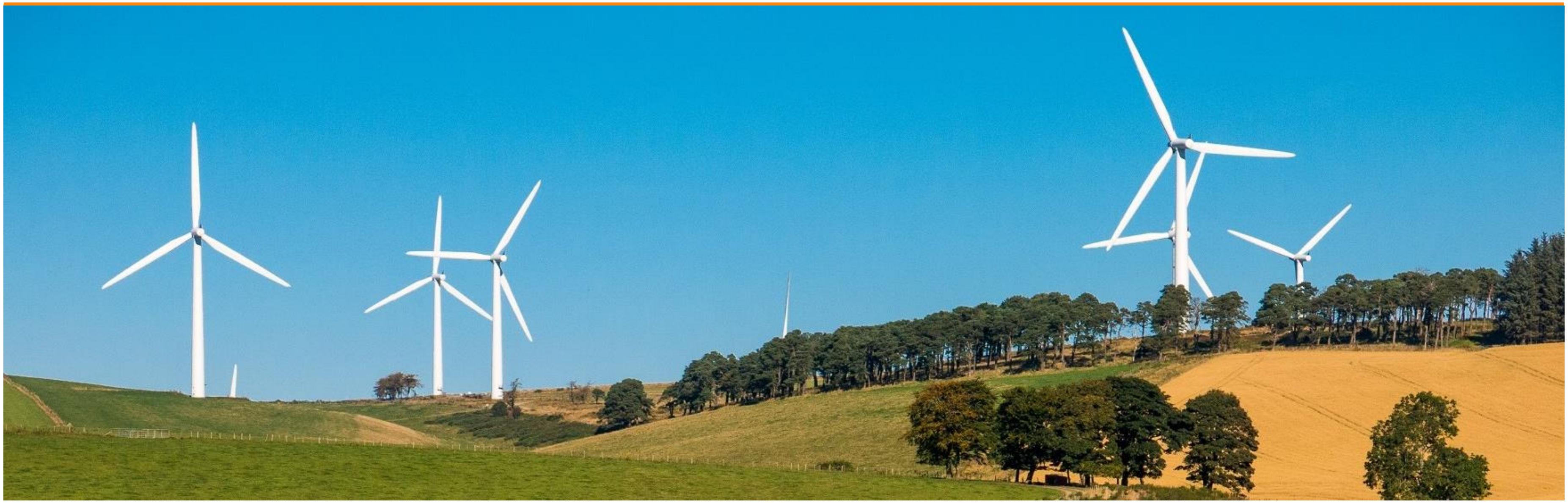


EUROPEAN RENEWABLES SUPPORT SCHEMES
The devil is in the detail

Alex Blanckley CFA, Senior Consultant
12 March 2019

PÖYRY IN IRELAND

Pöyry Management Consulting has a wealth of experience in the Irish energy market, covering transactions, strategy, regulation, retail and gas markets

