

Offshore transmission developers,  
interconnector developers, and other  
interested parties

Direct Dial: 020 7901 3913  
Email: martin.namor@ofgem.gov.uk

Date: 30 May 2019

Dear stakeholders

**Decision on Interest During Construction (IDC) rates to be applied during 2019-20 to offshore transmission projects and electricity interconnectors granted the cap and floor regime.**

**1. Our decision**

This letter sets out our decision on the specific Interest During Construction (IDC) rates that will apply to those offshore transmission projects and electricity interconnectors subject to the cap and floor regime that reach Final Investment Decision (FID) during 2019-20.

The letter also provides further detail on the methodology underpinning this process. This methodology was informed by analysis from consultants Cambridge Economic Policy Associates (CEPA) and formally adopted, following consultation, in July 2018<sup>1</sup>.

Based on this methodology and an updated reference date of 31 January 2019<sup>2</sup>, we decided the following:

- Offshore transmission IDC – to set the IDC cap rate at 7.08% (pre-tax, nominal) for those offshore transmission projects reaching FID during 2019-20 (it was 6.50% for projects reaching FID in 2018-19); and
- Interconnector IDC – to set the IDC rate at 3.12% (vanilla, real-RPI<sup>3</sup>) for those cap and floor Window 2 interconnector projects reaching FID during 2019-20 (it was 2.70% for projects reaching FID in 2018-19)<sup>4</sup>.

---

<sup>1</sup> <https://www.ofgem.gov.uk/publications-and-updates/decision-calculation-interest-during-construction-idc-and-idc-rate-apply-during-201819-offshore-transmission-and-future-cap-and-floor-interconnectors>

<sup>2</sup> This is the relevant date to which the spot figures and averages used to estimate the parameters underpinning the IDC rates refer; for example, a spot yield is the yield on 31 January 2019 and a 1-year average yield is the average yield in the year finishing on 31 January 2019.

<sup>3</sup> The rate for interconnectors is reported in vanilla, real-RPI terms because the Cap and Floor Financial Model (CFFM) runs with real inputs and includes a separate tax allowance. For a like-for-like comparison of the IDC rates, please refer to Annex 1.

<sup>4</sup> IDC rates for interconnectors do not include a debt transaction cost allowance, as transactions costs are accounted for separately in the CFFM. If a transaction cost allowance was included in the IDC rates (in line with offshore transmission projects), the IDC rate in 2019-20 would be 3.26% (from 2.84% in 2018-19).

Section 3 summarises our methodology and the steps involved in setting the value of each parameter of the IDC rates. Annex 1 sets out the value of each individual parameter of the IDC rates.

## **2. Applicability of the IDC methodology for Hinkley-Seabank and other onshore transmission projects funded through the Competition Proxy Model**

In July 2018, we determined that NGET's Hinkley-Seabank (HSB) onshore electricity transmission project would be funded through a regulatory model that seeks to replicate the consumer savings that we expect would be delivered through a competitive process. We refer to this regulatory model as the 'Competition Proxy Model' (CPM). Our decision included the methodology for setting the cost of capital for HSB. This methodology was developed as part of the wider work, informed by analysis from CEPA, to harmonise the approach to setting cost of capital for new, separable and high-value onshore electricity transmission projects and the IDC methodology used for new offshore transmission and interconnector projects.

As a result, CEPA's analysis supporting the IDC methodology included the methodology that will be used to set the parameters of the cost of capital for HSB under CPM. We will be consulting on our proposed revenue allowance for HSB in the summer of 2019. This will include an update of the cost of capital ranges that result from the methodology for HSB, and our view on where in these ranges we propose HSB's rates should be set. The rates for HSB have therefore not been included in this letter.

Since making our decision to apply CPM to HSB, we have proposed the further use of CPM as the delivery model for three potential onshore transmission links with the Scottish Isles (Orkney, Western Isles and Shetland<sup>5</sup>). As specified in the relevant consultation documents for these projects, we have proposed a cost of capital methodology that is built up from aspects of the IDC methodology for both interconnectors and offshore transmission projects.

Following consideration of consultation responses, we expect to confirm separately the delivery model that we intend to be used to fund delivery of each of the Scottish Isles projects, in the event that final approval of each project need is confirmed. If we confirm our intention to apply CPM, we expect at the time to include an updated indicative cost of capital range under CPM, based on the updated figures in this letter.

If we apply CPM, we will not set the finalised cost of capital ranges, nor our proposed rates within these ranges, until the conditionality attached to the needs case for each project has been met, and we have assessed the final cost estimates for each project. Based on the dates referenced in the relevant consultation documents, we do not expect this will take place before the first quarter of 2020 at the earliest.

