgium | 1 | 50 | 165 |
| France | 1 | 1 | 2 |
| **Total** | **17** | **560** | **3,148** |

Source: WindEurope: Offshore Wind in Europe 2017

# V164-8.8 MW MHI Vestas – most powerful WTG installed to date

# Non-recourse debt financings of European offshore wind farms

## Project finance transactions 2010-2017*



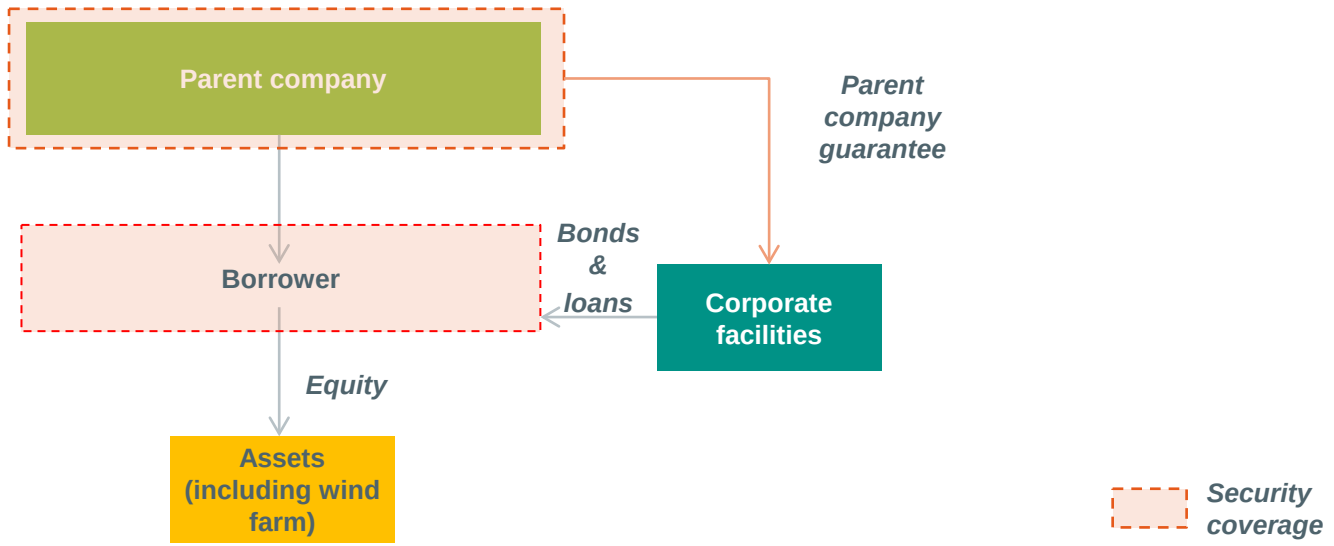

Sources: IRENA 2016 and ABN AMRO analysis

*Includes holdco financings, repricings and limited recourse financings

# 3. Evolution of financing structures

ABN·AMRO

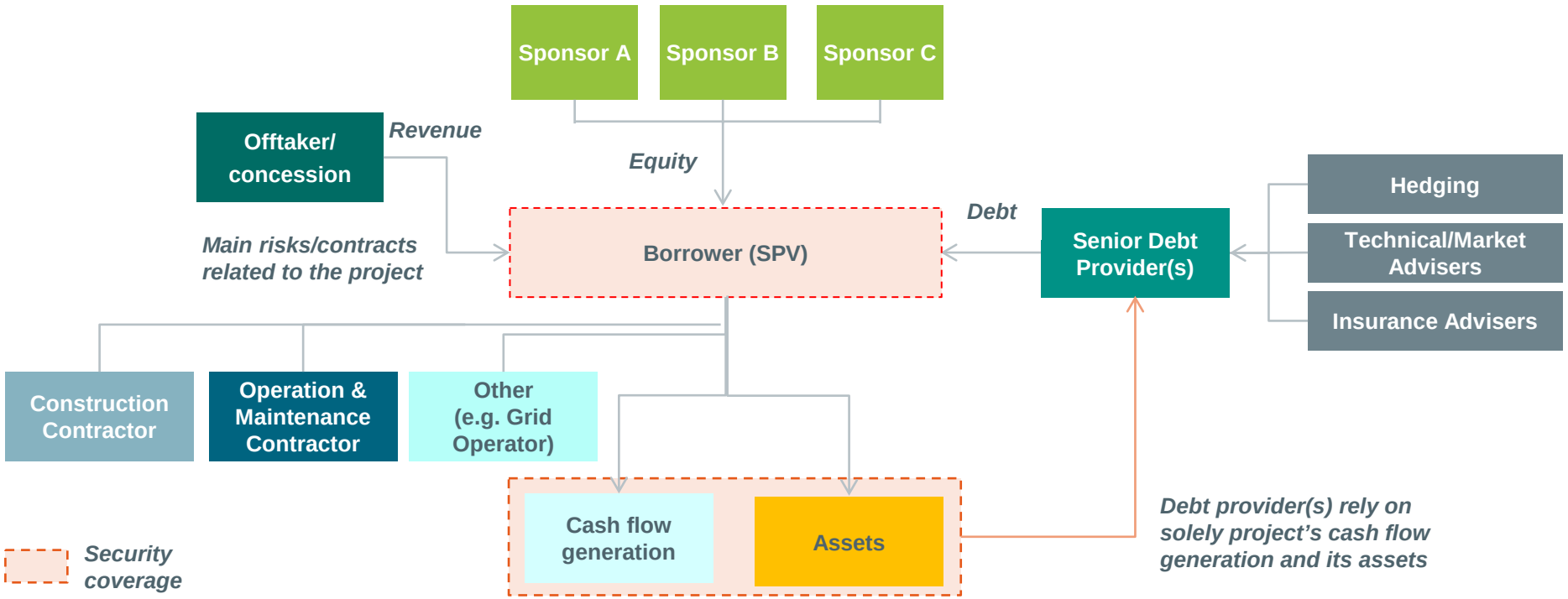
# Corporate financing




## Key features

- Debt raised at corporate level and may be used for general corporate purposes.
- Provided via syndicated/billateral loans and DCM
- Reliance on credit strength of obligor group only
- Can be secured or unsecured; typically high grade companies attract unsecured financing
- Wind farm assets are funded on equity only basis. No debt at asset level and no security over wind farm granted.

