Interest During Construction

A report for Ofgem for UK Transitional Round 1 Offshore Transmission Assets

30 March 2010

Ernst & Young LLP

ERNST & YOUNG

Private and confidential
Ofgem
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30 March 2010

Dear Sir

Ofgem – Interest during construction for UK Transitional Round 1 offshore transmission assets

In accordance with our agreement dated 14 January 2009 and the Contract Task Order dated 4 February 2010 we have prepared our report in relation to interest during construction for UK Transitional Round 1 offshore transmission assets.

Purpose of our report and restrictions on its use

This report was prepared on your instructions solely to consider whether it is reasonable to adopt a cap for developer returns for UK Transitional Round 1 offshore transmission assets and an appropriate range for developer returns. Because others may seek to use it for different purposes, this report should not be quoted, referred to or shown to any other parties unless so required by court order or a regulatory authority, without our prior consent in writing. In carrying out our work and preparing our report, we have worked solely on the instructions from Ofgem and for Ofgem's purposes.

Our report may not have considered issues relevant to any third parties. Any use such third parties may choose to make of our report is entirely at their own risk and we shall have no responsibility whatsoever in relation to any such use. We understand that Ofgem will disclose this report to the developer of the transmission assets and to the preferred bidder for the transmission assets. We consent to that disclosure on the basis that Ernst and Young LLP assumes no responsibility to any user of this report other than Ofgem and any other person that chooses to rely on it does so entirely at their own risk.

Where you are subject to the Freedom of Information Act 2000 (the "FOIA"), you agree that if you receive any request under the FOIA for disclosure of any information which includes information provided by us to you, you will promptly notify us in writing and prior to any such disclosure.

Scope of our work

Our work in connection with this assignment is of a different nature to that of an audit. Our report is based on information provided by Ofgem. We have not sought to verify the accuracy of the data or the information provided. In addition we have had no direct contact with the developers. Please note we have considered whether it is reasonable to apply a cap to the developer returns and not a rate to be applied to all developers.

Our work is based on the following:

- a review of the submissions made by the developers provided to us by Ofgem

- a review of background material from Ofgem related to interest during construction
- our own independent research and analysis

We appreciate the opportunity to provide Ernst & Young's advisory services.

Yours faithfully

Ernst and Young LLP

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1. Executive summary

1.1 Background

In March 2007, the UK Government ('Government') announced its decision to adopt the non-exclusive approach of a common tender for licensing offshore electricity transmission. Following this decision, Government and Ofgem have consulted widely on the details of a competitive tender process to award licences for Offshore Transmission Operators ('OFTO's) for each offshore-wind generation project.

A small number of projects were already in construction when this decision was made, or had entered the construction phase before the arrangements for the OFTO tender process were completed. It has therefore been necessary to develop a transitional tender process to award OFTO licences in respect of these projects. The transitional tender process identifies a regulatory asset value which includes construction costs, development costs and the costs of finance during the construction phase.

As part of the work to set-up the transitional tenders, Ofgem has entered into dialogue with developers in order to establish the appropriate level of Interest During Construction ('IDC') for each project. This dialogue has indentified a very wide range of views between developers and thus as part of their consideration, Ofgem has commissioned Ernst & Young LLP to consider whether it is reasonable to adopt a cap for the rate of interest used to calculate IDC and to make a recommendation of an appropriate rate of interest range.

1.2 Methodology

At the time funding commitments were being made for the projects in the transitional tender process, there was no certainty over the nature of the regulatory regime and the future income stream for OFTOs. As a result, developers were not able to differentiate between the generation and transmission elements of the projects, and they did not have certainty as to how they would be able to recover financing costs.

Given these circumstances, we believe it would not be appropriate to view financing costs as similar to the cost of funding working capital as this would effectively mean the retrospective imposition of an ex-post view of risks and uncertainties. We believe that the appropriate rate should reflect the opportunity cost of capital prevailing at the time of commitment, with suitable adjustment to reflect the return required to compensate for the specific risks of investing in the UK offshore wind sector.

On the basis of the above we have assessed the appropriate level of IDC by determining each component of the pre-tax nominal Weighted Average Cost of Capital ('WACC') by reference to market observable cost of capital parameters and adjusted where necessary. We cross-checked the rate derived under this approach by comparison to observed returns set by regulators in price determinations of less risky but comparable sector assets.

1.3 Conclusions

On the basis of the information provided, there are reasonable grounds to justify a regulatory intervention on IDC costs.

The principle argument supporting the adoption of a capped rate arises directly from Ofgem's primary duty to protect current and future customers. Under the enduring tender processes, IDC costs will be subject to competitive pressures. However, the unavoidable timing of the transitional tender process means that the tender competition does not impact on IDC costs.

Given the wide range of responses from developers, it is difficult for Ofgem to be confident that the variation in rates can be explained by the underlying economic factors. The use of an appropriate specified cap will avoid the need for continued dialogue and should help build momentum in offshore wind development.

The potential downsides such as distortions to the enduring tender process or a reduction in investor appetite have also been considered, but providing the cap is appropriate such concerns should not be significant. There also appear to be reasonable grounds to argue that a cap is consistent with the principles of better regulation.

Based on the information provided to us by Ofgem, including developer submissions, background material from Ofgem, our own independent research and analysis and taking into account the circumstances surrounding the investments made in the UK Transitional Round 1 offshore transmission assets we conclude that the appropriate range for developer returns to calculate IDC is **9.4%** to **10.8%** on a pre-tax nominal WACC basis. This range is based on a historic analysis over the past five years.

1.4 Limitations

This paper considers the market evidence relating to a cap for an appropriate return for financing that may have been incurred for the UK Transitional Round 1 projects. We propose an appropriate range for a cap to be applied to the level of return for IDC requested by developers for these projects. Our analysis provides, in our opinion, a reasonable range for a cap to be applied to the level of return for IDC based on market evidence.

We note that individual developers are required to submit their actual OFTO financing costs as part of Ofgem's cost assessment and this level of return may fall below this proposed range. Therefore we have opined on whether it is reasonable to apply a cap to the developer returns and not a rate to be applied to all developers.

Our report to you is based on information provided to use by Ofgem. We have not sought to verify the accuracy of the data or the information provided. In addition we have had no direct contact with the developers.

