

Stuart Cook
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Ofgem
9 Millbank
London
SW1P 3GE

17 November 2010

Dear Stuart,

Project TransmiT: A Call for Evidence

EDF Energy is one of the UK's largest energy companies. We provide 50% of the UK's low carbon generation. Our interests include nuclear, coal and gas-fired electricity generation, renewables, combined heat and power plants, and energy supply to end users. We have over 5 million electricity and gas customer accounts in the UK, including both residential and business users.

EDF Energy welcomes the opportunity to respond to this Call for Evidence. Our key points are as follows:

- The UK Government has three main priorities for energy, namely that it should be secure, affordable, and low carbon. Ofgem's revised duties are broadly aligned with these and these priorities underpin the objectives of Project TransmiT. However, there are tensions in delivering low carbon energy in both a secure and affordable manner.
- It is clear that Government policy instruments have already provided developers with incentives to develop renewable low carbon projects and these have come forward in large quantities, mainly in the form of wind generation.
- The key question for TransmiT is whether current transmission charging arrangements are assisting or acting as a barrier to all low carbon investors (including renewables), whilst meeting all three Government priorities.
- TransmiT should use information provided by generation developers and others to answer this question and, depending on the evidence and conclusions, it might be necessary to adapt the current charging regime and methodology.
- However, our view is that, in order to meet carbon reduction targets (as well as renewable energy targets) together with security of supply and affordability criteria, the charging regime needs to maintain incentives on developers to connect in the more sensible parts of the transmission system (i.e. closer to demand). Such a regime would involve locational and capacity based charging, which would meet Government targets whilst optimising the total costs of both generation and transmission.
- Conversely a uniform utilisation-based or 'postage stamp' charge would incentivise a particular class and geographical location of low carbon generation (e.g. northern based renewables). However, a uniform or utilisation-based charge would

disincentivise other forms of low carbon generation (and southern based renewables) with a corresponding degradation of diversity and security of supply. This type of charge would also not satisfy the affordability objective, as it would remove the incentives on generation to connect in more sensible locations. The end result might be an unnecessarily oversized transmission system, to be funded by existing and future consumers.

- We also believe that future charging arrangements should distinguish between onshore and offshore users and systems, as the costs incurred are significantly different. It would not be appropriate for either onshore or offshore users to cross-subsidise each other. This aspect should be investigated by TransmiT.
- It is important that TransmiT focuses on electricity arrangements. Gas charging arrangements should only be considered once electricity choices are made to ensure that they remain appropriate.
- In order that TransmiT undertakes a holistic review of electricity charging, other areas in scope should include demand charging, and the charging of island generators, distributed generation, HVDC cables, interconnectors and European arrangements.
- We urge Ofgem to conclude Project TransmiT in line with its current timetable. We would hope that a number of charging principles could be delivered by TransmiT, which would allow investors to understand the likely structure and magnitude of future charges; thereby providing much needed investor certainty.

Independent report by Poyry Energy Consulting

We commissioned from Poyry an independent report presenting their views on TransmiT, which will be submitted separately. The purpose of this report was to explore (1) the objectives which can be attached to electricity transmission arrangements; (2) how different straw-man electricity transmission charging arrangements perform against these objectives; and (3) how wider market drivers affect the balance between objectives and the performance of straw-man options.

The Poyry report concludes that:

The revised policy landscape is likely to require a rebalancing of transmission charging objectives and some methodology changes, but many of the core existing principles should be retained in order to promote efficient grid investment, whilst supporting GB energy policy. Any change to the charging arrangements will impact upon all users of the transmission system and could potentially lead to unintended consequences. Therefore:

- The current transmission charging arrangements should only be substantially revised where they evidently present a potential barrier to policy objectives and it is clear that substantive revision will better support GB energy policy objectives.
- If no such barriers are found and/or all consequences of substantial change are unclear, it may be that the current transmission charging regime (subject to relatively minor detailed methodological refinement) is deemed to be fit for purpose. In this

case, if support for low carbon technologies is still deemed to be required, it should be provided via mechanisms outside the charging arrangements.