Our Experience

Asset valuations

Advisor to key thermal, renewables and interconnection transactions

Strategic advice

Developed Irish market strategies and Irish market entry strategies

Scenario analysis

Assessed renewables intermittency and impact on curtailment

Regulatory advice

Developed SEM detailed design, I-SEM high level design, DS3 detailed design

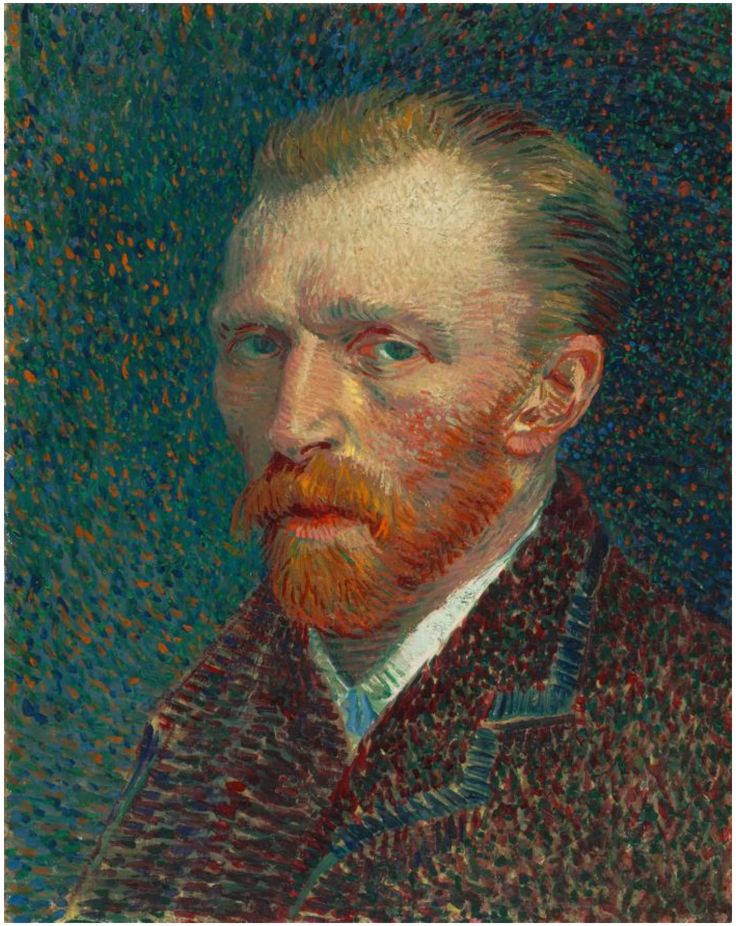
Retail sector

Advised new entrants, valued retail businesses, produced smart metering roll-out strategy for CER

Gas market

Development of wholesale gas market rules, gas purchasing strategies, gas distribution network valuation

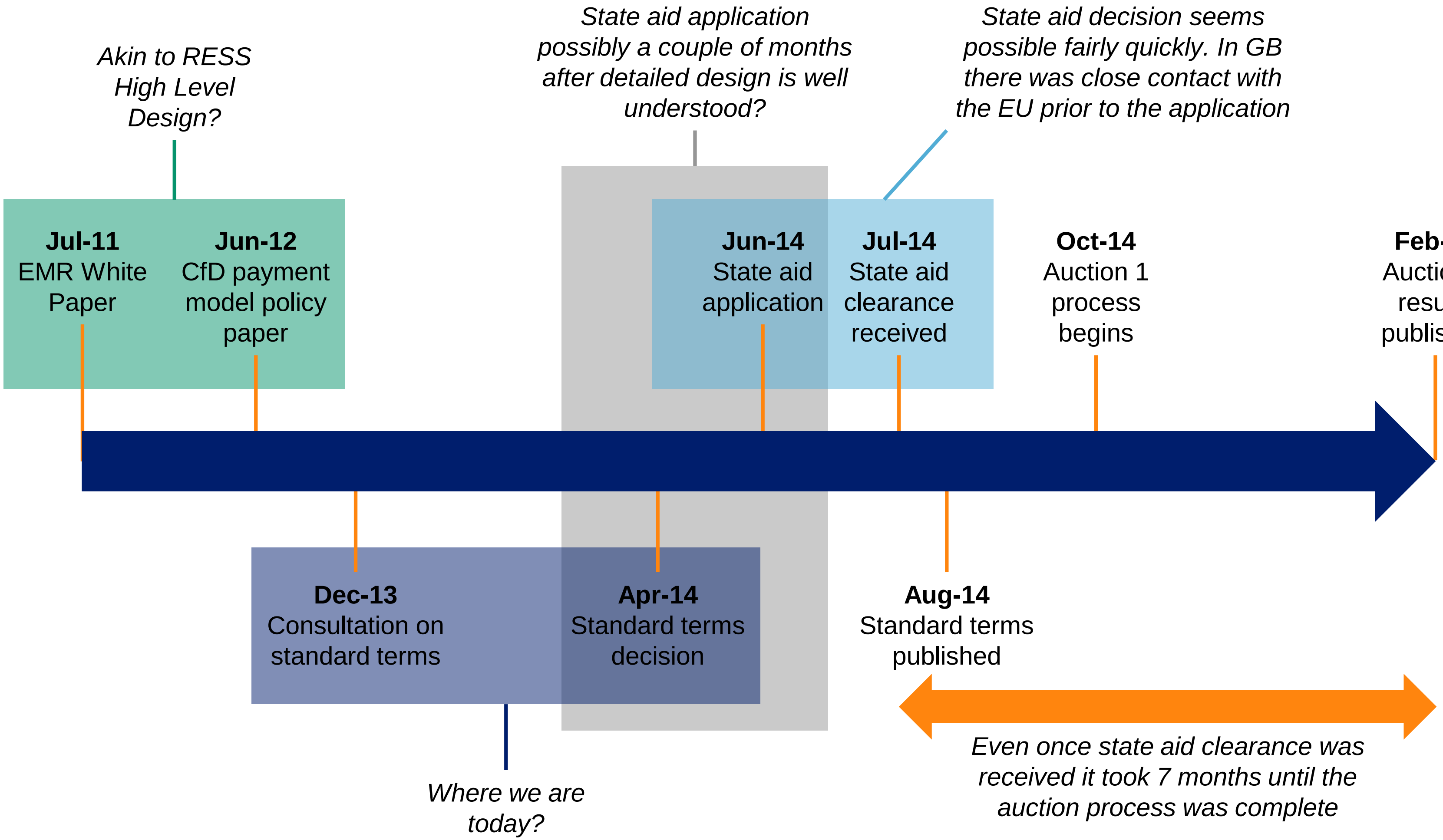
WHAT DOES VINCENT VAN GOGH HAVE TO SAY ABOUT RESS?