2. Introduction

In March 2007, the Government announced its decision to adopt the non-exclusive approach of a common tender for licensing offshore electricity transmission. Following this decision, Government and Ofgem have consulted widely on the details of a competitive tender process to award licences for OFTOs for each offshore-wind generation project. The details of this consultation process are set out on the relevant pages of the Ofgem website.

A small number of projects were already in construction when this decision was made, or had entered the construction phase before the arrangements for the OFTO tender process were completed. It has therefore been necessary to develop a transitional tender process to award OFTO licences in respect of these projects. This differs from the enduring tender process in that the construction of the offshore transmission line has been procured and undertaken by the wind-farm developer. The transitional tender process therefore provides for interested parties to bid for a future income stream to cover the asset value of the completed offshore cables, and a payment for this asset value from the successful OFTO bidder to the developer. Under the enduring tender process, the construction of the offshore cables will be the responsibility of the winning OFTO bidder and hence there will be no need for a payment to the wind-farm developer in respect of the asset value.

The transitional tender process identifies a regulatory asset value which includes construction costs, development costs and the costs of financing during the construction phase. Since most wind-farms are constructed over more than one year, the construction phase can take some time and hence financing costs are material.

As part of the work to set-up the transitional tenders, Ofgem has entered into dialogue with developers in order to establish the appropriate level of IDC for each project. This dialogue has identified a very wide range of views, partially explained by developers assuming financing from 100% debt to 100% equity with some using weighted averages. However as a result of this wide range and relative absence of requested supporting evidence from the developers Ofgem has become concerned as to whether some of the proposed rates can be reconciled with a view as to what an efficient company following an efficient financing approach should be able to achieve. Ofgem has therefore considered the possible need for some form of regulatory intervention in order to protect customers.

As part of their consideration, Ofgem has commissioned Ernst & Young LLP to consider whether it is reasonable to adopt a cap for the rate of interest used to calculate IDC and to make a recommendation as to an appropriate range of interest rates.

3. Appropriateness of interest rate cap

3.1 Arguments surrounding adoption of a cap on rate of IDC

The principle argument supporting the adoption of a capped rate flows directly from Ofgem's primary duty to protect current and future customers.

In the enduring OFTO tender processes, financing costs during the period of construction will be an element of the bids submitted by potential OFTOs and will therefore be subject to competitive pressures. Ofgem can be confident that if an inefficient financing cost were to be included, other things being equal, this bid would not be successful.

In contrast, the unavoidable timing of the transitional tender process means that the financing costs incurred during construction have already been committed. Subject to the timing of the individual projects, they may also have been substantially incurred. These costs are therefore included in the regulatory asset value used by bidders in the transitional tender process to identify the level of future revenue that they require. Since this value will be the same for all bidders, the competition from the tender process cannot impact on these costs. In the absence of this competitive discipline, Ofgem needs to consider alternatives to make sure that its duties in respect of customer protection are satisfied.

Ofgem has requested information from the project developers on the rate of interest that is appropriate to the circumstances of their project. The responses received from the developers show a substantial degree of variation.

Some degree of variation in responses could be expected given differences between the projects. The timing with which commitment decisions were made and the mix of debt and equity funding employed would be expected to have an impact on the funding cost available to developers. Recognising that offshore wind development in the UK is also a new area and that the full details of the OFTO policy regime may not have been available to developers at the time of commitment, it is also possible that developers will have taken different views on the appropriate level of risk premium that should be applied to these projects. However, the range of responses is such that it is difficult for Ofgem to be confident that the variation in rates can be explained by these factors. In these circumstances, there is at least a prima facie case for Ofgem to consider some form of cap in order to protect customers against the adverse financial impacts of developers having followed inefficient financing strategies or proposing rates higher than justified by the underlying circumstances.

In addition to this principle concern, Ofgem must also have regard to the importance of the development of offshore wind generation to meet the UK's substantial carbon reduction commitments for 2020. Ofgem could seek to discharge its duties for customers by entering into dialogue with developers on the circumstances of their projects and the appropriate IDC rates to apply. However, such an approach would reduce the attractiveness to invest in UK offshore wind, risk delay to the build up of momentum in offshore development and potentially increase the risk of the 2020 carbon reduction targets not being met.

3.2 Possible arguments against the imposition of a capped rate of IDC

In addition to considering the arguments in favour of any regulatory intervention, it is also important to consider whether there are potential downsides. While it is possible to identify a number of potential concerns in this case, there appear to be strong grounds to reject all of these concerns.

1. *Causes distortions to the current transitional OFTO tender process* – since the IDC is an element of the parameter RAV ('Regulated Asset Value') parameter that is common to all tenderers for the OFTO roles, the use of a cap should not impact on the effectiveness or outcome of the transitional tenders;

2. *Causes distortions to the future enduring OFTO tender processes* – construction and financing costs will be part of the future competitive bids and hence will be subject to competitive pressures;

3. *Reduces investor appetite for future offshore wind development or participation in OFTO tender processes* – providing the level of cap is set appropriately commensurate with the risks and funding circumstances prevailing, the cap should be in-line with market expectations. If future circumstances indicate a lower or higher financing cost is required, the competitive bidding process should result in the appropriate adjustment;

4. *Application of a cap represents retrospective regulation* – the timing factors inevitably mean that the information on funding rates is being supplied "after the event". This is unavoidable in the unique circumstances of the transitional tenders but providing the level of the cap reflects circumstances prevailing at the time that funding was committed, the cap should not result in an ex-post view of risks being imposed.

5. *Application of a cap is inconsistent with principles of better regulation* – while recognising that there is always a degree of subjectivity in the assessment of an regulatory intervention against the five principles, there are reasonable grounds to argue that this intervention is compliant with these principles:

    a. *Transparency* – Ofgem have been in regular dialogue with developers and the proposed cap provides a transparent outcome for other stakeholders;

    b. *Accountability* – the analysis in this paper provides an explanation of why Ofgem has considered a regulatory intervention and the supporting evidence used;

    c. *Proportionality* – the need for an intervention arises from the unavoidable timing of the transitional tender process and the wide variation in the proposed rates of interest proposed by different developers;

    d. *Targeting* – this intervention applies only to this specific element of costs and as noted above, does not impact on the competitive nature of the transitional or enduring tenders;

    e. *Consistency* – the cap is applied only to those developers whose proposed rate of interest exceeds this level and the approach is also consistent with that used on development costs which were subject to a benchmark.