# Project financing




## Key features

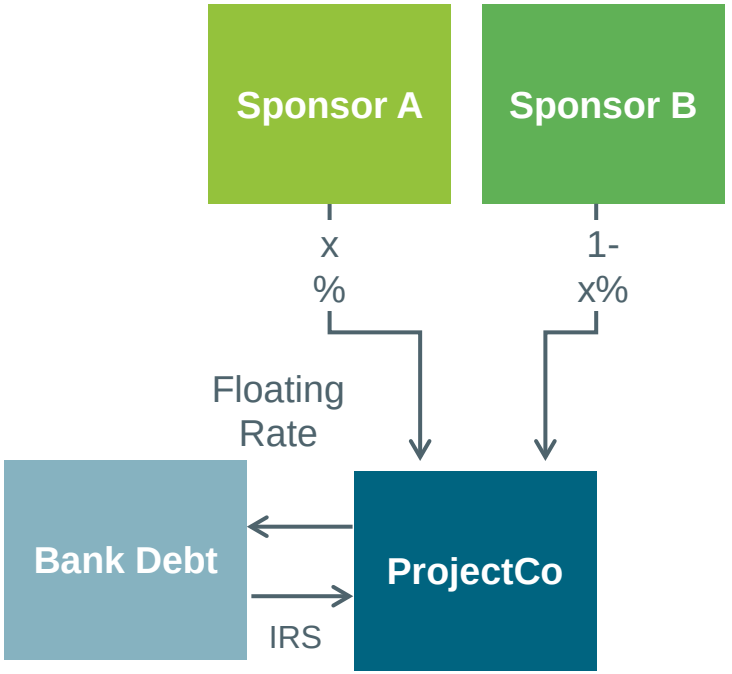
- Debt repaid out of future cash flows from the project
- Debt capacity is dictated by discounted cash flows
- No or limited recourse to shareholders
- Borrower/project entity is an SPV

- Typically used for long term contracted revenues
- Detailed due diligence of revenues, assets and contracts
- Borrower's performance only as good as performance of contractors and terms of its contracts
- Risks allocated to party best able to bear these

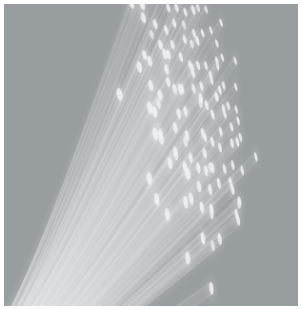
# Conventional Project Finance

- ✓ Structure widely-known and well-tested
- ✓ Used to finance numerous European infrastructure transactions
- ✓ Floating-rate loan combined with interest rate swap
- ✓ Leverage injected at ProjectCo level
- ✓ Direct cashflow and asset security for senior lenders
- ✓ Full equity subordination
- ✓ Ample liquidity for this type of financing, particularly in the bank market

- ✗ Only feasible if all investors wish to raise debt at Project level
- ✗ Requires hedging in addition for floating rate lending



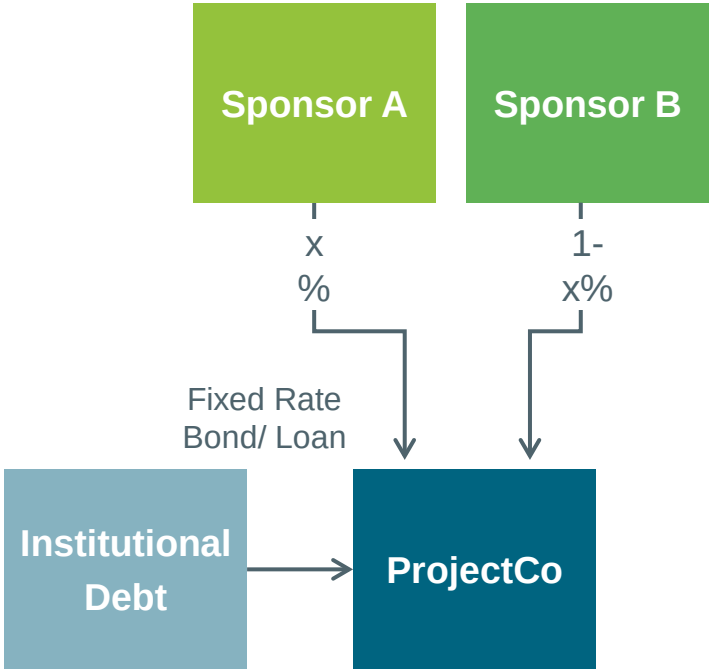
# Project ‘Bond’ Financing



## Tapping a different source of liquidity…

- ✓ Offers alternative source of liquidity to PF banking market
- ✓ Typically results in attractive margins for longer-dated funding
- ✓ Growing institutional liquidity as appetite extends to newer sectors/greenfield projects
- ✓ Can also be used to refinance existing bank debt once projects operational
- ✓ Fixed rate funding avoids need for separate hedging arrangements

- ✗ In general less flexible/sophisticated than bank lenders
- ✗ More limited appetite for construction financing in certain sectors due to requirement for investment grade assets.
- ✗ Prepayment penalties often charged for early loan repayment
- ✗ Some investors require/prefer a rating/listing

