

# Aurora Summer Renewables Summit

IET London, Savoy Place | 5 June 2019

@AuroraER\_Oxford

#AuroraSummit



# Part 1: Aurora Presentation and Panel Debate

**Aurora Presentation:** A vision for 2050 and implications for today



**Speaker:**  
Benjamin Collie, Aurora

[Click here to view presentation](#)

**Panel:** Preparing for power decarbonisation's endgame - possible futures and how they affect today's strategies



**Chair:**  
John Feddersen, Aurora

**Speakers:**  
Brian Davis, Shell International,  
Laurence Fumagalli, Greencoat Capital,  
Lindsay McQuade, ScottishPower Renewables  
Emma Pinchbeck, RenewableUK

# Part 1: 1-2-1 Interview and Presentation

## 1-2-1 Interview: Role of policy in delivering zero-carbon by 2050



### Chair:

Richard Howard, Aurora

### Speaker:

Chris Stark, The Committee on Climate Change

## Presentation: Technological pathways to achieving zero carbon



### Speaker:

Doyne Farmer, University of Oxford

## Part 2: Lloyds and Ørsted Presentation and Aurora Presentation

**Presentation:** The role of debt and equity financing in the face of fundamental market uncertainties



**Speaker:**

Jonas Persson, Lloyds Bank

Erico Lima, Ørsted

[Click here to view presentation](#)

**Aurora Presentation:** Beyond corporate PPAs – alternative ways to manage merchant exposure



**Speaker:**

Mateusz Wronski, Aurora

[Click here to view presentation](#)



## Part 2: Panel debate and rooftop networking

**Panel:** Managing risks in unsubsidised renewables investment



**Chair:**

Ana Barillas, Aurora

**Speakers:**

Erico Lima, Ørsted

John Puddephatt, Statkraft

Zosia Riesner, Lightsource BP

Dan Wells, Foresight Group

**Rooftop networking**



# Aurora's Amun wind valuation tool allows the user to quickly assess asset-specific capture prices of individual wind farms

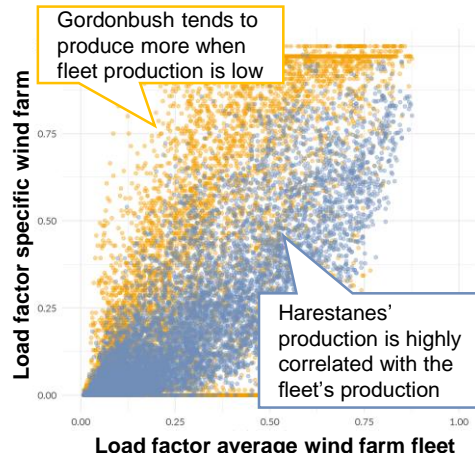
Location and correlation with the fleet becomes critical for asset capture prices and returns

## Location

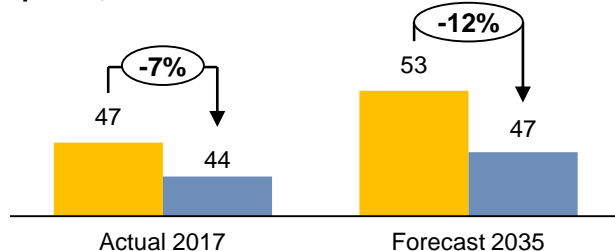
Gordonbush,  
72MW

Harestanes,  
136MW

## Historical production 2017



Capture prices, GBP/MWh, real 2018



Project IRR for a new-build wind farms, COD 2025, %

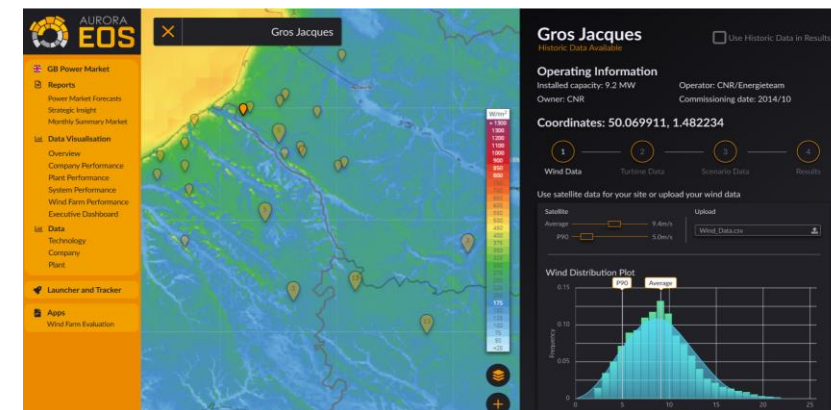


## Product summary

- Amun combines Aurora's market forecasts with granular wind data to obtain site- and project-specific capture price and revenue forecasts
- It is designed to speed up and simplify business case analysis by automating the key steps of the process