4. Calculation of an appropriate range for IDC

4.1 Approach

For an interested party currently considering a possible bid for an OFTO project under the enduring tender process, there is clarity over both the regulated nature of the future income stream and the treatment of financing costs during the construction period. As such, it is reasonable to expect that the financing costs would be viewed as short-term in nature and similar to the "carry cost" of any working capital.

It is however, important to recognise that at the time funding commitments were being made for the projects in the transitional tender process, there was no certainty over the nature of the regulated regime and the future income stream for OFTOs. Details such as the appropriate treatment of financing costs had not yet been considered. As a result, developers were not able to differentiate between the generation and transmission elements of the projects, and they did not have certainty as to how they would be able to recover financing costs. There were also few precedents for these sorts of projects, and as a result, the level of uncertainty surrounding future costs and revenues was greater than normal.

Given these circumstances, it would be inappropriate to view financing costs as similar to the cost of funding working capital as this would effectively mean the retrospective imposition of an ex-post view of risks and uncertainties. We believe that the appropriate rate should reflect the opportunity cost of capital prevailing at the time of commitment, with suitable adjustment to reflect the return required to compensate for the specific risks of investing in the UK offshore wind sector.

Key considerations in our assessment of the approach for determining an appropriate range for IDC includes but is not limited to the following:

- We understand it is likely that the developers of the offshore electricity transmission assets undertook the investment on the basis of a long life integrated project, of say 15 years or longer, comprising both the generation and transmission assets. The key projects have a range of approval dates but the likelihood is that typically investment analysis and board approvals would have taken place prior to the arrangements for the OFTO tender process being completed. Therefore it would appear when the project investment decisions were made there was a degree of uncertainty regarding whether the generation and transmission assets would be separated and if the separation was to occur what would be the likely regulatory regime.

- In contrast to the onshore wind power sector in the UK, the offshore wind sector is less well developed with higher regulatory/policy uncertainty and technology risks. We recognise that an investor in this sector would require compensation for these risks.

- We understand that Ofgem are permitting 'reasonable' construction / technology cost overruns to be included in the total capital cost submission and thus the IDC calculation and hence the risks highlighted above are partially mitigated.

- The European offshore wind power sector is at a relatively early stage of development and there are no listed companies which are directly comparable from which to derive market observable cost of capital parameters. In the absence of directly comparable companies it is market practice to derive cost of capital parameters from other broadly comparable sectors and adjust accordingly.

On the basis of the above we have assessed the appropriate level of IDC by determining each component of the pre-tax nominal WACC by reference to market observable cost of capital parameters and adjusting where necessary. We cross-checked the rate derived under this approach by comparison and adjustment to observed returns set by regulators in price determinations of less risky but comparable sector assets.

We set out in detail our approach in the sections that follow.

4.2 Calculation of pre-tax nominal WACC

The WACC measures a company's cost of debt and equity financing weighted by the percentage of debt and percentage of equity in a company's target capital structure. The magnitude of the discount rate is related to the perceived risk of the investment.

We note there are a number of variants to the WACC that can be adopted, particularly by regulators, in determining appropriate rates of return.

The formulae for each are set out below:

Post tax WACC		=	(kd x (1-t) x D/(D+E)) + (ke x E/(D+E))
Vanilla WACC		=	(kd x D/(D+E)) + (ke x E/(D+E))
Pre-tax WACC		=	(kd x D/(D+E)) + (ke x E/(D+E)) x 1/(1-t)
where:	kd	=	Cost of debt financing (pre-tax)
	ke	=	Cost of equity financing
	D	=	Estimated market value (or book value) of net debt
	E	=	Estimated market value of equity
	t	=	Corporate tax rate

If the WACC estimate is made and reported in nominal terms it is converted to real terms using the Fisher formula:

(1+WACC% nominal) = (1+WACC% real) * (1+ inflation rate%)

When estimating the WACC, it is important to be consistent using either nominal cost of debt and cost of equity and deflating the nominal WACC to real terms; or deflating all cost of capital parameters and computing the WACC in real terms.

We understand Ofgem wish to apply a pre-tax nominal WACC to developers' reasonable construction costs. We set out in the sections that follow our calculation of an appropriate range of pre-tax WACC for IDC.

4.2.1 Cost of equity

To estimate the cost of equity financing a capital asset pricing model ('CAPM') framework was utilised. The CAPM describes the cost of equity for a company's stock as equal to the risk-free rate plus a premium that investors expect for bearing the systematic risk inherent in the stock. Systematic risk emanates from external, macroeconomic factors, which affect all assets in a particular way albeit with different magnitudes. The size of the premium is proportionate to the degree of volatility of the company's stock versus the market portfolio.

The CAPM is expressed arithmetically by the following equation:

ke = R_f + (β x ERP)

where:

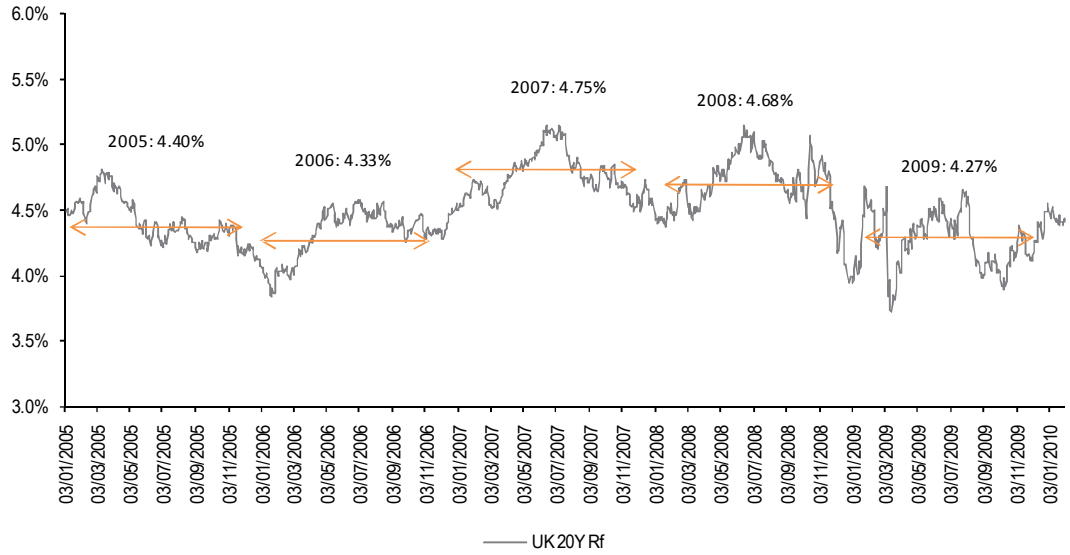
ke	=	Cost of equity financing
R_f	=	Risk-free rate of return
β	=	Beta, a measure of the non-diversifiable (i.e. systematic) risk associated with comparable company returns. It reflects market or systematic risk, as opposed to company-specific risk, that cannot be diversified away.
ERP	=	Equity risk premium

4.2.2 Risk free rate

In selecting an appropriate risk-free rate to be used for the cost of equity, we considered the yield to redemption of long-term Sterling denominated UK Government Bonds from 2005 which we summarise in the table and chart below.