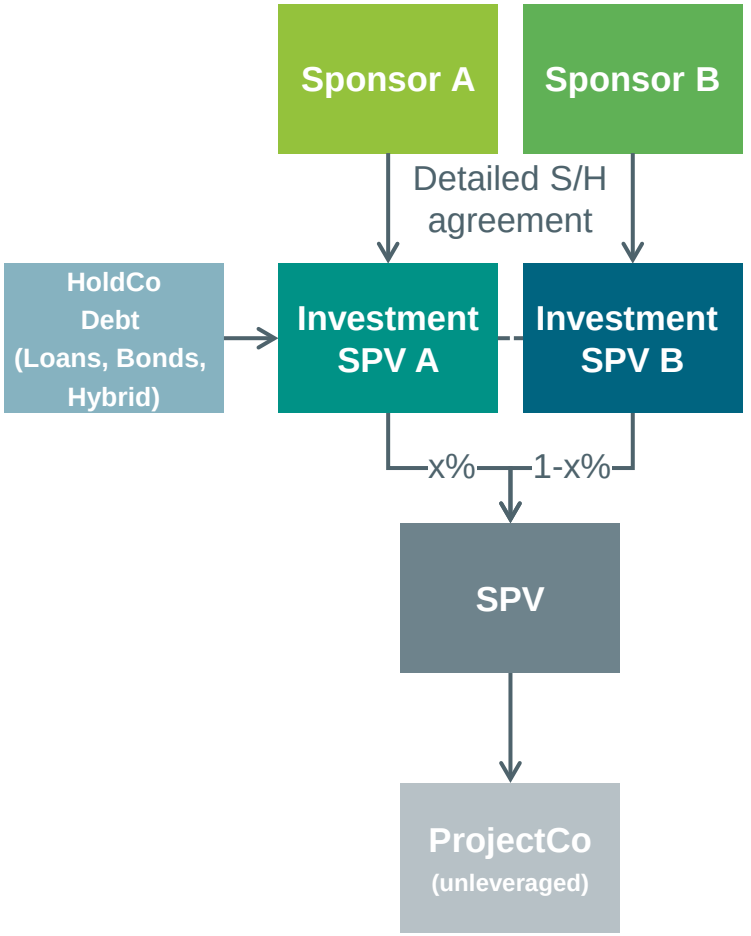


# HoldCo Project Financing

## Mixing and matching …

- ✓ Project is held via an unincorporated joint venture (UJV) or an incorporated joint venture (IJV)
- ✓ Used where one sponsor does not require debt financing or different financing needs exist.
- ✓ Allows each party to achieve its own gearing and return targets
- ✓ Sponsor A can still use non-recourse debt to finance its % investment

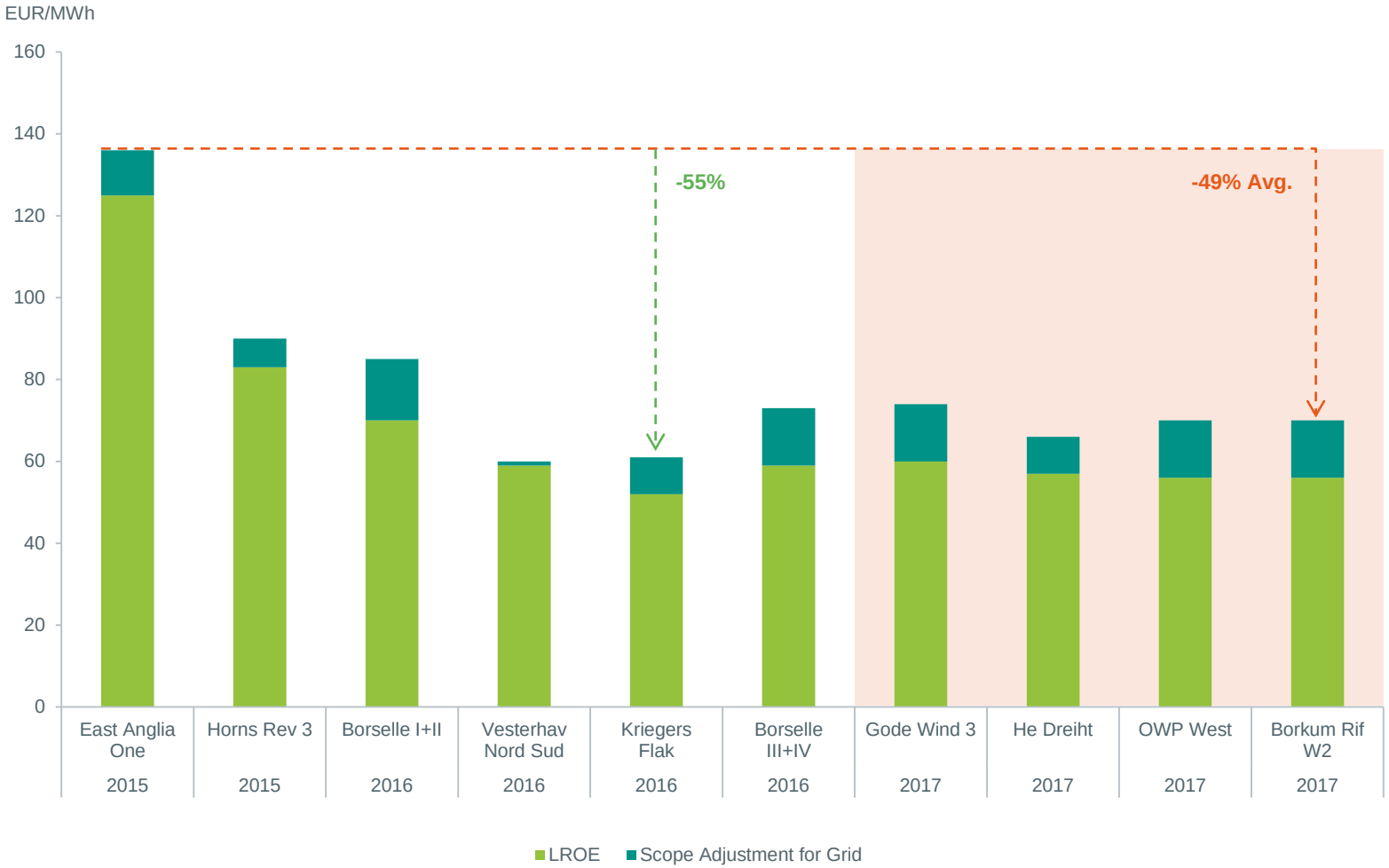
- ✗ Increased structural and security complexity
- ✗ Lenders have no direct recourse to assets of Project Co; appropriate safeguards are achieved via a series of protections/discretions in SHA and finance and security documents
- ✗ May lead to slightly more expensive debt and more reduced pool of liquidity as compared to conventional PF
- ✗ Limited application to date (UK and Germany) but likely to be more widely seen going forward