## Key features

- ✓ Site-specific capture prices under Aurora scenarios
- ✓ Heat map of Europe with wind speed, forecast capture prices and revenue
- ✓ Ability to input your own wind data
- ✓ Historical capture prices, output and revenue data for existing assets
- ✓ Correlation with the fleet to capture cannibalisation
- ✓ Updated quarterly with the release of our forecasts



## Simple 6-step site assessment process

1. **Select a location** – insert coordinates, pick an existing site or simply click anywhere
2. **Select wind speed data** from our databases or **input your own** wind speed or production data
3. **Select a technology** – pick from our database of turbines or insert your own parameters
4. **Select one of Aurora's market scenarios**
5. **Press GO**
6. **Analyse the results** – use our in-built visualisations or download raw data

# Watch the video and listen to the podcast



[Click here to view the video](#)



[Click here to listen to the podcast](#)

[State-led or market-based: How should the UK decarbonise its electricity system? Business Green](#)

[Net-zero goal requires 'bold policy steps' on renewables, Utility Week](#)

[Decarbonised energy system may ultimately be cheaper, Utility Week](#)

[Climate change chief: Support net zero or lose young voters, The Energyst](#)

[CCC: 2050 net-zero target is 'extraordinarily ambitious', Utility Week](#)

[Renewables sector welcomes net zero commitment, Offshore Wind Journal](#)





# Our 2019 Partner, Lloyds Bank



## Case Study – Hornsea Project One Offshore Wind Farm

**Lloyds Bank** fully supports the UK Government's Clean Growth Strategy and our position in the UK economy enables us to be a driving force in the successful transition to a more sustainable, low carbon economy. In 2018 Lloyds Bank signed up to the RE100, a group of over 100 influential companies that have committed to 100% renewable energy in their own operations. We have already trained over 400 colleagues to an advanced level through our partnership with the University of Cambridge Institute for Sustainability Leadership. In 2018 Lloyds Bank was the only UK bank to earn a place on the CDP Climate Change A List, highlighting the importance of our role in tackling climate change. As an institution we seek to benefit from our clients who we are fortunate to learn from and, just as we can support them, they can also support us in our journey to be fully sustainable.

In 2016 Lloyds Bank launched the first green loans designed to help clients to improve real estate energy efficiency. One of our ambitions is to be a leading UK bank in the green and sustainable bonds market. In 2017 Lloyds Bank launched our £2bn Clean Growth Finance Initiative (CGFI) which provides discounted funding across a broad range of green purposes to help our clients transition to a lower-carbon, more sustainable future. In 2018 Lloyds Bank launched a new target to support infrastructure projects that will produce renewable energy for the equivalent of 5 million UK homes by 2020.

### Transaction Overview

In November 2018 Lloyds Banking Group through both Lloyds Bank and Scottish Widows provided collective funding of £278m to support the acquisition of 50% of the Hornsea Project One offshore wind farm by Global Infrastructure Partners from Ørsted Wind Power.

Hornsea One is located approximately 101km off the North East coast of the UK and will have an installed capacity of 1218MW making it the world's largest offshore wind farm once operational in 2020. The project will be comprised of 174 7MW turbines provided by Siemens which will produce enough energy to power more than 1,000,000 UK homes and it will benefit from 15-year index-linked Contracts for Difference from the Low Carbon Contracts Company.

The £3.6bn multi-tranche financing package was one of the first of its kind for an offshore wind farm in construction and included both commercial bank and institutional investor funding, as well as a credit supported tranche from Denmark's Export Credit Agency (EKF) and mezzanine debt.

### Transaction Highlights

Lloyds Bank has been a leading financier of the offshore wind sector in recent years within the UK and in this transaction acted as Initial Commercial Lender and Hedging Provider for the commercial bank facilities providing funding for both the generation and OFTO assets.

This transaction represents the first offshore wind investment for Scottish Widows. This is a sector which has grown exponentially in importance and Scottish Widows are proud to have played a leading role by acting as Bond Purchaser alongside ECA Covered Institutional Loan Provider for the EKF tranche.