Average	UK 10Y Rf	UK 20Y Rf	UK 30Y Rf
2009	3.60%	4.27%	4.29%
2008	4.49%	4.68%	4.42%
2007	5.00%	4.75%	4.51%
2006	4.50%	4.33%	4.12%
2005	4.42%	4.40%	4.34%
Average	**4.40%**	**4.49%**	**4.33%**
Median	**4.49%**	**4.40%**	**4.34%**
Min	**3.60%**	**4.27%**	**4.12%**
Max	**5.00%**	**4.75%**	**4.51%**

Source: Bloomberg



In determining an appropriate range of rate of returns, it is our view that the average yield to redemption on 20 year Sterling denominated UK Government Bonds over the 2005 to 2010 period is a suitable proxy for the risk free rate. We consider the 20 year rate should be adopted to reflect the long-term nature of the assets and that discount rate should be matched to project duration.

For the purposes of our nominal pre-tax WACC analysis we conclude on a risk free rate of 4.5%.

4.2.3 Equity risk premium

The equity risk premium ('ERP') is the extra return (over the risk free rate) which investors must expect to earn if they are to hold a portfolio of (volatile) equities rather than risk free securities. Estimation of the ERP is fraught with difficulties. It is a variable whose value cannot be directly observed. It is usually estimated by determining the ex post 'excess returns' of a market portfolio over the historic risk free rate. The value of the ERP measured in this way is sensitive to the period over which the average is measured; to whether the arithmetic or geometric mean is used and to whether the 'market portfolio' is made up of a portfolio of UK or 'global' equities. This estimation method assumes that ex post 'excess returns' are a fair reflection of the, ex ante, expected excess returns. Although the theory

assumes that the ERP is constant over time, ex post excess returns vary over time and there is evidence that suggests that the ex ante ERP varies systematically over the business cycle.

Our view on ERP is based on the observed difference between historical arithmetic mean returns on equities and government bonds for Western economies. Studies, such as those published by Credit Suisse in their Global Investment Returns Yearbook, as well as Barclays Capital's Equity Gilt Studies and Ibbotson Associates provide support for an ERP in the region of 5.0% on a long-run historical basis. We also consider the ERP used by analysts covering the UK market and rates observed being used by other UK valuation services providers.

After considering the above analysis we adopt an equity risk premium of 5% for the UK.

4.2.4 Beta

The beta is a measure of the non-diversifiable risk of an asset. It is measured as the co-variance between returns on the asset and returns on the market portfolio, divided by the variance of returns on the market portfolio. The value of the measured equity beta reflects not only business risks but also the risks induced by financial leverage. Equity betas have, therefore, to be adjusted to normalise for different gearing across companies and for the same company over time. This involves 'de-levering' the equity beta to derive the 'asset beta'. This is done using the formula:

$$\beta_{equity} = \beta_{asset} (1+D/E \times (1-t))$$

Where t is the corporate tax rate, D is the market value of net debt, E is the market value of equity, although book value is often used when market values are not available. If the formula holds across a wide range of D/E values it can be used to derive the equity beta for a company with any assumed 'notional' gearing.

Determination of appropriate Beta factor

We note that there are no listed companies in Western Europe who derive the majority of their earnings from the offshore wind power sector. We therefore extended our search to include companies that operate in the European wind energy market as well as other European energy markets but with a focus in the UK. A description of the listed companies adopted in our analysis is set out in Appendix A.

The stock betas used for each of the comparable companies were sourced from Bloomberg. In determining the suitability of stock betas, particular attention was paid to the correlation coefficient relating to the estimate. The correlation measures the level by which a company's returns track the market and a high correlation measure demonstrates a strong relationship. A degree of correlation is considered necessary for the beta measure to be reliable and explain company returns. Comparable companies with low correlation were excluded from our sample. Beta's were derived based on a regression of 2 years of weekly data or five years of monthly data against the local market index in which the company is listed. It is noted that the 5 years average seems more relevant as it is consistent with the gearing observation period.

The results of our asset beta analysis are set out in the table below.

	31/01/2010		31/01/2009		31/01/2008		31/01/2007		Average	
	2 years	5 years	2 years	5 years	2 years	5 years	2 years	5 years	2 years	5 years
TRADITIONAL ENERGY										
Centrica	0.51	0.44	0.61	0.43	0.83	0.73	0.76	0.92	0.68	0.63
E. ON	0.65	0.89	0.82	0.86	1.04	0.68	1.02	0.40	0.88	0.71
RWE	0.68	0.58	0.78	0.46	0.87	0.56	0.86	0.47	0.80	0.52
SSE	0.51	0.42	0.67	0.55	0.64	0.34	0.67	0.17	0.62	0.37
Statoil	0.76	0.74	0.86	0.81	1.03	0.79	1.17	0.60	0.95	0.73
AVERAGE	**0.62**	**0.61**	**0.75**	**0.62**	**0.88**	**0.62**	**0.90**	**0.51**	**0.79**	**0.59**
MEDIAN	**0.65**	**0.58**	**0.78**	**0.55**	**0.87**	**0.68**	**0.86**	**0.47**	**0.80**	**0.63**
RENEWABLE ENERGY										
Nordex	1.53	1.72	1.62	1.63	1.83	0.83	2.01	0.89	1.74	1.27
Gamesa	1.32	1.55	1.34	1.28	1.30	0.91	1.04	0.66	1.25	1.10
Repower	1.09	1.12	0.96	1.39	NM	NM	NM	1.24	1.03	1.25
Vestas Wind	1.32	1.54	1.57	1.55	1.86	1.65	1.40	1.50	1.54	1.56
Iberdrola Renovables	0.82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.82	N/A
Terna Energy SA	0.61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.61	N/A
AVERAGE	**1.11**	**1.48**	**1.37**	**1.46**	**1.66**	**1.13**	**1.48**	**1.07**	**1.16**	**1.29**
MEDIAN	**1.20**	**1.55**	**1.46**	**1.47**	**1.83**	**0.91**	**1.40**	**1.07**	**1.14**	**1.26**
ELECTRICITY TRANSMISSION										
Terna	0.17	0.22	0.25	0.30	0.39	N/A	0.46	N/A	0.32	0.26
Red Electrica Corporacion	0.41	0.42	0.49	0.50	0.52	0.38	0.46	NM	0.47	0.44
ITC Holdings Corporation	0.54	N/A	0.58	N/A	0.63	N/A	N/A	N/A	0.58	N/A
National Grid	0.38	0.28	0.49	0.26	0.33	NM	NM	NM	0.40	0.27
AVERAGE	**0.38**	**0.31**	**0.45**	**0.35**	**0.47**	**0.38**	**0.46**	**NM**	**0.44**	**0.32**
MEDIAN	**0.40**	**0.28**	**0.49**	**0.30**	**0.46**	**0.38**	**0.46**	**NM**	**0.44**	**0.27**