# 4. Cost dynamics

# The cost of European offshore wind is dropping rapidly

## LCOE analysis of tendered offshore wind projects



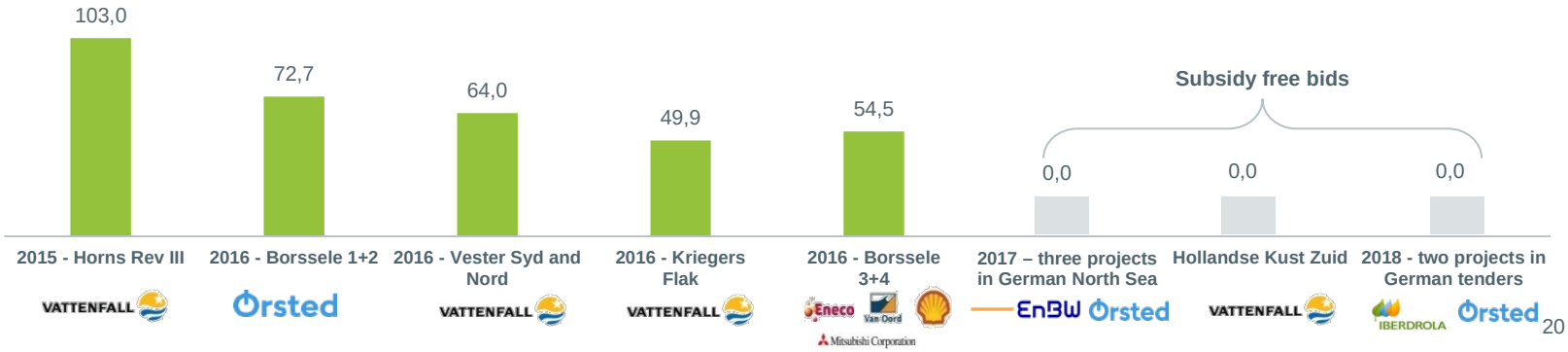

Source: WindEurope

# Recent European offshore wind tenders have demonstrated significant cost reductions, with 3 auctions even attracting zero bids

## Overview of recent offshore wind tenders in Europe

| Project | Country | Tender winner | Date | Capacity (MW) | Distance to shore | Tender price (EUR/MWh) | Does it include transmission cost? | Transmission cost (EUR/MWh) |
|---|---|---|---|---|---|---|---|---|
| Baltic Eagle | GER | Iberdrola | Apr-18 | 476 | 28 km | 64.6 | No | n/a |
| **Wikinger Süd** | **GER** | Iberdrola | **Apr-18** | **10** | **41 km** | **0** | **No** | **n/a** |
| Gode Wind 4 | GER | Ørsted | Apr-18 | 132 | 42 km | 98.3 | No | n/a |
| **Borkum Riffgrund West 1** | **GER** | Ørsted | **Apr-18** | **420** | **53 km** | **0** | **No** | **n/a** |
| Arcadis Ost 1 | GER | Park Wind | Apr-18 | 247 | 17 km | Not announced | No | n/a |
| Kaskasi | GER | Innogy | Apr-18 | 325 | 48 km | >46.6[1)] | No | n/a |
| **Hollandse Kust Zuid** | **NL** | Vattenfall | **Mar-18** | **740** | **30 km** | **0** | **No** | **n/a** |
| **He Dreiht** | **GER** | **EnBW** | **Apr-17** | **900** | **85 km** | **0** | **No** | **n/a** |
| **OWP West** | **GER** | **Ørsted** | **Apr-17** | **240** | **58 km** | **0** | **No** | **n/a** |
| **Borkum Riffgrund West 2** | **GER** | **Ørsted** | **Apr-17** | **240** | **67 km** | **0** | **No** | **n/a** |
| Gode Wind 3 | **GER** | Ørsted | Apr-17 | 110 | 39 km | 60 | No | n/a |
| Borssele III-IV | NL | Eneco, Shell, Van Oord, Mitsubishi | Sep-16 | 680 | 23 km | 54.5 | No | 14 |
| Krieger's Flak | DEN | Vattenfall | Sep-16 | 600 | 15 km | 50 | No | n/a[2)] |
| Vesterhav North and South | DEN | Vattenfall | Aug-16 | 350 | 6 km | 64 | Yes | Included in bid price |
| Borssele I-II | NL | Ørsted | Jul-16 | 700 | 23 km | 72.7 | No | 14 |

## Offshore wind tenders - price development




1) The exact bid price was not announced. It is stated as ''above'' the average EUR46.6/MWh realised in the tender

2) Grid connection for Krieger''s Flak is budgeted at EUR470m

# 5a. Equity trends

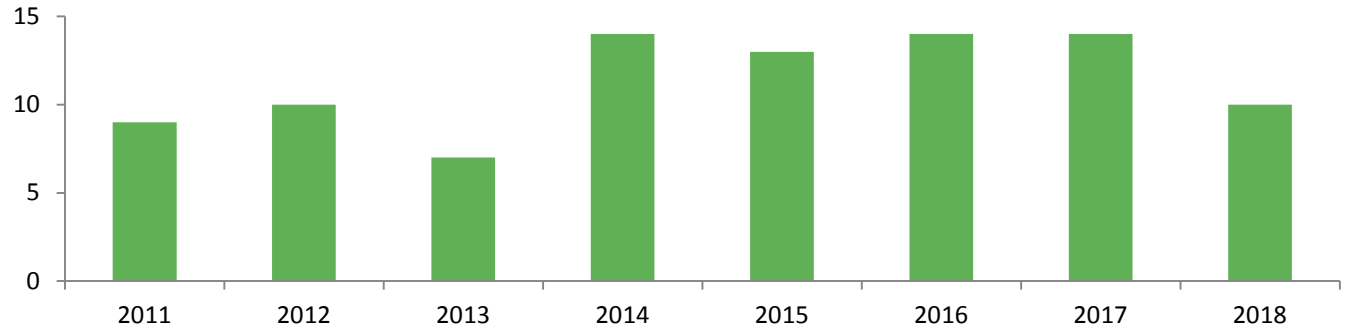
# Equity investors - time of entry and IRR requirements