## **3. Overview of our IDC methodology**

This section summarises the methodology introduced in July 2018 for each parameter of the IDC rates, and the steps involved in setting the value of the parameter for 2019-20. It also sets out clearly where we have refined the process to make it more robust and transparent.

---

<sup>5</sup> Orkney: <https://www.ofgem.gov.uk/publications-and-updates/orkney-transmission-project-consultation-final-needs-case-and-potential-delivery-models>

Western Isles: <https://www.ofgem.gov.uk/publications-and-updates/western-isles-transmission-project-consultation-final-needs-case-and-delivery-model>

Shetland: <https://www.ofgem.gov.uk/publications-and-updates/shetland-transmission-project-consultation-final-needs-case-and-delivery-model>

The IDC rate is the rate of return that developers of offshore transmission assets and interconnectors are allowed to earn during the construction phase. It is calculated as a weighted average of cost of debt and cost of equity allowances, with weights based on a notional gearing level:

$$IDC\ rate = Cost\ of\ Debt * Gearing + Cost\ of\ Equity * (1 - Gearing)$$

The cost of debt is estimated as follows:

- Offshore transmission: sum of a yield and a transaction cost allowance; and
- Interconnector: yield only (as transaction costs are accounted for separately under the cap and floor regime).

The cost of equity is calculated using the Capital Asset Pricing Model (CAPM):

$$Cost\ of\ Equity = Risk\ free\ rate + Equity\ beta * (Total\ market\ return - Risk\ free\ rate)$$

The equity beta used in the CAPM calculation is derived by re-gearing the assumed asset beta using the notional gearing level.

The IDC rates are first calculated in nominal terms and on a 'vanilla' basis (combining pre-tax cost of debt and post-tax cost of equity). These rates are then deflated from nominal to real terms using both the Retail Price Index (RPI) and Consumer Price Index (CPI) inflation measures.

Where required, a pre-tax IDC rate is calculated as a weighted average of pre-tax cost of debt and pre-tax cost of equity. The pre-tax cost of debt is the input already used in the vanilla calculation outlined above; the pre-tax cost of equity is calculated by dividing the post-tax cost of equity used in the vanilla calculation by one minus the relevant corporation tax rate (currently 19%).

The remainder of this section provides an overview of our approach to setting the value of each parameter of the IDC rates.

Relative to 2018-19 values, the values of three of these parameters (debt yields, risk-free rate and total market return) have changed, while the values of all other parameters (transaction costs, asset beta, gearing and inflation) have remained the same.

#### Cost of debt – Yield

The yield component of the cost of debt is set based on the spot and 1-year average yields on three iBoxx GBP bond indices:

- A-rated Non-Financial Corporate (primary benchmark);
- BBB-rated Non-Financial Corporate (primary benchmark); and
- Infrastructure (secondary benchmark used as a cross-check).

The tenor of the indices is selected to match the approximate average length of the construction period of the different assets:

- Offshore transmission: tenor of 1-3 years, reflecting average construction period of 2 years; and
- Interconnector: tenor of 3-5 years, reflecting average construction period of 4 years.

To set the debt yields for the 2019-20 IDC rates, the underlying spot and 1-year average yields have been estimated using an updated reference date of 31 January 2019.

Relative to last year, we have also refined our approach to setting the bottom and top end of the ranges, making this process more mechanistic and therefore more easily traceable and replicable.

We have set the bottom end of the ranges as a weighted average of the spot and 1-year average yields on the A-rated Non-Financial Corporate index, with weights of two thirds and one third respectively.

Similarly, we have set the top end of the ranges as a weighted average of the spot and 1-year average yields on the BBB-rated Non-Financial Corporate index, with weights of two thirds and one third respectively.

We have used the yields on the Infrastructure index as a cross-check, to ensure that these yields fell between those on the A-rated index and those on the BBB-rated index.

The reason for using the Non-Financial Corporate indices as primary benchmarks and the Infrastructure index only as a cross-check is that, for the first two, a breakdown by both tenor and rating is available, while for the third only a breakdown by tenor (and not by rating) is available.

As a result of using an updated reference date and refining the process of choosing bottom and top end of the ranges, the debt yields set for 2019-20 have changed from those in the previous year.

#### Cost of debt – Transaction costs

The overall transaction cost allowance for offshore transmission projects and interconnectors includes two components: direct debt financing transaction costs and cost of carry<sup>6</sup>.

Direct debt financing transaction costs are estimated by applying an uplift to the transaction costs typically assumed for network price controls, reflecting the need to amortise costs over a shorter period of time.