We note the following:

- Pure play electricity transmission companies whose assets are mostly regulated and cash producing are considerably lower risk than the market with 5 year asset beta's averaging 0.32 over the period analysed.

- Traditional energy companies which comprise a diversified portfolio of both regulated and unregulated businesses across different energy sectors (electricity, oil and gas) have 5 year asset betas averaging 0.59 over the period analysed.

- Renewable energy companies with a particular focus in the wind power sector, albeit predominately onshore, have a large and varied range of 5 year asset betas with an average of 1.29 over the period analysed. We note that this wider and higher range could be due to a number of factors including, but not limited to, variations in capital structure, operations that focus on manufacturing and supply of wind turbine components (e.g. Vestas, Nordex and Repower), small free float and lack of trading history (e.g. Iberdrola Renovables). In addition UK onshore wind farms are exposed to significant pre development risks such as planning consent approvals.

Of the sample set of companies above, it is our view that the appropriate asset beta applicable to offshore wind transmission assets is higher than regulated electricity transmission but considerably lower than the renewable energy sector. We would expect the asset beta applicable to offshore wind to be higher than traditional energy companies with a diversified portfolio of regulated and non-regulated assets. However we recognise that Ofgem propose mitigating technological and construction risks by allowing developers to include reasonable cost over runs in their cost submissions.

On balance, we view an appropriate asset beta to be around 0.6, and we conclude on a range of 0.5 to 0.7.

4.2.5 Tax rate

We have assumed a UK statutory tax rate of 28.0%.

4.2.6 Gearing

We note that financing in the renewable energy sector generally falls into two broad categories:

- Corporate level financing – whereby large listed parent companies lend to wholly or majority owned subsidiaries on the back of the strength of their own balance sheet and credit rating. Leverage is generally lower than that available in project finance but on average at lower cost.

- Project level finance - whereby the construction of renewable facilities is financed using bridge financing with recourse to the parent company, or sometimes using corporate credit lines. Availability of finance at project level is heavily influenced by the overall state of capital markets which have been constrained in recent years. Once the project is operational, the company will arrange a structure with a bank or group of banks that will finance the specific project on a long-term basis. Levering up an individual asset at a high level is possible given the security of operational cash flow, the inclusion of covenants that may restrict dividends if certain cover ratios are breached, and generally, because lenders may be more confident about lending to a particular asset that is pledged, than lending to the parent company (with no particular asset backing). However, project specific finance is generally at a greater cost compared to corporate level financing.

Recognising the high level of variability in capital structures we have had reference to the gearing assumed by the developers and those observed for the same peer set in the beta analysis.

We set out in the table below a summary of gearing (net debt / market cap) for the peer set for the six years ending 31 January 2010.

Net debt / Market cap	31/01/2010	31/01/2009	31/01/2008	31/01/2007	31/01/2006	31/01/2005	Average 2005 - 2010
TRADITIONAL ENERGY							
Centrica	13%	4%	6%	12%	18%	9%	10%
E. ON	64%	65%	15%	11%	-1%	18%	29%
RWE	36%	13%	1%	0%	45%	66%	27%
SSE	47%	38%	16%	17%	21%	25%	27%
Statoil	17%	13%	5%	9%	6%	15%	11%
AVERAGE	**35%**	**26%**	**9%**	**10%**	**18%**	**26%**	**21%**
MEDIAN	**36%**	**13%**	**6%**	**11%**	**18%**	**18%**	**27%**
RENEWABLE ENERGY							
Nordex	-11%	-17%	-10%	-15%	-4%	128%	12%
Gamesa	11%	-5%	2%	12%	35%	43%	17%
Repower	-8%	-1%	-12%	-18%	-7%	31%	-3%
Vestas Wind	-2%	-1%	-4%	-5%	15%	24%	5%
Iberdrola Renovables	1%	9%	5%	N/A	N/A	N/A	5%
Terna Energy SA	-13%	-32%	-20%	N/A	N/A	N/A	-22%
AVERAGE	**-4%**	**-8%**	**-7%**	**-6%**	**10%**	**57%**	**2%**
MEDIAN	**-5%**	**-3%**	**-7%**	**-10%**	**5%**	**37%**	**5%**
ELECTRICITY TRANSMISSION							
Terna	76%	73%	47%	45%	56%	45%	57%
Red Electrica Corporacion	59%	60%	45%	61%	80%	84%	65%
ITC Holdings Corporation	86%	101%	93%	74%	53%	N/A	81%
National Grid	151%	116%	83%	65%	52%	78%	91%
AVERAGE	**93%**	**87%**	**67%**	**61%**	**60%**	**69%**	**73%**
MEDIAN	**81%**	**87%**	**65%**	**63%**	**55%**	**78%**	**73%**

We note the following:

- Traditional energy companies which comprise a diversified portfolio of both regulated and unregulated assets demonstrate gearing, on average, generally in the range of 10% to 35% throughout the period of observation with an average of 21% and a mean of 27% overall. We note that this range of gearing is lower than that assumed in the historical setting of regulatory rates of return which we understand are based on calculations that exclude cash and are based on book values of equity.

- Renewable energy companies with a particular focus in the wind power sector have a large and varied range of gearing / net cash levels. Excluding 2005, on average gearing is less than 10% and in most cases are in net cash positions.