| | Key risks involved | Typical time of entry per investor | Levered equity IRR[1)] |
|---|---|---|---|
| Longer operational track record | ▪ O&M cost risks<br>▪ Turbine and grid availability risk<br>▪ Decommissioning risk<br>▪ Electricity price risk (depending on subsidy mechanism)<br>▪ Other operational risks | ▪ Pension funds / institutional investors<br>▪ Sovereign wealth funds<br>▪ Asian trading houses<br>▪ Chinese utilities | c. 5 – 8% |
| Commissioned | ▪ In addition to the risks above:<br>− Wind resource risk<br>− Teething issues | ▪ Pension funds / institutional investors<br>▪ Sovereign wealth funds<br>▪ Asian trading houses<br>▪ Chinese utilities | c. 7 – 9% |
| Financed | ▪ In addition to the risks above:<br>− Construction risks | ▪ Infrastructure funds<br>▪ Private equity<br>▪ Pension funds / institutional investors<br>▪ Sovereign wealth funds<br>▪ Asian trading houses | c. 9 – 11% |
| Permitted | ▪ In addition to the risks above:<br>− Financing risk | ▪ Utilities<br>▪ Independent renewables developers<br>▪ Oil & gas companies<br>▪ Value chain players<br>▪ Private equity<br>▪ Asian trading houses | c. 10 – 12% |
| Development / tender phase | ▪ In addition to the risks above:<br>− Tender risk (risk of not winning the tender)<br>− Permit risk<br>− Contracting risk | ▪ Utilities<br>▪ Oil & gas companies<br>▪ Independent renewables developers<br>▪ Value chain players | c. 12 – 15% |

