To Beta or not to Beta? Attracting investment in UK offshore wind through power price stabilisation

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Contents

- Why hurdle rate assumptions are important for UK offshore wind
- What might we expect of investor hurdle rates?
- Theory versus practice: Investing in offshore wind under policy uncertainty
Offshore wind is the most significant low carbon source of power generation in the UK, and plans are in place to grow this resource.

UK has the most favourable conditions for offshore wind power generation in Europe and possibly in the world.

3GW of offshore wind are already operating and a further 10GW are in the pipeline. The government is hoping that by 2020 some 8-16 GW will be operational.

Source: European Environment Agency

Source: RenewableUK and DECC
The UK government has supported offshore wind through the RO, but is now planning to change the support model to a more revenue-centric mechanism.

**Renewables Obligation (RO)**

- Renewable Electricity producer
- Wholesale Power market
- Electricity supplier
- DECC

**Contracts for Difference (CfD)**

- Renewable Electricity producer
- Wholesale Power market
- Electricity supplier
- DECC

**Financial Flows**
- £ (Financial flows)
- MWh (Electricity flows)

**Electricity Flows**
- MWh

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**ROCs / MWh**

**PPA**

**OFGEM**

**ROC banding**

**CfD payments (£/MWh)**

**Strike prices**
Beneath the change of type of support are several other differences

<table>
<thead>
<tr>
<th>Type of support</th>
<th>Renewables Obligation (RO)</th>
<th>Contracts for Difference (CfD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible generators receive <strong>RO certificates (ROCs)</strong> that can be sold to suppliers (who are required to meet the obligation).</td>
<td>Eligible generators receive a <strong>top up on the wholesale power price</strong> up to a predetermined “strike price”</td>
<td></td>
</tr>
<tr>
<td>Reception of support</td>
<td>ROCs received for actual electricity generated, no prior “allocation”</td>
<td>Allocation occurs early in the project lifecycle (before construction)</td>
</tr>
<tr>
<td>Support “counterparty”</td>
<td>Supplier purchasing the ROC</td>
<td>Government’s “CfD Counterparty”</td>
</tr>
<tr>
<td>Duration of support</td>
<td>20 years</td>
<td>15 years, if “Long Stop Date” not exceeded.</td>
</tr>
<tr>
<td>Duration of the scheme</td>
<td>Started in 2002, will cease new accreditations from 2017. Will support accredited capacity up to 2037.</td>
<td>Starts in 2014.</td>
</tr>
<tr>
<td>Transition period</td>
<td>Between 2014-2017, projects will be able to choose between the RO and the CfD</td>
<td></td>
</tr>
</tbody>
</table>
The majority of currently planned offshore wind project Financial Investment Decisions (FID) will happen during the RO-CFD transition period.

- **2014**: CFD regime starts
- **2017**: No more new RO accreditations

### Expected project timelines

- **2014**: CFD regime starts
- **2017**: No more new RO accreditations

### Reference:
- **Source**: DECC
- **Source**: RenewableUK
A key component of the CFD is how strike prices are calculated

“DECC’s approach to strike prices in 2014/15 – 2016/17 is based on “RO minus X”, where ‘minus X’ reflects the assumption that the required hurdle rate is lower under the CfD than under the RO, [...] ensuring that investors face similar incentives between the Renewables Obligation (RO) and CfD regimes”

Following from the “minus-X” lower hurdle rate assumption, CfD strike prices are set to make a project NPV-neutral between the two instruments.
The assumption on the hurdle rate required by investors is a key determinant of effective support levels and is backed by solid economic principles.