- Encouraging efficient grid investment remains a binding transmission charging principle. Transmission investment still needs to be demonstrably economic in order to provide value to consumers, especially given the expected future expansion of the grid. This suggests that it is appropriate for some form of locationally varying charges to be retained in order to promote efficient generation investment decisions and consequential grid development. It is also true that the charging arrangements affect generation investment decisions, but they are one tool amongst many in this context. Investment in low carbon technologies can be supported by means other than amendments to the transmission charging arrangements.
- Transmission costs are still driven by capacity requirements and not system utilisation. In order to provide appropriate economic signals in a period of anticipated grid expansion, charges should continue to be with reference to MW and not MWh, whatever the exact method for deriving them.
- Charging arrangements should avoid undue discrimination, recognising that they apply to all generation technologies (including demand side management) and not just low carbon technologies. If revisions to the charging arrangements are to be made in support of achieving carbon emission reductions, the benefit should be applied to all low carbon generation technologies and not just renewables.

We endorse these conclusions and expand on these points and views below.

Aims of Project TransmiT

We fully support the aim of TransmiT and its objectives to help facilitate the move to a low carbon energy sector, in a safe and secure way, while ensuring value for money for existing and future consumers. We believe that the review should focus on the electricity charging arrangements for the following reasons:

- Electricity faces a period of significant investment as it plays a key role in decarbonising the GB economy.
- As identified in the HM Government 2050 pathways Analysis Report of July 2010, the move to a low carbon electricity sector is key to the UK meeting its carbon reduction targets.
- There are many different electricity generation scenarios which will facilitate the achievement of GB and European targets, and the electricity transmission connection and charging arrangements play a key role in facilitating a balanced mix of generation technologies. There are no equivalent targets for gas.

Policy instruments and transmission charging

The policy choices which will set us on the path to decarbonisation are likely to determine a large proportion of the costs of meeting UK targets and it is imperative that these costs are transparent. It is therefore important to recognise the interaction of government

policy instruments and transmission pricing in delivering the UK carbon reduction targets at an efficient cost. We do not support the adaptation of transmission charging arrangements and flattening of charges to deliver these goals at the expense of existing and future consumers.

Government has publically stated that no additional subsidies will be provided to generation technologies over and above the existing renewables obligation, which has provided the incentives to connect generation of that type. We believe that against this policy background TransmiT should ensure that the charging arrangements provide incentives for renewable and other forms of generation to connect in areas of the transmission network that will deliver secure supplies and in a sensible location that together will provide value for money to existing and future consumers. It is for these reasons that we believe a uniform, energy based charge (or 'postage stamp' tariff) is inappropriate and will result in inefficient investment decisions at the expense of all consumers. This is aligned with the findings of Poyry's report, which concluded that some form of locational charging should be retained in order to promote efficient generation investment decisions and consequential grid development.

We believe that the existing transmission licence objectives for transmission charging have been an appropriate mechanism for oversight and regulation of the charging methodologies. However, it is appropriate for TransmiT to review the existing licence objectives so that they are consistent with Government objectives and Ofgem's new duties.

Providing evidence that current arrangements should change

The first stage of project TransmiT should consider the evidence that the existing charging regime will not facilitate the connection of new low carbon generation. Indeed this project should present analysis and evidence that under the existing arrangements GB targets will not be met.

Our own analysis and understanding of published evidence does not indicate that charges are preventing projects from connecting (except perhaps on the Western Isles). We note in particular that National Grid's Quarterly Connection report demonstrates that low carbon generation projects are not only requesting new connections, but also that a number of projects have brought forward their dates of connection under the new transmission access regime of Connect & Manage. However, we recognise that at this time of challenge for the industry it is appropriate to ensure that the charging regime is forward looking and will ensure that projects not only connect to the transmission system but continue to provide low carbon generation for the economic lifetime of their plant.

Meeting the objectives of TransmiT

In considering the appropriate principles for a transmission charging regime, we believe that the following high level principles will ensure that low carbon generators will continue to connect to the system; that costs are minimised and security of supply is retained:

- Transmission charging should aim to encourage the development of an economically efficient transmission system.
- Locational charges remain appropriate to ensure that there are signals to generators to prioritise the most favourable areas when locating their project.
- There should be a capacity based tariff which reflects the costs of the assets required to support a generator's right to export to maximum capacity.
- Balancing services charges should remain socialised as system balancing is a societal service to all users

We note that without these principles there is a significant cost risk to consumers. For example, flat charges might result in too much generation being sited in locations furthest away from demand centres, which would result in an oversized transmission system and a higher than necessary cost to consumers. Similarly utilisation-based or "postage stamp" charges might encourage the connection of too much of one class of low carbon generation (e.g. low load factor or intermittent plant) which might involve security of supply issues.