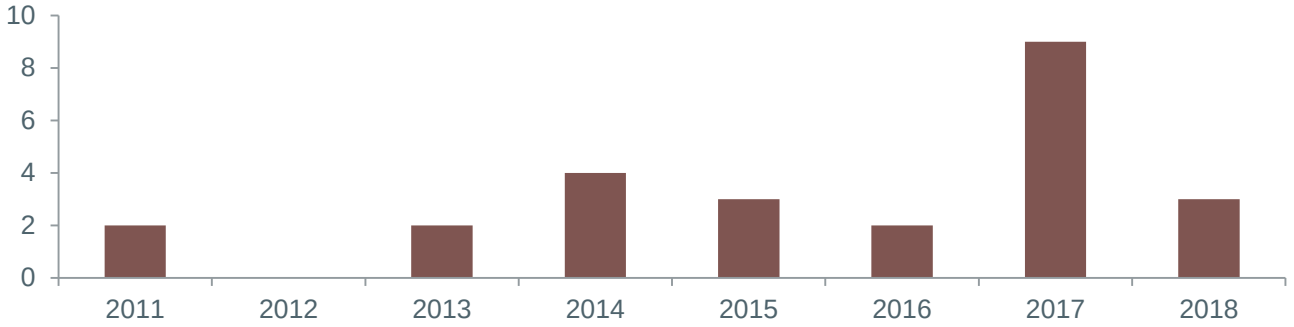
1) Indicative, based on c. 70% gearing

# European offshore wind has seen substantial M&A activity

**Number of greenfield offshore wind M&A transactions**

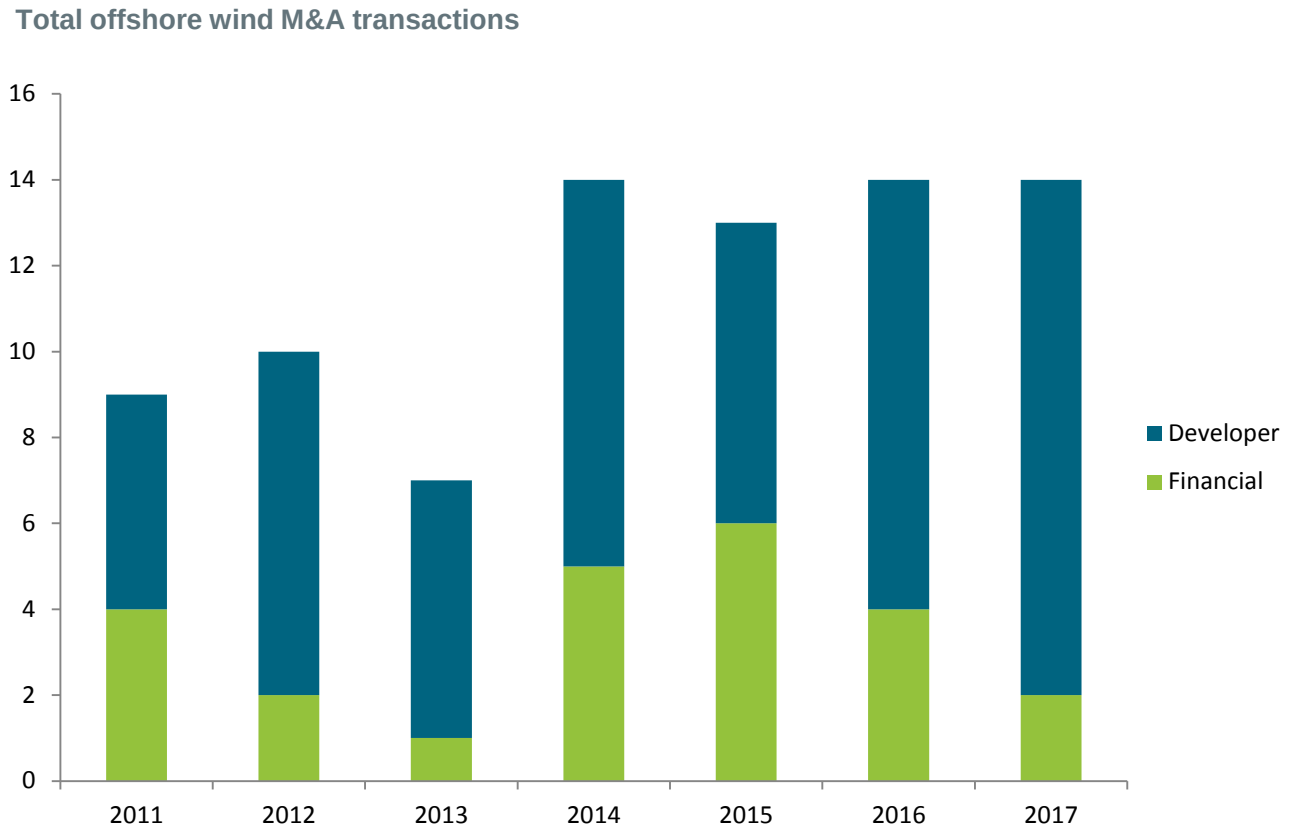



**Number of brownfield offshore wind M&A transactions**




Sources: Wind Europe; ABN AMRO analysis

# M&A transactions split by investor type



# European offshore wind equity investors' universe 2018

**Utilities / Developers**

**Value chain players**

**Oil & Gas Companies**

**Private Equities**

**Institutional/other investors**

**Infrastructure funds / Bank-related funds**

# 5b. Debt trends

# A deep pool of debt liquidity have developed for European offshore wind

**Commercial banks**

**Institutional investors**

**Multilateral institutions**

# Gearing has increased

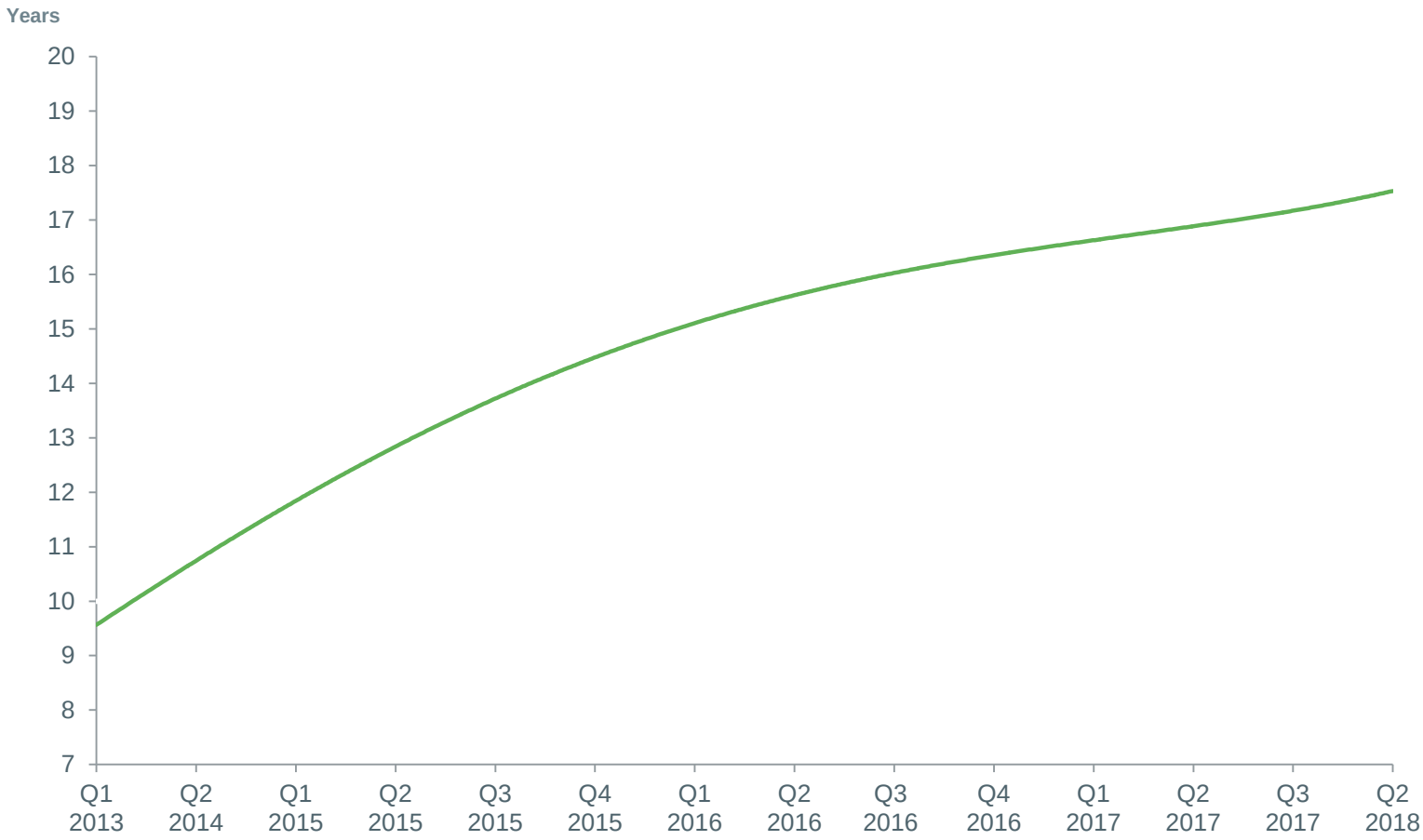
## Gearing is a key driver for equity return

**Debt >75%**

**Equity < 25%**

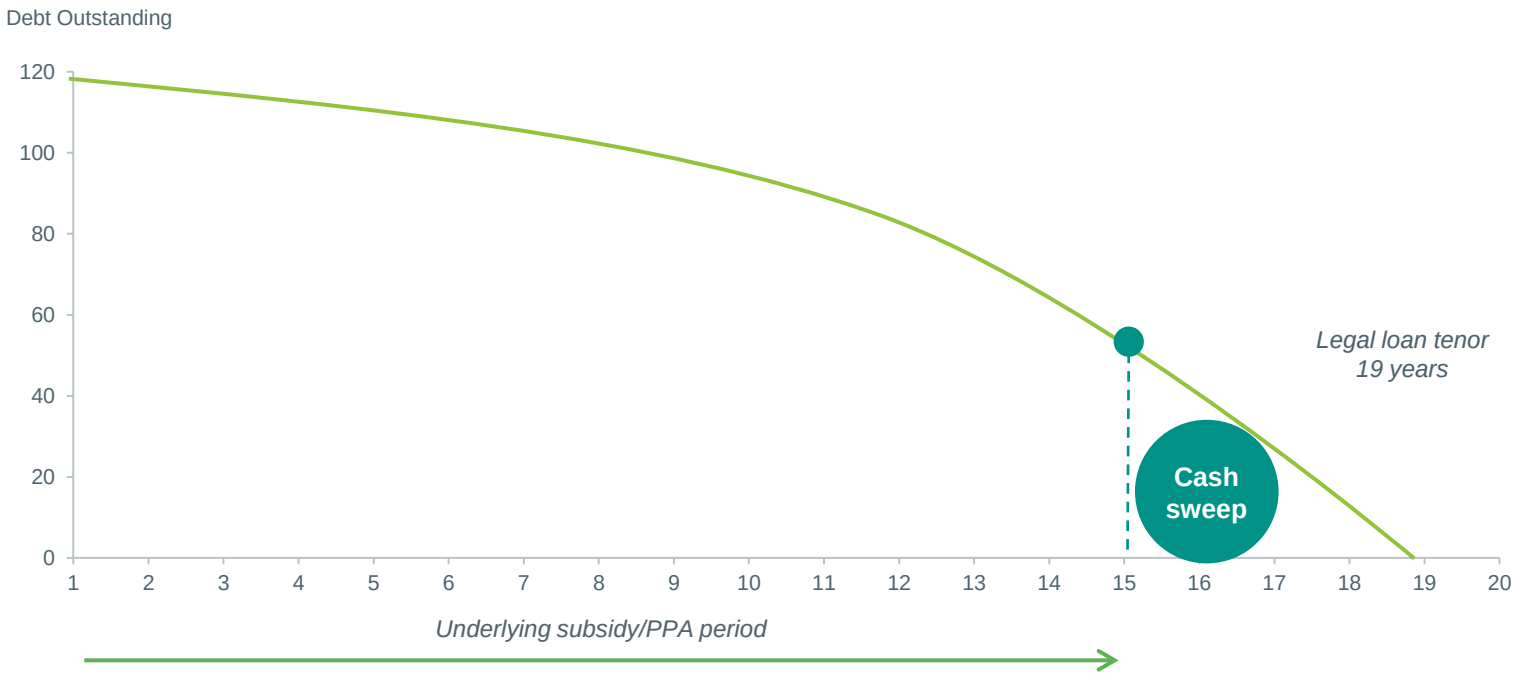
# Loan tenors have been steadily extending