The cost of carry is calculated based on the assumption that:

- The funds borrowed would be drawn down upfront and spent uniformly throughout the construction period; and
- Unused deposits would earn a return broadly in line with 6-month GBP Libor.

In setting debt transaction costs for 2019-20, we have updated the analysis with a reference date of 31 January 2019, and found that the range used in 2018-19 remains appropriate and does not need to change.

#### Cost of equity – Risk-free rate

The risk-free rate is set based on spot, 20-day average and 1-year average yields on the 5-year UK Gilt.

---

<sup>6</sup> The cost of carry is the net cost incurred between the time when money is borrowed and the time when it is spent, and is calculated as the difference between the interest paid to borrow that money and the interest earned holding that money in a deposit until it needs spent.

In updating the risk-free rate range for the 2019-20 IDC rates, we have updated the analysis using a reference date of 31 January 2019, and updated the range accordingly.

#### Cost of equity – Total market return

In CEPA's report on the cost of capital for new assets<sup>7</sup>, which supported the IDC methodology published in July 2018, CEPA estimated a TMR range that was different from their proposed range for RIIO-2<sup>8</sup>. This reflected their view that the shorter investment horizon and one-off nature of these assets supported assigning greater weight to short-term market expectations and forward-looking approaches than to long-run trends. However, in practice, we recognize that capturing market expectations robustly can be challenging.

To inform our policy decisions for the RIIO-2 price controls for regulated networks<sup>9</sup>, we undertook a thorough review of TMR and published our proposed methodology and range in May 2019, as part of the Finance Annex to the RIIO-2 Sector Specific Methodology<sup>10</sup>. This range was determined using a wide pool of evidence, including both historical averages and forward-looking measures, and following an extensive consultation exercise. The findings of this review were not available to us when we set the IDC rates for 2018-19.

Given the complexity in estimating TMR, and the significant work undertaken for RIIO-2, we have concluded that it is appropriate to align our approaches, and use the same range to set the allowed cost of capital for regulated networks and the IDC rates applying to new assets. Therefore, we have decided to use this range to set IDC rates for 2019-20<sup>11</sup>.

#### Cost of equity – Asset beta

The baseline asset beta range is derived using two sets of comparators:

- Low end of the range (lower risk): Scottish Transmission Operators (TOs) during RIIO-1 (due to these TOs having a particularly capital-intensive investment programme in RIIO-1); and
- High end of the range (higher risk): eleven construction and engineering (C&E) firms trading with sufficient liquidity (bid-ask spread of less than 2%) on the London Stock Exchange.

The low end of the baseline asset beta range is set just above the asset beta of Scottish TOs during RIIO-1.

For C&E firms, raw equity betas are derived from market data and de-g geared into asset betas based on the firms' net debt position and market capitalisation (all relevant financial data is downloaded from Bloomberg): the average of these asset betas across the eleven firms and over the previous 5 years informs the high end of the baseline asset beta range.

---

<sup>7</sup> CEPA, [Review of cost of capital ranges for new assets for Ofgem's networks division](#), July 2018

<sup>8</sup> CEPA, [Review of cost of capital ranges for Ofgem's RIIO-2 for onshore networks](#), February 2018

<sup>9</sup> RIIO-T2 covering electricity and gas transmission and RIIO-GD2 covering gas distribution; both will apply to the regulatory control period 2021-26.

<sup>10</sup> [https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2\\_sector\\_specific\\_methodology\\_decision\\_-\\_finance.pdf](https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_finance.pdf)

<sup>11</sup> In the Finance Annex to the RIIO-2 Sector Specific Methodology, the TMR range (6.25% to 6.75%) is presented in real terms relative to CPIH inflation, with CPIH forecast to be equal to CPI. Applying the Fisher formula and the CPI inflation assumption used to set IDC rates (2%) to this range returns a nominal TMR range of 8.38% to 8.88%, as  $(1+6.25\%) * (1+2.00\%) - 1 = 8.38\%$  and  $(1+6.75\%) * (1+2.00\%) - 1 = 8.88\%$ .

Uplifts are then applied to the baseline range to reflect additional riskiness relative to the baseline scenario<sup>12</sup>, for example due to additional exposure to the marine environment:

- Offshore transmission: no uplift at the low end, 0.05 uplift at the high end; and
- Interconnector: 0.05 uplift at the low end and 0.10 uplift at the high end.

As explained at the start of this section, asset betas are then re-gearred into equity betas using the notional gearing level.

In setting equity betas for the 2019-20 IDC rates, we have updated the analysis with a reference date of 31 January 2019, and found that the ranges used in 2018-19 remain appropriate and do not need to change.