As we have stated above, we do not support a charging regime which would have adverse implications for security of supply and affordability. Poyry's report has also concluded that non-locationally varying generation charges only provide support to some renewable generation projects and do not support other forms of low carbon generation.

Other electricity issues for TransmiT to review

There are a number of other electricity charging issues which might be reasonably considered within the scope of Project TransmiT, namely:

- The onshore and offshore transmission systems are different and distinct, primarily because of difference in technology and the requirements for demand security onshore. Any charging anomalies such as offshore subsidising onshore might be reviewed by TransmiT.
- The proportion of costs which is directly levied on demand might be reviewed and consideration of a regime where generators make a lower or net zero contribution to transmission charges could be incorporated into Project TransmiT.
- The context of European transmission charging should be considered, to ensure that GB arrangements are consistent with and not undermined by future Directives.

Following the implementation of an enduring Connect & Manage regime for electricity transmission access we believe that the Project TransmiT need not focus on electricity connection issues. However, security arrangements for new generation connection agreements might be reviewed and we believe that, whether Final Sums Liabilities or a more generic methodology is used, securities should be stable and transparent and set at an appropriate level to filter out projects that are unlikely to progress, but should not represent a barrier to feasible projects.

Gas arrangements

Gas connection and charging arrangements might be capable of improvement; however they are not driven by the need to de-carbonise. It is therefore our view that a review of connection and charging need not prioritise gas arrangements. Specifically we believe that:

- Gas and electricity are different systems with different drivers. Gas has a flexible system, as a result of a long term decline in demand, and a stable regime is required.
- While gas connection and charging arrangements might be improved we note that there are ongoing developments within the UNC to address industry concerns regarding connection processes.
- There are no significant drivers for change in gas charging, but we note that there should be an opportunity to review the gas charging model once the outcome for electricity is known, particularly as we would wish to ensure that there are no perverse incentives created with the interaction of gas and electricity charging for the siting of gas fired power stations.

Providing firm, clear and concise principles to aid investor certainty

Finally we expect TransmiT to deliver the certainty that investors will require. The scope and issues within electricity transmission charging alone are extensive and we would hope that in its conclusions and recommendations TransmiT will ensure that high level aims, objectives and principles of charging are specified in a way which will ensure that they are not undermined by future industry change processes. A set of requirements like this will allow all future proposals to be assessed so that an understanding of their current and future impact on all relevant parties might be considered. In this way all current parties and future investors will be able to understand the basis on which their costs will be set.

We note Ofgem's intended timescales for this project; it is imperative that the intention to publish recommendations in Summer 2011 is maintained to ensure that the adverse impact on investor certainty is minimised. Investor certainty is a primary factor in delivering GB targets for low carbon and renewable generation. However, we believe that any review of the transmission connection and charging arrangements must fit with the ongoing Electricity Market Reform. We also acknowledge the interaction of these issues with the RIIO-T1 price control but would not support the timescales of Project TransmiT being delayed in recognition of this.

In the attachments to this letter we discuss the above points and a number of further issues in more detail, indicating where we believe particular issues might be reasonably included within the scope of Project TransmiT.

We would welcome the opportunity to meet with you and discuss our response in more detail. If you have any queries on it, please contact my colleague Rob Rome on 01452 653170, or myself.

Yours sincerely,

A handwritten signature in black ink, appearing to read "D. Linford".