## Longer debt tenors reduce annual debt repayments, increasing dividend potential and investor IRR



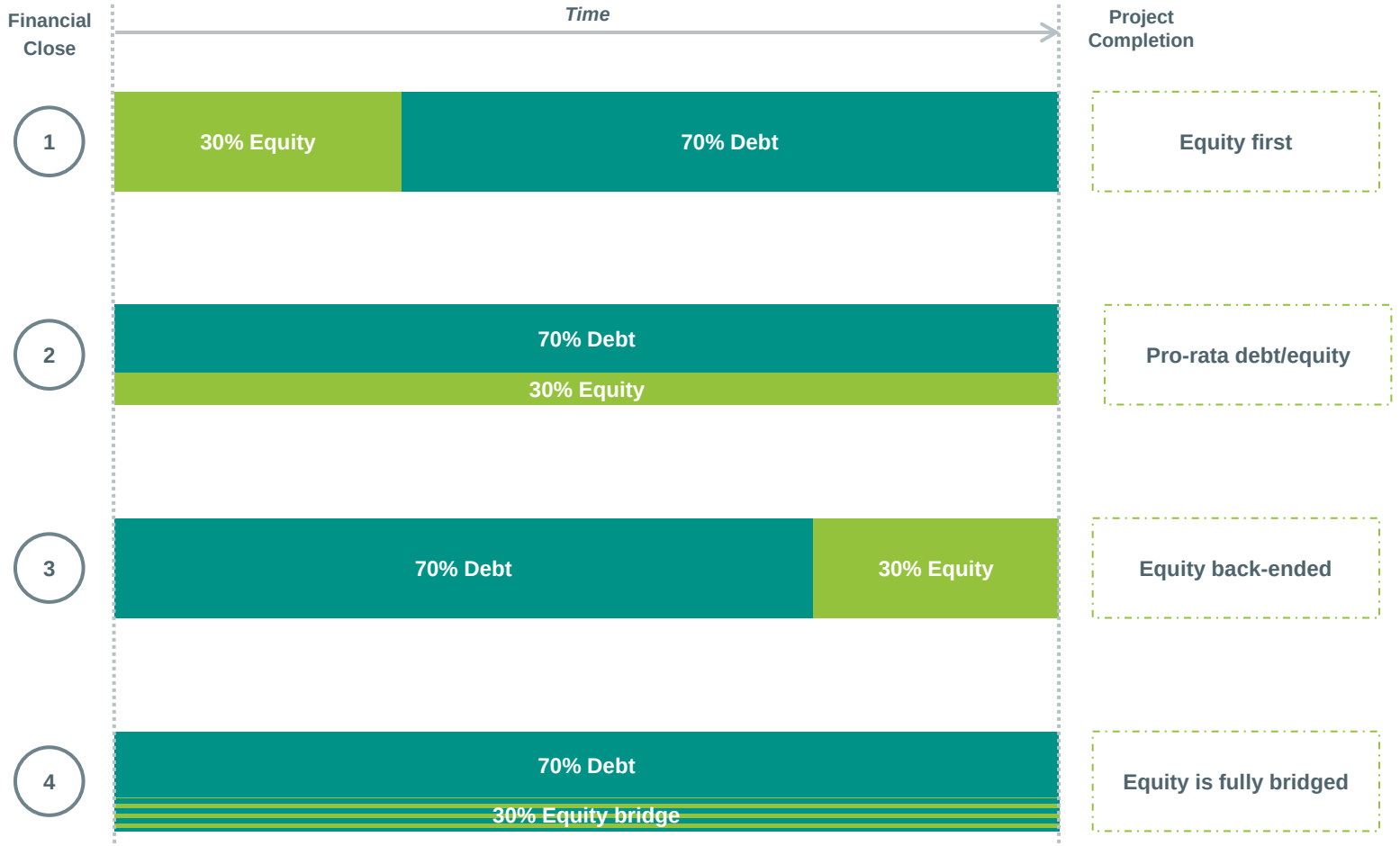
# ‘’Merchant tails’’ have appeared in financing structures

## Stretches repayment profile but success of sweep depends on positive project performance



# Equity contributions are being increasingly deferred

## Equity contribution scenarios



# Cash reserves replaced with standby facilities or not included at all

**Replacement of cash reserves (DSRA, MRA, decommissioning reserve) with debt facilities leads to lower capex needs**

## DSRA

1. **Security of cash in the bank (or covered by L/Cs)**
2. **Funded as part of initial deal capex**