Economic rationale for assuming a lower hurdle rate under the CFD:

1. Fixed revenues means correlation of earnings and market portfolio is reduced (i.e. lowers asset beta in CAPM)
2. Higher and stable guaranteed revenue levels may mean increased scope for higher gearing though improved DSCRs for lenders
3. Could other risk factors introduced by the policy could mitigate the cost of capital reduction scope of the two effects above?

\[
\text{WACC} = (g)r_{\text{debt}} + (1-g)r_{\text{equity}}
\]

Where:
- \( g \) = gearing
- \( r_{\text{debt}} \) = return on debt
- \( r_{\text{equity}} \) = return on equity

The relative impact of each of these effects could differ significantly.
Analysis: Risk reduction from power prices is important but not the only consideration

Risks to discounted cash flow of a hypothetical offshore wind project based on Monte Carlo simulation

ROC

Power Price Risk

Other Risk

Total

CfD

Power Price Risk

Other Risk

Total

Power price risk includes balancing risk

Source: NERA Analysis

Figures show the 5% and 95% percentile of discounted cashflows from a hypothetical offshore wind farm, assuming (1) Price risk (incl. balancing/basis) only (2) Other risk only (mostly volume risk) and (3) All modeled sources of risk
For the CFD to be an effective driver of new investments, it must make projects bankable AND attract funds from new capital pools and/or investor types.

**Risk types**

- Development risk
- Construction Risk
- Market, Credit risks
- Operational risks

**Capital Structure**

Investment banks

Utilities and Energy companies

Project developers

Specialised PE and Infrastructure funds

Generation Equipment manufacturers

Other PE and Infrastructure funds

Specialised institutional investors

Other institutional investors

Pension funds

**Key**

<table>
<thead>
<tr>
<th>Existing</th>
<th>Potential</th>
</tr>
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<tbody>
<tr>
<td>Debt</td>
<td>Debt</td>
</tr>
<tr>
<td>Equity</td>
<td>Equity</td>
</tr>
</tbody>
</table>

* Scope for each actor type is illustrative and varies across different capital firms of a same type.
Analysis: simulations suggest that the hurdle rate assumption is a significant determinant of the strike price level.
How has the market responded so far?

Some news appears to be negative…
How has the market **REALLY** responded so far?

- Industry responded to DECC consultation over H2 2013
- Market news and industry statements revealed a mixed bag of support
- Some widely quoted public reports (Brodies) suggested there are additional risks that **COULD** offset the benefits of power price stabilisation, such as:
  - Construction delay risk
  - Allocation risk
  - Basis risk
  - ...and some others
- NERA recently supported DECC in reviewing its cost of capital assumptions, in a study due to be published alongside the Delivery Plan

Following DECC’s consultation process, final strike prices were published last week (Dec. 4) with slight upwards improvement in strike prices for offshore wind, a move that has so far been well received by the industry....
Market reactions to new CFD strike prices

Brent Cheshire, DONG Energy UK Chairman said: "We welcome the announcements from the Government on the FID-Enabling process and the strikes prices today. This is a concrete step in the right direction from the Government towards fulfilling the next phase of offshore wind development in the UK. The strong commitment to offshore wind demonstrated by the Government today gives us the confidence to move forward with our future pipeline of projects."

RenewableUK’s Deputy Chief Executive Maf Smith said: "We welcome the fact that the Government has heeded the wind industry’s call for a more realistic level of financial support for offshore wind. It sends an important political signal that the Government recognises the need to back this sector; if we are to attract big wind turbine manufacturers to the UK to open up factories creating tens of thousands of jobs. The Chief Secretary to the Treasury Danny Alexander said today he wants at least 10 gigawatts of offshore wind installed by 2020, trebling current capacity. Industry can deliver this and more."

Statkraft welcomes update on UK strike prices and contract terms

… but others suggest the industry is satisfied with the new mechanism
Conclusions

- CFD price stabilisation has the potential to attract new investor types into the development of UK offshore wind infrastructure.

- The CFD mechanism introduces other types of risk that could offset some of the risk reduction gains from price stabilisation.

- Although still early days, industry has reacted positively to the revised level of support from the UK government.

- Key question outstanding: will new sources of finance (providing for a lower WACC) be effectively drawn in by the new mechanism?
Thank you.

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