### Gearing

The notional gearing level is derived looking at two sets of comparators:

- Lower gearing: the same eleven C&E firms used to estimate the top end of the asset beta range; and
- Higher gearing: a sample of comparable infrastructure projects delivered within a regulated environment.

C&E firms are considered to be more exposed to risk (and therefore unable to take on high levels of debt) due to the lack of regulatory protection; this protection is available to the regulated infrastructure projects, which therefore are considered to carry less risk and be able to take on higher levels of debt.

The notional gearing is set broadly in line with the average between the gearing levels of these two sets of comparators.

In setting gearing for the 2019-20 IDC rates, we have reviewed this value and cross-checked it against the gearing levels used in previous decisions concerning cap and floor interconnectors (Nemo, NSL, IFA2), and found that the value used in 2018-19 remains appropriate and does not need to change.

### Inflation

To convert ranges from nominal to real, we use two inflation assumptions, one for the Retail Price Index (RPI) and one for the Consumer Price Index (CPI).

Although the IDC rates for offshore transmission projects and interconnectors are set, respectively, in nominal and RPI-real terms, CPI-real ranges are also provided in Annex 1 for comparability against other regimes.

The RPI assumption is set based on spot and 1-year average 5-year breakeven inflation (which is the inflation assumption implied in the difference between nominal and real 5-year UK Gilt yields).

The CPI assumption is set based on:

- Average of CPI forecasts from Office for Budget Responsibility, Bank of England and HM Treasury's survey of independent forecasters; and

---

<sup>12</sup> Detail of the overall relative riskiness analysis was provided by CEPA in the report that informed our methodology to set IDC rates in 2018-19:

[https://www.ofgem.gov.uk/system/files/docs/2018/07/cepareport\\_newassets\\_july2018\\_final.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/07/cepareport_newassets_july2018_final.pdf)

- Estimates of historical RPI-CPI wedge from Bank of England, Pension Protection Fund and Moody's, deducted from the RPI assumption determined as described above.

In setting our RPI and CPI inflation assumptions for the 2019-20 IDC rates, we have updated the analysis with a reference date of 31 January 2019, and found that the assumptions used in 2018-19 remain appropriate and do not need to change.

If you have any questions on this decision or would like more information, please contact Martin Namor, Senior Manager, Regulatory Finance ([martin.namor@ofgem.gov.uk](mailto:martin.namor@ofgem.gov.uk)).

**Yours sincerely,**



**Cathryn Scott**

**Director, Wholesale Markets & Commercial**

## Annex 1: Value of input parameters of IDC rates

The table below sets out the values at the low and high end of the ranges that we have set for each parameter of the IDC rates for offshore transmission projects and electricity interconnectors subject to the cap and floor regime.

Parameter	Offshore transmission		Interconnector	
	Low	High	Low	High
Debt yield	1.65%	2.20%	1.75%	2.50%
Transaction costs	0.25%	0.50%	-	-
Cost of debt	1.90%	2.70%	1.75%	2.50%
Risk-free rate	0.90%	1.05%	0.90%	1.05%
Total market return	8.38%	8.88%	8.38%	8.88%
Asset beta	0.45	0.70	0.50	0.75
Gearing	37.5%	37.5%	37.5%	37.5%
Equity beta	0.72	1.12	0.80	1.20
Cost of equity	6.29%	9.82%	6.88%	10.45%
Vanilla WACC	4.64%	7.15%	4.96%	7.47%
RPI	3.00%	3.00%	3.00%	3.00%
CPI	2.00%	2.00%	2.00%	2.00%
RPI-real vanilla WACC*	1.59%	4.03%	<b>1.90%</b>	<b>4.34%</b>
CPI-real vanilla WACC	2.59%	5.05%	2.90%	5.36%
Tax rate	19.0%	19.0%	19.0%	19.0%
Pre-tax cost of equity	7.76%	12.12%	8.50%	12.90%
Pre-tax WACC**	<b>5.56%</b>	<b>8.59%</b>	5.97%	9.00%
RPI-real pre-tax WACC	2.49%	5.43%	2.88%	5.82%
CPI-real pre-tax WACC	3.49%	6.46%	3.89%	6.86%

\*The IDC rate for interconnectors presented on page 1 of this letter (3.12%) is the mid-point of the 1.90% - 4.34% real-RPI vanilla WACC range (excluding debt transaction costs, as these are accounted for separately under the cap and floor regime; if transaction costs were included, the range would be 1.99% - 4.52% and the mid-point 3.26%).

\*\*The IDC rate for offshore transmission projects presented on page 1 of this letter (7.08%) is the mid-point of the 5.56% - 8.59% nominal pre-tax WACC range.