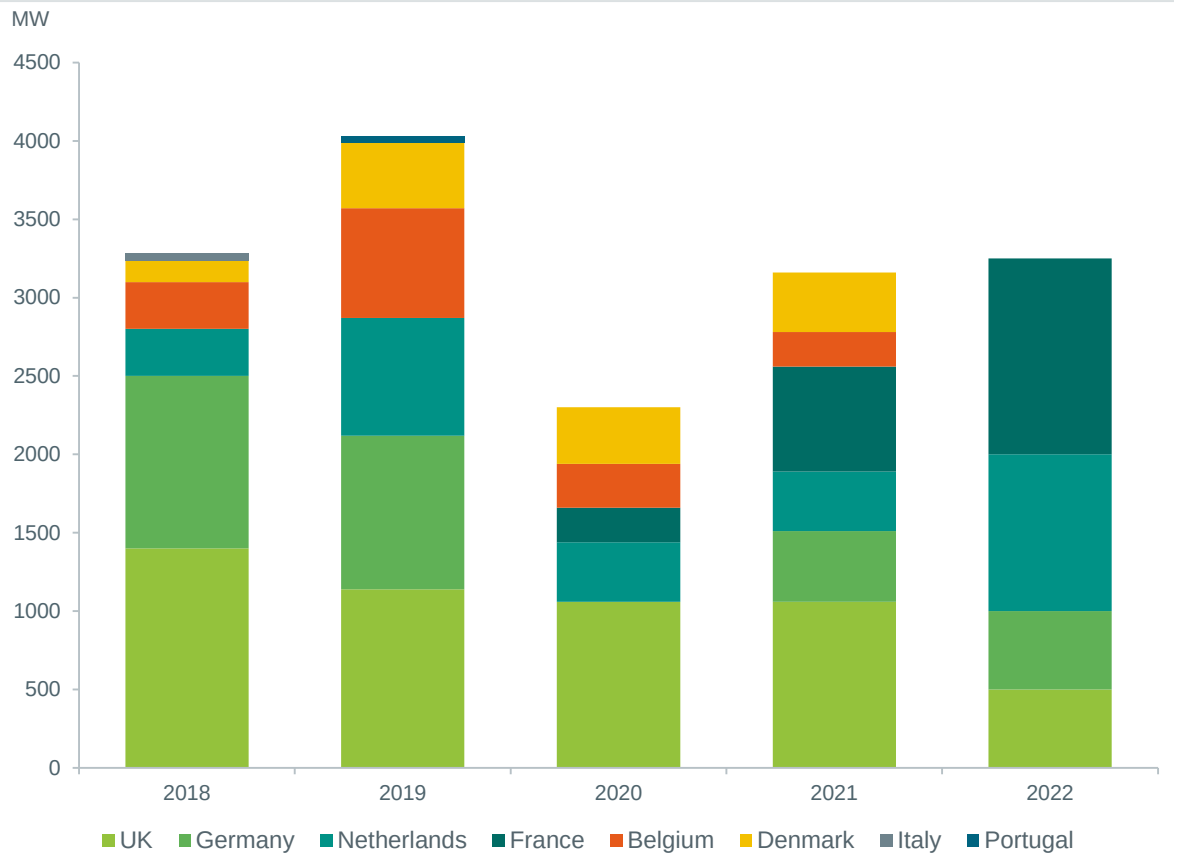
## DSRF

1. **Not reserved as part of deal capex**
2. **Lenders provide additional facility to cover debt service liquidity needs**

# 4. Accelerated ambitions

# European offshore wind pipeline to 2022

**Projected additional capacity per year (MW)**



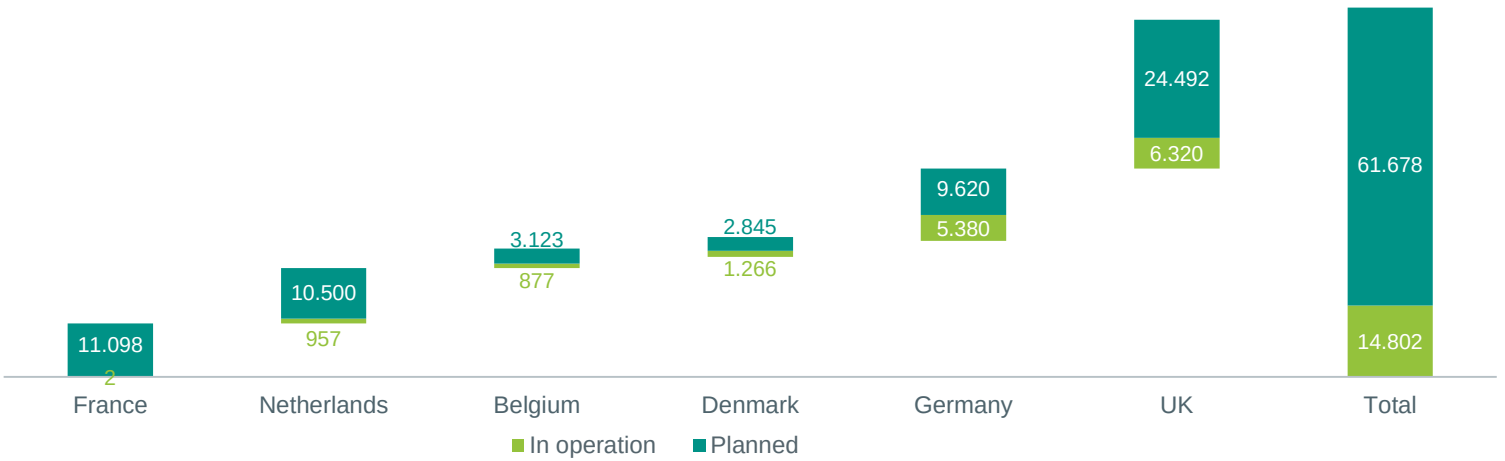

Source: Wind Europe

# Accelerated ambitions to 2030

## Estimated installed OSW capacity in European markets in 2030

- Significant cost reductions realised have increased government confidence and ambitions in offshore wind
- Based on confirmed and planned projects, capacity in the 6 key European markets*, is expected to grow to **c.76 GW by 2030**
- **>5 fold** increase compared to installed capacity at the end of 2017

## Capacity in operation and planned capacity up to 2030 (MW)




Sources: PWC "unlocking Europe's offshore wind potential"; ABN AMRO analysis

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