# Aurora's next conferences



## Battery Storage and Flexibility Conference 2019



Aurora's flagship [Battery Storage and Flexibility Conference](#) brings together original analysis and insights from the Aurora team on the outlook for flexible technologies, and discussion with leading industry figures, in a focused half-day session in central London. It has grown to become one of the largest events of its kind in Europe – attracting 550 participants last year. Click [here](#) to view the highlights of our 2018 Conference and our [video](#) and [podcast](#).

This years event is on **14 October 2019 in London**

## Aurora Spring Forum 2020



[The Aurora Spring Forum](#) is one of the leading gatherings of the European energy industry, bringing together industry leaders in an exclusive and intimate setting in Oxford. The Forum is a serious attempt to discuss the medium and long term challenges of the industry. We have produced a [highlights pack](#) from the Spring Forum where you will find the podcast, video, photos, media coverage and slides from the day.

Next years event is on **24 March 2020 in Oxford**

## Summer Renewables Summit 2020



[Aurora's Summer Renewables Summit](#) brings together leaders in the renewables sector discussing insight into what will motivate future changes in direction for other players in the renewables sector. The renewables sector has seen rapid change in recent years, and this is set to accelerate in the decade ahead. Click here to view the 2019 conference [video](#) and the [podcast](#).

Next years event is on **11 June 2020 in London**

For more information, contact:  
**Amy Hewick, Events Manager**



**amy.hewick@auroraer.com**



**+44 (0) 7789 234 981**

# Aurora offers power market forecasts and market intelligence spanning Europe's key markets and Australia ...



## Comprehensive Power Market Services

- ✓ Power market forecast reports
- ✓ Forecast data in Excel
- ✓ Global energy market forecast reports
- ✓ Strategic insight reports
- ✓ Regular subscriber group meetings
- ✓ Bilateral workshops
- ✓ Analyst support

## Power Market Forecast Reports

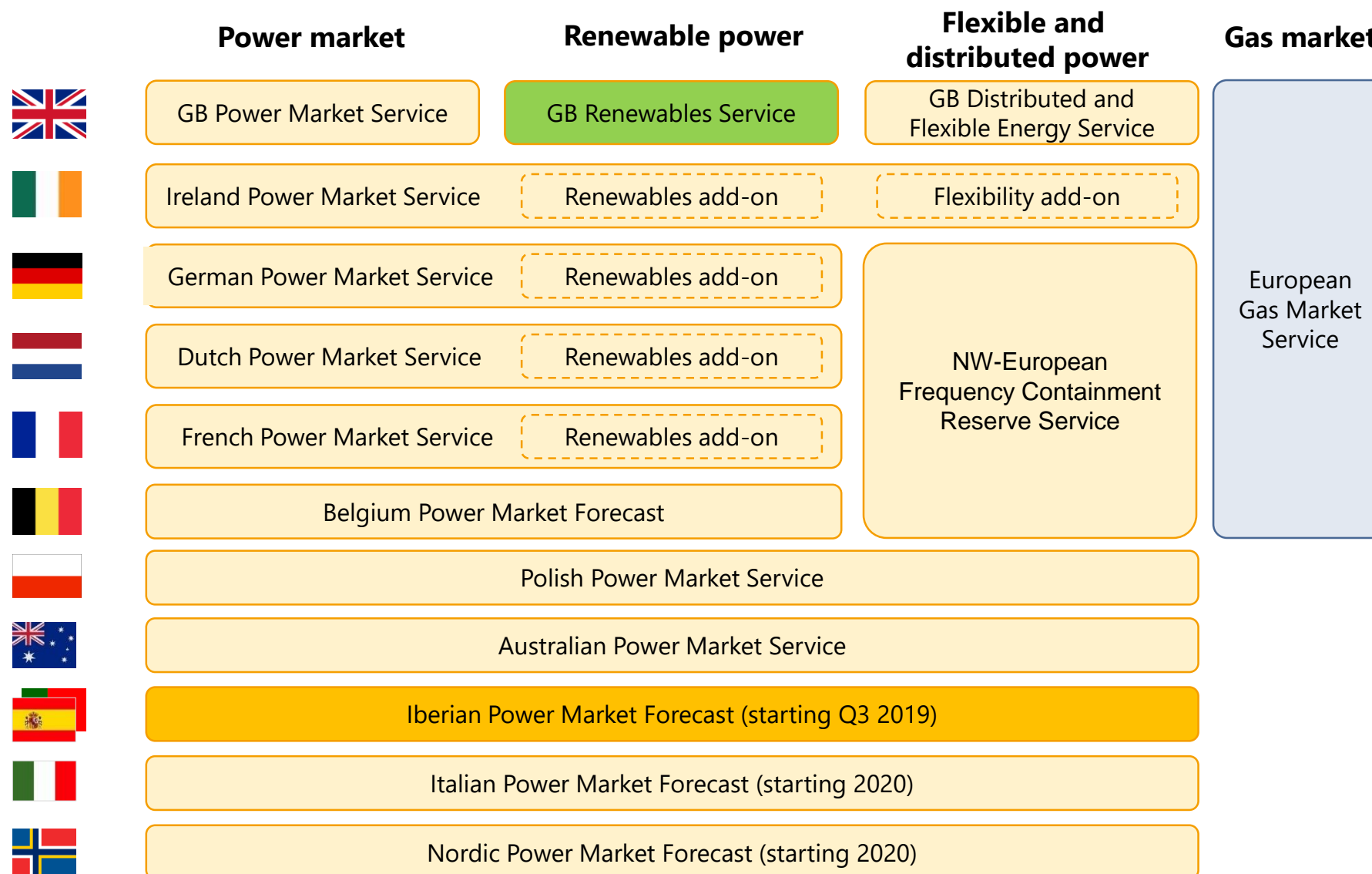
- ✓ Power market forecast reports
- ✓ Forecast data in Excel
- ✓ Analyst support