- Electricity transmission companies whose assets are mostly cash producing support a higher level of gearing, on average, generally in the range of 60% to 93% throughout the period of observation and 73% overall.

Whilst there is evidence of appetite for lending into the offshore wind sector, we understand it generally requires parent company guarantees and the satisfying of appropriate covenants. In this respect, we have adopted corporate level financing as opposed to project specific financing as the appropriate basis. We view the gearing of electricity transmission companies of 73% is higher than the upper bound of appropriate gearing due to those assets being post construction and operational. In addition we note that the assets held by these companies are typically onshore and regulated. This represents a significantly lower risk profile than the offshore wind transmission asset.

We further recognise there should be ideally consistency between the derivation of beta and gearing and therefore the range implied by the traditional energy sector of 20% to 30% is considered most appropriate.

4.2.7 The cost of debt

The cost of debt under a WACC framework comprises the risk free rate plus a debt premium. We note the cost of debt should be consistent with the level of gearing assumed. As determined above, we have assumed a level of gearing commensurate with corporate level financing and hence linked to the credit ratings of the parent companies.

We set out in the table below the average spread in yields of long dated AAA to BBB rated corporate bonds relative to the UK 20 year UK Government Bond from 2005 to end of 2009.

	AAA20Y	AA 20Y	A+ 20Y	A 20Y	A- 20Y	BBB 20Y
2009	0.83%	1.30%	1.41%	1.68%	1.81%	2.40%
2008	1.19%	1.33%	1.63%	1.77%	1.81%	2.31%
2007	0.61%	0.70%	0.95%	0.98%	1.03%	1.35%
2006	0.44%	0.50%	0.78%	0.83%	0.91%	1.36%
2005	0.51%	0.57%	0.76%	0.82%	0.84%	1.38%
Average	**0.72%**	**0.88%**	**1.11%**	**1.21%**	**1.28%**	**1.76%**
Median	**0.61%**	**0.70%**	**0.95%**	**0.98%**	**1.03%**	**1.38%**
Min	**0.44%**	**0.50%**	**0.76%**	**0.82%**	**0.84%**	**1.35%**
Max	**1.19%**	**1.33%**	**1.63%**	**1.77%**	**1.81%**	**2.40%**

Source: Bloomberg

We note that the most consistent corporate credit rating of the traditional energy peer group was (A-) over the period 2005 to end of 2009. The average range of spread for A- over the period 2005 to end of 2009 was 0.84% to 1.81%. For the purpose of our analysis we have assumed a debt spread of 1.3% (average of the A- range).

4.3 Result

On the basis of the above inputs the pre-tax nominal WACC is in the range 9.4% to 10.8%.

WACC Computation	Low	High
Risk free rate (real)	2.4%	2.4%
Risk free rate (nominal)	4.5%	4.5%
Market premium	5.0%	5.0%
Asset beta	0.50	0.70
Equity Beta	0.61	0.80
Cost of Equity	**7.5%**	**8.5%**
Risk free rate	**4.5%**	**4.5%**
Debt Premium	1.3%	1.3%
Cost of debt before tax	**5.8%**	**5.8%**
Tax rate	28.0%	28.0%
After-Tax Cost of Debt	**4.2%**	**4.2%**
Industry indebtedness (D / (D+E))	23.1%	16.7%
Industry gearing (D / E)	30.0%	20.0%
Post tax WACC	**6.8%**	**7.8%**
Vanilla WACC	**7.1%**	**8.1%**
Pre tax WACC	**9.4%**	**10.8%**

For purposes of the real risk free rate, it is widely regarded that there is a distortion in the market on long term Government bonds which have relatively low yields. The main driver of the relatively low yield on index linked bonds appears to be the high level of demand by pension funds which has driven up prices for index linked bonds and thus reduced yields. The distortion in index linked yields appears to be more pronounced for longer maturities so as an alternative we considered the historical yield to maturity on index linked 10 year Government bonds for the last 15 years. This results in an average yield to maturity of 2.4%, which we have adopted as our real risk free rate. Please note the real risk rate is presented in the table above purely for presentational purposes.

4.3.1 Cross check to other benchmarking

Set out in the table below is a summary of Ofgem regulated rates of return for electricity transmission licensees for the period April 2007 to March 2012 (TPCR4) and electricity distribution for the period April 2005 to March 2010 (DPCR 4) and the period April 2010 to March 2015 (DPCR 5).

WACC Computation	TPCR 4	DPCR 4	DPCR 5
Risk free rate (real)[1]	2.5%	3.0%	2.0%
Market premium	4.5%	4.5%	4.7%
Asset beta	0.49	0.51	0.43
Equity beta	1.00	1.00	1.00
Cost of Equity	**7.0%**	**7.5%**	**6.7%**
Debt Premium	1.3%	1.1%	1.6%
Cost of debt before tax	**3.8%**	**4.1%**	**3.6%**
Tax rate	30.0%	30.0%	28.0%
After-Tax Cost of Debt	**2.6%**	**2.9%**	**2.6%**
Industry indebtedness (D / (D+E))	60.0%	57.5%	65.0%
Post tax WACC (real)	4.4%	4.8%	4.0%
Vanilla WACC (real)	5.1%	5.5%	4.7%
Pre tax WACC (real)	6.3%	6.9%	5.6%
Post tax WACC (nominal)[2]	7.0%	7.5%	6.8%
Vanilla WACC (nominal)[2]	7.7%	8.2%	7.5%
Pre tax WACC (nominal)[2]	8.9%	9.6%	8.4%

[1] Nominal risk free rates are: TPCR 4: 5.1%, DPCR 4: 5.6% and DPCR 5: 4.8%

[2] Converted from real term WACC, assuming a 2.5% inflation for TPCR 4 and DPCR 4 and a 2.7% inflation for DPCR 5:
Nominal WACC = (1+ Real WACC)*(1+inflation)-1

For the period prior to the implementation of TPCR ('Transmission Price Control Review') 4 and DPCR ('Distribution Price Control Review') 4, regulated rates of return were set for individual companies. The transmission owner price control for both National Grid Electricity Transmission and National Grid Gas was set on the basis of a real pre-tax rate of return of 6.25% (8.9% pre-tax nominal assuming 2.5% inflation). Given these assets are onshore andhave an established regulatory framework they would be considered as lower risk than the offshore electricity transmission assets being considered as part of this work. However, offsetting this is the certainty provided by a 20 year rather than a 5 year revenue stream. Therefore it is not unreasonable to expect the range of appropriate developer returns for IDC to be set at a premium to the equivalent rates of return for onshore regulated transmission and distribution businesses. We note that the pre tax WACC (nominal) for DPCR 4 is slightly above the bottom of our range for developer returns for IDC however this rate was set in 2004 at a time of higher risk free rates.