"Great things are not done by impulse, but by a series of small things brought together"

1. IT'S IMPORTANT NOT TO RUSH

Figuring out the details of the CfD mechanism took the best part of 2 years in GB. Once finalised, it took almost a year before auction results were published.

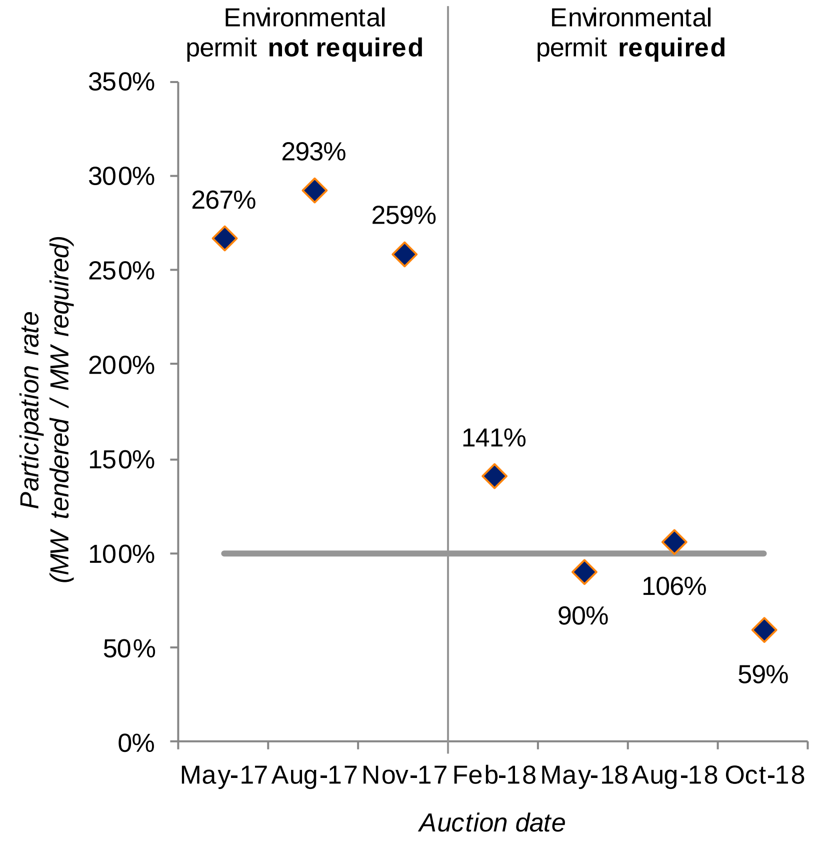


2. THE DEVIL IS IN THE DETAIL (PART 1)

In 2018 the German onshore wind auction rules changed, with community projects required to have an environmental permit before bidding

- **2017**
  - Community projects not required to have an environmental permit prior to bidding
  - Auctions up to 3x oversubscribed
  - Community projects account for 95% of tendered capacity
- **2018**
  - Environmental permits now required for community projects
  - Auctions end up becoming undersubscribed