Denis Linford
Corporate Policy and Regulation Director

Attachment 1

Project TransmiT: A Call for Evidence

EDF Energy discussion of key issues for Project TransmiT

In the following pages we discuss a number of issues which we believe are relevant when considering the scope and objectives of Project TransmiT. We have structured these attachments as follows:

- 1.1 Context of Project TransmiT
- 1.2 Evidence for Project TransmiT
- 1.3 Principles of an electricity charging regime
- 1.4 Other electricity charging issues
 - Onshore, offshore and island generation
 - Demand charging
 - Distributed generation
- 1.5 Electricity connection arrangements
 - Pre-commissioning financial securities
- 1.6 Gas connection and charging arrangements

1.1 Context of Project TransmiT

Interaction with policy instruments

It is important to recognise the interaction of government policy instruments and transmission pricing in delivering the UK carbon reduction targets at an efficient cost. It is Government's role to set energy policy and where they believe it is appropriate, mechanisms might be introduced to 'select' the technologies that are required to deliver this policy (e.g. the renewables obligation). These mechanisms are designed (at a high level) to ensure that project costs, including transmission charging are covered so that the technologies supported by Government might be progressed.

Government has publically stated that no additional subsidies will be provided to generation technologies over and above the existing renewables obligation which has provided the incentives to connect generation of that type. We believe that against this policy background TransmiT should ensure that the incentives are now correct for renewable and other forms of generation to connect in areas of the transmission network that will deliver secure supplies and in a sensible location that together will provide value for money to consumers.

In this respect the analysis that TransmiT might consider should review the interaction of existing policy, generation investment and transmission investment to ensure that the appropriate level of cost reflective pricing is provided in transmission charges to deliver UK carbon reduction targets in an economically efficient way. This in turn will deliver value for money to existing and future consumers.

Ofgem's statutory duties

These important policy issues have been fed through into an update of Ofgem's statutory duties. We welcome these new duties which ensure that the regulator considers the lowering of greenhouse gas emissions, sustainability and the interests of existing and future customers when regulating the energy markets.

National Grid charging objectives

We believe that the existing transmission licence objectives for transmission charging have been an appropriate mechanism for oversight and regulation of the charging methodologies.

These charging objectives ensure that modifications to the charging methodologies facilitate competition, that charges reflect the costs incurred by transmission licensees and take account of development in their businesses. However, we have some reservations over the interpretation and weight given to the balance of facilitating competition and ensuring charges are cost reflective. At a high level we support the principle of a locational, cost reflective signal to generators in transmission charging however, this should not be at the expense of competition and security of supply.

In this context therefore we would consider it appropriate for TransmiT to review the existing transmission charging objectives in light of Ofgem's duties. An amendment to the current objectives might ensure that industry can develop new charging arrangements which better reflect the needs of the electricity sector.

1.2 Evidence for Project TransmiT

We believe that before proposing fundamental changes Project TransmiT should present analysis and evidence that the existing charging regime will not facilitate the connection and continued operation of new low carbon generation to the extent that UK carbon reduction targets are at risk.

Contracting for connection

EDF Energy has considered whether targets will be met and notes in particular that at National Grid's September 2010 Customer Seminar,¹ National Grid was able to demonstrate that good progress is being made towards Government targets when compared against their own Gone Green scenario for 2020. Indeed we have seen continued demonstration of developers' desire and willingness to contract with National Grid through the data which is reported in National Grid's Quarterly Connection report. As these reports have progressed there has also been tangible evidence of developers bringing forward their connection dates under Connect & Manage (C&M) arrangements for transmission access. To the extent that in July 2010, under interim C&M Ofgem granted derogations to the Transmission Owners (TOs) from the Security Quality and Supply Standards (SQSS) to allow the connection of 750MW of renewable generation in Scotland².

While we recognise that planning, consenting and finance all have a material impact on whether contracted projects will go ahead, we have yet to see published material evidence that the existing arrangements are preventing projects from connecting (except perhaps on the Western Isles, and we discuss island charging separately).

TransmiT should consider credible generation connection scenarios and wind load factor data to estimate how much generation might connect going forward under the current arrangements.

Profitability of wind generation

Our own team has explicitly considered the relative impact of various considerations which must be made by a new investor in evaluating the profitability of wind generation. The value of a wind generation project is primarily driven by the required capital expenditure and the anticipated load factor. It is therefore clear that the location of a wind generator will have a notable impact on profitability as it is the expected wind speeds and load factor which are significant. For example, on a small 20MW project a 1% increase in load factor might imply >£1m additional profits per annum.