5. Conclusion

On the basis of the information provided, there are reasonable grounds to justify a regulatory intervention on IDC costs.

The principle argument supporting the adoption of a capped rate flows directly from Ofgem's primary duty to protect current and future customers. Under the enduring tender processes, IDC costs will be subject to competitive pressures. However, the unavoidable timing of the transitional tender process means that the tender competition does not impact on IDC costs.

Given the wide range of responses from developers, it is difficult for Ofgem to be confident that the variation in rates can be explained by the underlying economic factors. The use of an appropriately specified cap will also avoid the need for continued dialogue and should help build momentum in offshore wind development.

Potential downsides such as distortions to the enduring tender process or a reduction in investor appetite have also been considered, but providing the cap is appropriately specified, such concerns should not be significant. There also appear to be reasonable grounds to argue that a cap is consistent with the principles of better regulation.

Based on the information provided to us by Ofgem, including developer submissions, background material from Ofgem, our own independent research and analysis and taking into account the circumstances surrounding the investments made in the UK Transitional Round 1 offshore transmission assets we conclude that the appropriate range for developer returns to calculate IDC is **9.4%** to **10.8%** on a pre-tax nominal WACC basis. This range is based on a historic analysis over the past five years.

This paper considers the market evidence relating to a cap for an appropriate return for financing that may have been incurred for the UK Transitional Round 1 projects. We propose an appropriate range for a cap to be applied to the level of return for IDC requested by developers for these projects. Our analysis provides, in our opinion, a reasonable range for a cap to be applied to the level of return for IDC based on market evidence.

We note that individual developers are required to submit their actual OFTO financing costs as part of Ofgem's cost assessment and this level of return may fall below this proposed range. Therefore we have opined on whether it is reasonable to apply a cap to the developer returns and not a rate to be applied to all developers.

Appendix A – Peer group descriptions

Company	Country	Description
TRADITIONAL ENERGY		
Centrica Plc	United Kingdom	Centrica plc is an integrated energy company. The Company's main operations are in the United Kingdom, North America and Europe. It has two types of business: downstream and upstream. It supplies energy to homes and to businesses, and provides home and energy services. Downstream businesses include British Gas, Direct Energy in North America, and retail operations in Europe. It generates electricity and produces gas, and buys, stores and sells energy internationally. Upstream businesses include Centrica Energy in the United Kingdom, Norway, Nigeria and Trinidad; Centrica Storage in the United Kingdom; Direct Energy in North America, and assets and trading operations in Europe. In January 2009, it acquired GDF Suez SA's 25.5% stake in SPE SA, giving Centrica plc a controlling 51% shareholding in SPE SA. In June 2009, it acquired Energy and Building Management Solutions Limited. As of September 4, 2009, the Company had acquired approximately 77.11% interest in Venture Production plc.
E.On AG	Germay	E.ON AG is a power and gas company. The Company is engaged in the chain of the power and gas business, from power generation and gas production to distribution and customer sales. The Company's operations are organized into separate market units: Central Europe, which has operations in Central European countries; Pan-European Gas, which is a gas importer; U.K., providing power and gas services; Nordic, which generates, distributes, markets and supplies electricity and gas; U.S. Midwest, focusing primarily on the regulated electricity and gas utility sectors in Kentucky; Energy Trading, combining all of the Company's European trading activities, including electricity, gas, coal, oil and carbon dioxide allowances, and New Markets, which include the activities of the new Climate and Renewables, Italy, Russia and Spain market units. In June 2008, the Company completed the takeover of energy assets from Endesa and Enel. In December 2009, the Company completed the sale of Thga AG.
RWE AG	Germany	RWE AG is a management holding company of the RWE Group. The Company operates through six divisions. RWE Power, RWE Innogy, RWE Dea, RWE Supply and Trading, RWE Energy and RWE npower. RWE Power is a power producer and among the largest in Continental Europe. The Company mines lignite and generates electricity from coal, nuclear fuel and gas. RWE Innogy pools its renewable energy activities. They include onshore and offshore wind farms in Europe, as well as hydroelectric power plants and biomass projects. RWE Dea produces gas and oil, focusing on Europe and North Africa. RWE Supply and Trading runs its European energy trading operations and optimizes its non-regulated gas activities. RWE Energy is responsible for its sales and grid companies in 12 regions in and outside Germany. It provides electricity, gas, water and related services from a single source. RWE npower generates electricity from coal, gas and oil and sells electricity and gas to end customers in the United Kingdom.
SSE Plc	United Kingdom	Scottish and Southern Energy plc (SSE) is a holding company. The Company and its subsidiaries are organized into the main businesses of electricity generation, transmission, distribution and supply; gas storage, distribution and supply; electrical and contracting; home services, supplying a range of electrical and gas appliances, and complementary products, and telecommunications. On March 3, 2008, the Company acquired the Seeboard Trading Limited group. On April 14, 2008, the Company acquired 100% interest in Aldeia Velha, which is engaged in the construction and development of wind farms. On June 26, 2008, the Company acquired 60% interest in Nextwind S.R.L. On August 21, 2008, the Company acquired 90% interest in Airtricity Marao SA. On October 14, 2008, the Company acquired 90% interest in Atlantico SA. On January 13, 2009, the Company acquired 89.8% interest in Griffin Wind Farm Ltd. On January 20, 2009, the Company acquired 100% interest in Slaheny Energy Ltd.
Statoil ASA	Norway	Statoil ASA (Statoil), formerly StatoilHydro ASA (StatoilHydro), is an integrated oil and gas company based in Norway with locations in approximately 40 other countries worldwide. As of December 31, 2008, the Company had proved reserves (including its share of reserves in affiliated companies of 127 million barrels (mmbbl) of oil) of 2201 mmbbl of oil and 537.8 billion cubic meters (bcm) (equivalent to 19 trillion cubic feet (tcf)) of natural gas, corresponding to aggregate proved reserves of 5584 million barrels of oil equivalent (mmboe). The Company operates in four business segments: Exploration and Production Norway (EPN), International Exploration and Production (INT), Natural Gas (NG) and Manufacturing and Marketing (M&M).