Onshore wind auction participation rate



2. THE DEVIL IS IN THE DETAIL (PART 2)

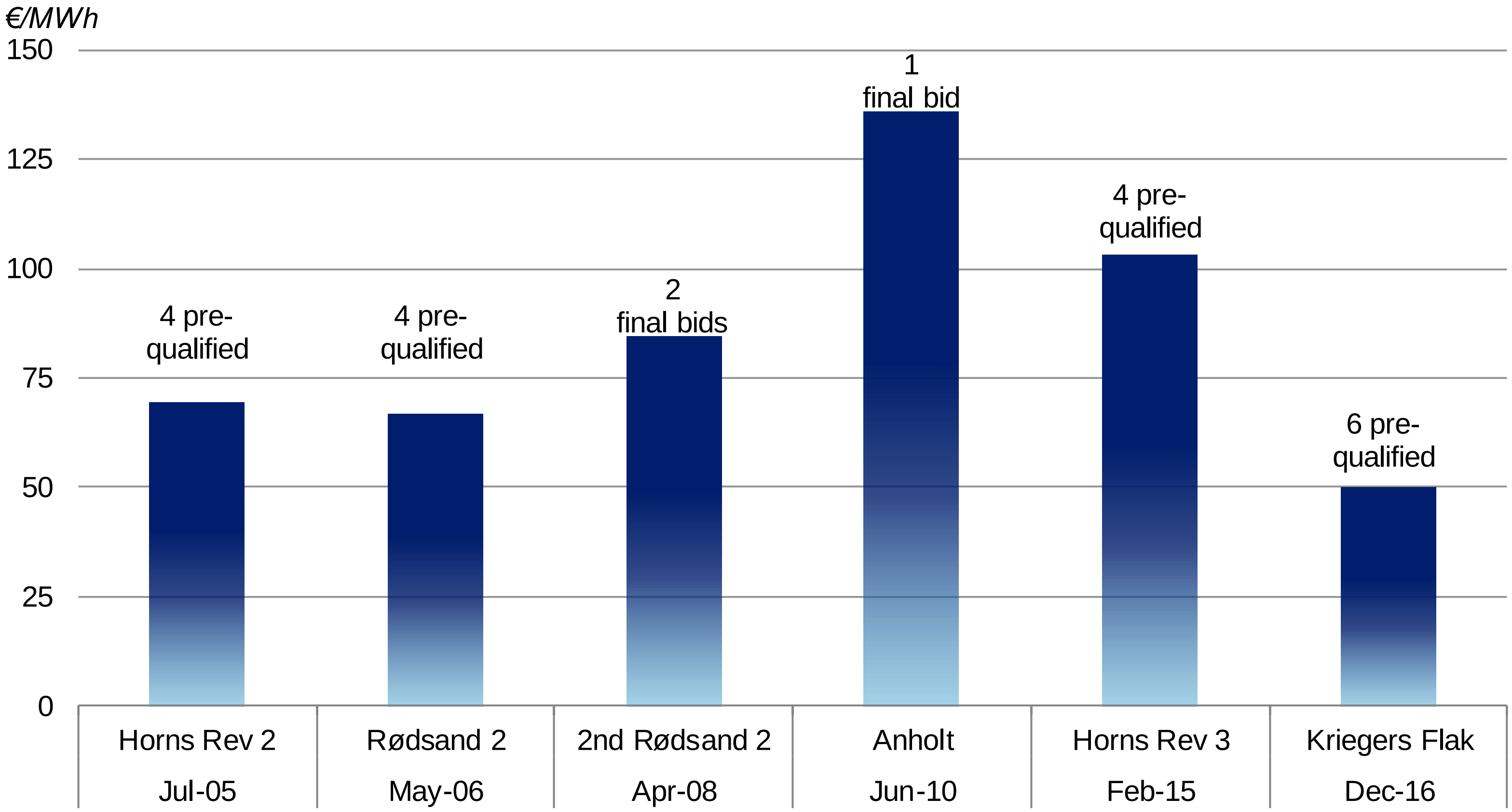
The 2010 Anholt auction in Denmark had several stand out features that resulted in there being only a single bidder…

- €13-52M opt out penalties
- Up to 3% strike price haircut plus fines for late delivery
- Standby requirement (aka the loser's curse)

2. THE DEVIL IS IN THE DETAIL (PART 2)

…which unsurprisingly resulted in a high clearing price

Bid prices for offshore wind auctions in Denmark (€/MWh, nominal money)