## Bespoke forecasts

- ✓ Aurora can provide power market forecasts upon request



# ... and Power Market Intelligence Services specifically for renewables and flexibility





# Aurora's GB Renewables Service:

## Market-leading forecasts and intelligence on renewable energy

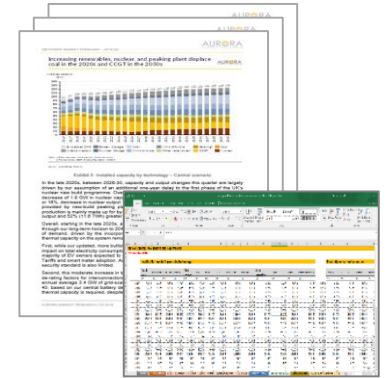


### What does the subscription service include?



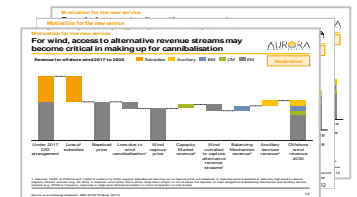
#### **GB Renewable Forecast Reports** – updated twice a year plus data in Excel

- Full market and regulatory outlook
- All forecasts you need for investment and financing cases of subsidised and subsidy-free renewables to 2040, including regional capture prices, ROCs, imbalance costs, negative price periods, BM and ancillary services
- Bankable P90/P10 capture price forecasts, ready to use in asset valuations and for financing cases



#### Platform to discuss and receive on-going intelligence and analytics on the most pressing issues via our **Strategic Insight Reports and Group Meetings**, e.g.

- How low can capture prices go? Understanding and managing merchant risks
- PPA structures, co-location models and other evolving business models
- Managing merchant risks with effective portfolio composition



Regular **interaction with Aurora team** via bilateral workshops and ongoing analyst support to discuss your specific questions and implications for your business



**All intelligence for a successful renewables business, based on bankable price forecasts**

For more information, contact  
**Oliver Kerr, Commercial Manager**



[oliver.kerr@auroraer.com](mailto:oliver.kerr@auroraer.com)