Company	Country	Description
RENEWABLE ENERGY		
Nordex AG	Germany	Nordex AG is a Germany-based **manufacturer and supplier of wind energy systems, specializing in wind turbines**. The Company's principal focus is on high-capacity units. Under the Nordex brand name, it offers wind turbines for various geographic regions, whether onshore or offshore. The Company's product portfolio includes Nordex N100/2500 kilowatts (kW); Nordex S70/1500 kW and Nordex S77/1500 kW turbines for onshore use; Nordex N90/2300 kW, Nordex N90/2500 kW; Nordex N80/2500 kW turbines for offshore use, and a series of small units for international markets. In addition, it is engaged in the provision of rotor blades with a length of up to 45 meters and the development of electrical and control technologies for wind turbines, as well as technical planning of wind park systems. The Company has supplied over 3,735 wind turbines with a total rated output of over 4,900 megawatts to 34 countries worldwide.
Gamesa Corporacion Technologica SA	Spain	Gamesa Corporacion Technologica SA is a Spain-based holding company that, through its subsidiaries, is primarily engaged in the renewable energy sector. The Company's activities include the **promotion, construction and sale of solar and wind farms, as well as the engineering, design, manufacture and sale of wind turbines**. The Company is a parent of the Grupo Gamesa, a group which comprises Gamesa Energia SA, Cametor SL, Gamesa Technology Corporation Inc, Gamesa Nuevos Desarrollos SA and Compass Transworld Logistics SA. The Company also holds interests in Gamesa Wind Turbines SL and Windar Renovables SL. The Company distributes its products in America, Europe, Africa and Asia.
Repower	Germany	REpower Systems AG is a Germany-based technology company engaged in the **development, licensing, production and sale of wind energy turbines**, as well as after-sales service for the German wind energy sector and developing and providing turnkey wind farms. Its product range comprises several types of turbines with rated outputs of between 1.5 to 6.15 megawatts. In the FY 2008/09, turbines were produced in the Company's production plants of Husum, Trampe, Bremerhaven, Germany, as well as in Oliveira de Frades, Portugal, since December 2008. As of March 31, 2009, the Company has 12 wholly owned subsidiaries in Germany, Spain, France, People's Republic of China, the United States, Canada and Belgium, among others, as well as three majority owned subsidiaries in Portugal, Greece and Germany.
Vestas Wind Systems A/S	Denmark	Vestas Wind Systems A/S is a Denmark-based company active within the wind power industry. The Company is engaged primarily in the **development, manufacture, sale, marketing and maintenance of wind power systems** that use wind energy to generate electricity. Its product range includes land and offshore wind turbines capable of generating between 850 kilowatts and 3 megawatts as well as Supervisory Control and Data Acquisition (SCADA) products, supplying a range of monitoring and control functions, allowing the wind power plants to be remotely supervised. The Company is operational internationally through 14 wholly owned subsidiaries, which are active in Europe, the United States, Canada, Australia, New Zealand, the Philippines and parts of Asia.
Iberdrola Renovables SAU	Spain	Iberdrola Renovables SAU is a Spain-based company primarily engaged in the **development, construction, operation and exploitation of power plants that use renewable energy sources, as well as the sale of electric energy**. Additionally, the Company is involved in the research and development of such technologies as marine biomass and tidal energy. The Company's facilities include wind, mini-hydroelectric and thermo-solar energy power stations with operations established in North, Central and South America, Europe, Africa, the Middle East and Asia.
Terna Energy S.A.	Greece	Terna Energy S.A. is a Greece-based company engaged in the renewable energy sector. The Company is actively involved in the **construction and operation of wind farms, small hydroelectric plants and integrated process units for the overall management and energy utilization of wastes and biomass**. It undertakes the full spectrum of activities and works required for the materialization of renewable energy sources installations, which includes: investigation of available renewable energy potential, design, licensing and construction, as well as operation, maintenance and commercial exploitation of renewable energy sources.

Company	Country	Description
ELECTRICITY TRANSMISSION		
Terna - Rete Elettrica Nazionale SpA (Terna)	Italy	Terna - Rete Elettrica Nazionale SpA (Terna) is an Italy-based company engaged in the utility sector. The Company provides transmission and dispatching the high voltage (HV) grid throughout Italy. The Company is also involved in the management of the national high voltage electricity infrastructures. In Italy, the Company operates through its subsidiary inTERNAtional SpA. It is also active in Brazil through its direct subsidiary Terna Participacoes SA, which is involved the field of power transmission. Terna has also indirect subsidiaries, including TSN SA, Novatrans SA, Terna Servicos Ltda and Empresa de Transmissao de Energia do Oeste Ltda (ETEO), among others.
Red Electrica Corporacion SA	Spain	Red Electrica Corporacion SA, formerly Red Electrica de Espana, is a Spain-based company primarily engaged in the energy sector. It specializes in the transmission of electricity, as well as in the operation of electric systems. It manages the majority of Spanish high-voltage transmission grid and is responsible for the development, maintenance and improvement of the network's installations. The Company's activities also include the coordination between generation, transmission and distribution of electric energy.
ITC Holdings Corporation	United States	ITC Holdings Corp. (ITC Holdings) is a holding company whose business consists primarily of the operations of its Regulated Operating Subsidiaries, International Transmission Company (ITCTransmission), Michigan Electric Transmission Company, LLC (METC) and ITC Midwest LLC (ITC Midwest). Through its Regulated Operating Subsidiaries, the Company is engaged in the transmission of electricity in the United States. The Company's Regulated Operating Subsidiaries' transmission facilities are located in the lower peninsula of Michigan and portions of Iowa, Minnesota, Illinois and Missouri, and have agreements with other utilities for the joint ownership of specific substations and transmission lines.
National Grid	United Kingdom	National Grid plc (National Grid) is an international electricity and gas company. National Grid owns the high-voltage electricity transmission network in England and Wales and operates the system across Great Britain. It also owns and operates the high-pressure gas transmission system in Britain and its distribution business delivers gas to 11 million homes and businesses. In the United States, National Grid distributes electricity to approximately five million customers in Massachusetts, New Hampshire, New York and Rhode Island. National Grid also has a number of related businesses, such as liquefied natural gas (LNG) importation and storage, land remediation and metering. The Company's businesses include Transmission, Gas Distribution, Electricity Distribution and Generation, and Non-regulated Businesses.

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