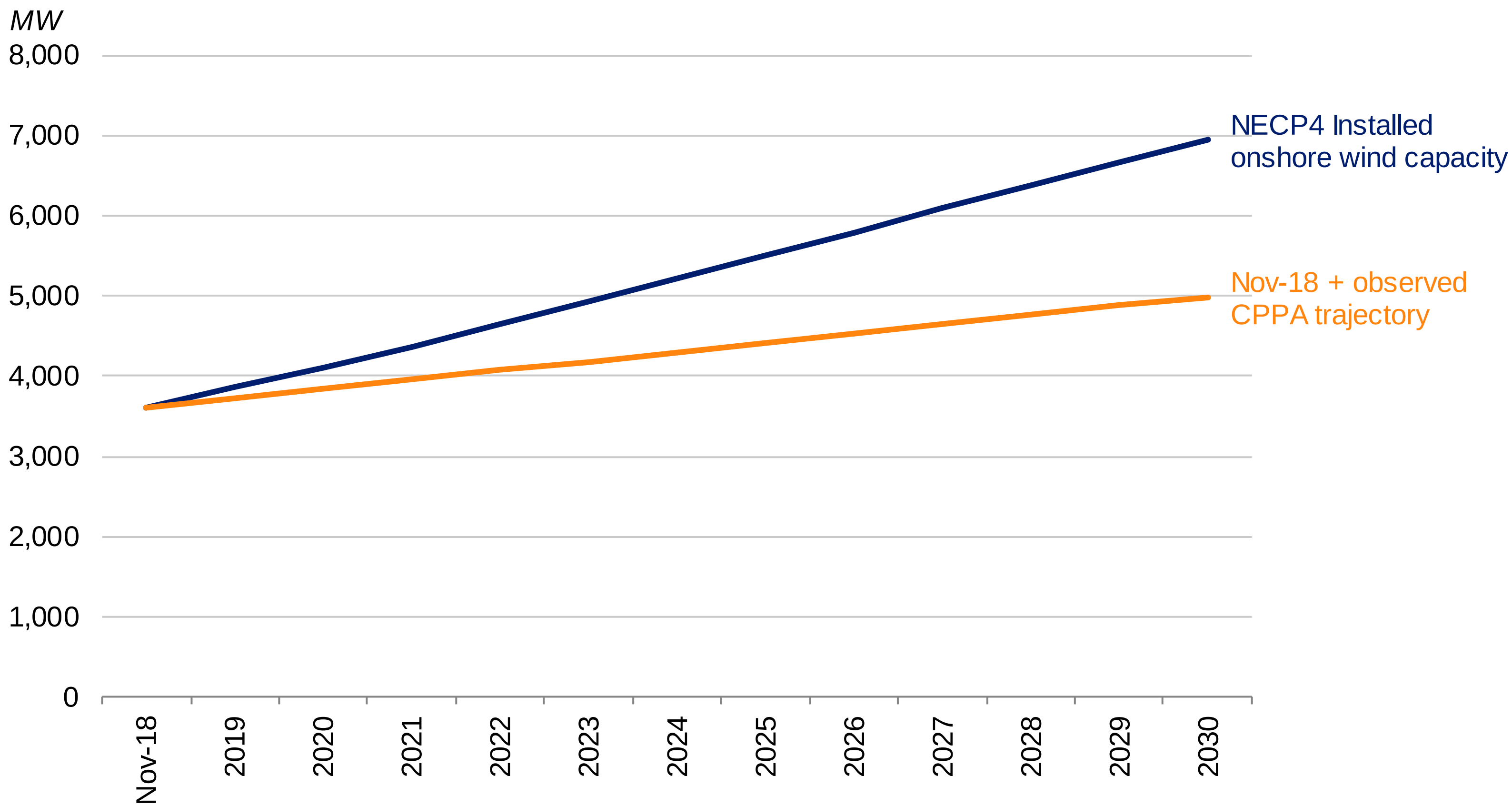


Note: The original winner of Rødsand 2 withdrew, leading to a rerun of the auction

3. CORPORATE PPAS…THE SAVIOUR OF ONSHORE WIND?

Since 2015, 346MW of capacity in Ireland has received corporate PPAs; but it's not clear CPPAs on their own will result in Ireland hitting its 2030 objectives

Future onshore wind installed capacity (MW)



Note: Over the last three years, the average annual amount of CPPA capacity added has been c.115MW. This is added annually to the Nov-18 total to derive the CPPA trajectory shown.

CLOSING THOUGHTS

The detailed design of renewables schemes is absolutely critical; hasty decisions could be costly in the long-term

- Designing a renewables scheme is extremely complex and takes time to get right
- Little details can have a material impact on outcomes
- Getting the design wrong can have significant consequences
- Corporate PPAs are becoming increasingly relevant, but aren’t a substitute for a government backed CfD for onshore wind

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