+44 (0) 7747 219404

# Aurora initiates a comprehensive multi-client study on the Iberian market and invites further participants to join

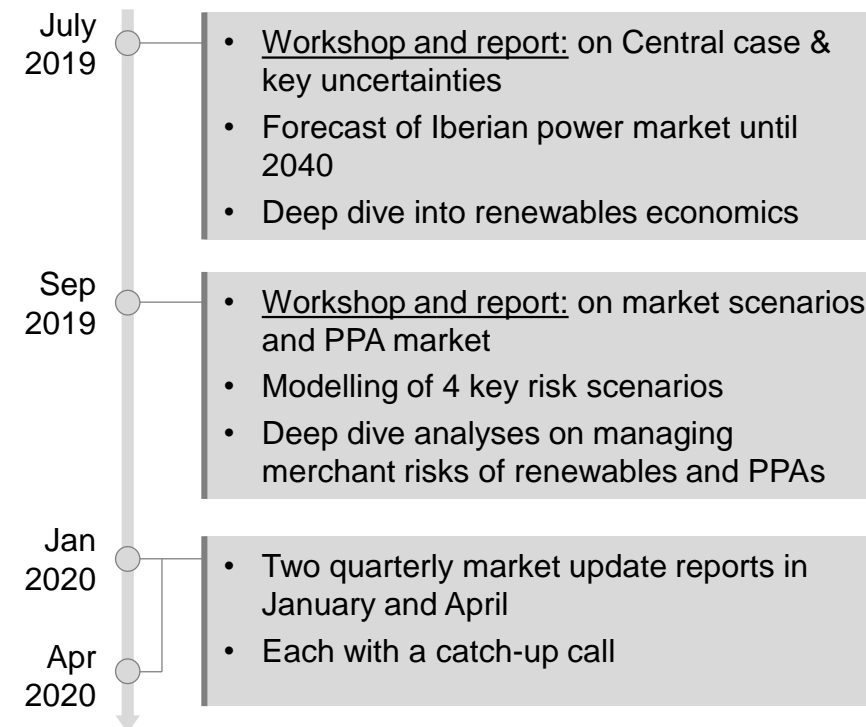
**Driven by excellent fundamentals, merchant solar project developers and investors are increasingly focussing on Iberia. While providing interesting investment opportunities this trend also increases risk of over-build and cannibalisation.**



## Key questions to be answered

- What is a likely long-term scenario for the Iberian market and what are they key sensitivities?
- What are the key risk and value drivers for projects in the Iberian market?
- Will the market design fundamentally change with high renewable penetration?
- How fast will the RES business case be cannibalised?
- What are strategies to mitigate risk e.g. CPPA, co-location etc.?
- What role will new innovations play in limiting price cannibalisation i.e. electric vehicles, storage, hydrogen?

## What you will get:



# Aurora has supported major transactions and financing for a wide range of assets









## Flexible generation



-  Green Frog Power, support for £100m debt financing of gas peakers by Lloyds, HSBC, NIBC
-  Forsa Energy, supported debt financing for a portfolio of gas peakers by Sequoia Capital
-  Gas peaker and battery storage portfolios, sell side advisory for UK Power Reserve
-  Battery storage, commercial sell side advisory of the largest operational battery storage portfolio in Europe
-  160 MW battery storage portfolio, support equity and debt raise ahead of DS3 auction
-  Battery storage, successful equity and debt raise (first battery debt financing in UK)








## Thermal generation



-  870 MW CCGT, commercial sell side advisory for Ørsted
-  EEW Energy From Waste (>EUR1bn), buy side advisory for Beijing Enterprise Holding
-  Cory Riverside EfW plant, buy side advisory for successful investor consortium
-  EfW plant, buy side advisory for successful bidder
-  Stake in Uniper, buy side advisory for a large hedge fund during the IPO process
-  Stake in RWE, buy side advisory for several private equity funds






## Renewable generation



-  Onshore wind, sell side market advisor for 400MW subsidy-free project
-  Offshore wind, advisor for debt financing of merchant exposed project
-  Borssele 3&4 offshore wind farm, buy side advisory for the successful bidder
-  49% of Enbridge's renewables power assets, buy side advisory for the successful buyer
-  Race Bank offshore wind farm, buy side advisor for successful bidder
-  Several biomass and biogas plant portfolios, successful buy side advisor for Foresight Group
-  Buy-side for major European infra fund into +200MW solar farm with batteries in Australia

## Gas mid & upstream



-  UK National Grid distribution network (>£8bn), commercial buy side advisor for successful bidder consortia
-  TransitGas pipeline, buy side advisor for successful infrastructure fund
-  Gas Connect Austria, buy side advisor for large infrastructure fund
-  Eustream, commercial advisor to obtain credit rating for ~€1.2bn bonds
-  North-Sea gas upstream asset (>€4bn), commercial buy side advisor for successful bidder

To discuss how we could help you, please contact  
**Felix Chow, Head of Commissioned Projects**



[felix.chow@auroraer.com](mailto:felix.chow@auroraer.com)

+44 (0)7941 519095