Our own analysis suggests that a 3-4% increase in load factor can offset the TNUoS differentials of North Scotland and the South West. An appropriate price signal on

¹ Slide 9 of <http://www.nationalgrid.com/NR/ronlyres/B6F334D0-15E8-4087-9230-7AA467EC9CB6/43419/CustomerSeminarsv3.pdf>

² <http://www.ofgem.gov.uk/Networks/Trans/ElecTransPolicy/TAR/Pages/Traccrw.aspx>

transmission costs will allow developers to locate wind farms in areas that best serve consumers by allowing them to trade off increased transmission costs with the availability of wind resource. Wind data available to us implies therefore that despite the higher costs of transmission in North Scotland, wind generation projects remain profitable, under current charging arrangements.

The question for TransmiT here might be to consider (under a number of credible scenarios) whether Government targets are likely to be met using current charging arrangements, and we discuss this in more detail later.

1.3 Principles of an electricity charging regime

Current arrangements

GB's electricity transmission system is built to meet peak demand using National Grid's planning scenarios and standards – as contained in the SQSS (Security and Quality of Supply standards). Currently the Transmission Network Use of System (TNUoS) charges are developed based on this "peak" scenario using the DCLF ICRP (Investment Cost Related Pricing) charging model. The current DCLF ICRP model calculates the long run marginal cost (LRMC) of delivering an extra MW to, or supply an extra MW from the NBP to each node on the system. These nodal prices are then aggregated to create a zonal price. However, there is normally a gap between the revenue recovered from LRMC charging and National Grid's allowed revenue and so the model adds a fixed amount to all tariffs so that National Grid recovers their allowed revenue. This is known as the "residual" and both generation and demand charges are adjusted so that in total National Grid recovers 27% of their revenues from generators and 73% of their revenue from demand.

These charges provide a locational signal to generators and demand in GB to encourage them to site in the most favourable locations – either close to demand or close to generation. This aims to ensure that generators and demand are exposed to the fixed costs that they place on the system, whilst also encouraging the development of the optimal transmission system that facilitates the connection of generation to the system whilst minimising overall costs to consumers. At the extremes this results in a negative charge for generation in the south west, which reflects the fact that by locating in this area the generator avoids investment on the transmission system so reducing costs; whilst generators in Scotland face high charges to reflect the fact that they are located further from demand and so significant investment is required to transmit electricity to major demand centres.

In addition, the charges faced by generators are also developed to recover any "local" infrastructure that has been provided to connect the generator to the main transmission system. These assets are specific to the generator and so it is expected that the generator funds these assets. A local charge is then levied on generators who make use of such local assets.

Charges are levied on a £/kW basis based on generator Transmission Entry Capacity (TEC) bookings. This is designed to reflect the fact that the system is built to meet peak demand, using fixed assets. As these assets are fixed, and do not vary throughout the year with output, then the charges are also fixed. In addition this reflects the fact that TEC provides the generator with the option to generate at any point during the year.

Current issues

Currently there is c. 80GW of generation connected to the GB transmission system, providing roughly a margin of 15-20% on peak demand. At the same time National Grid

has contracts in place for the connection of 73GW of onshore generation³ with the crown estate granting licences for a further 32GW of offshore generation. GB is therefore experiencing a fundamental shift in its plant mix as new generation comes on line and retiring generation is replaced. At the same time this means that GB's notional or theoretical capacity margin is expected to increase significantly from its current levels, although this will also include additional intermittent generation and the increase in installed capacity will not be reflected in operational plant margins.

To facilitate this step change in the GB generation mix, investment will be required in the transmission system to ensure that it remains fit for purpose. Ofgem's recent RIIO decision paper⁴ suggested that network companies will need to invest an additional £32 bn by 2020 to deliver the required network infrastructure. We believe that a large proportion of the anticipated investments will be required to accommodate the connection of offshore wind, and it must be recognised that there are choices to be made over how we decarbonise our electricity supplies and these options will come with a range of possible costs each with different affordability implications for the end consumer.

Role for TransmiT

We believe it is appropriate for Ofgem to review electricity charging arrangements, however, any review and reform should be evolutionary and not revolutionary. This will ensure that historical investment decisions are not undermined and give confidence to future investors that the regime will not be subject to "regular" fundamental reform in future years. Furthermore, certain key principles of the current charging regime should be retained to ensure that the costs to UK Plc are minimised and security of supply is maintained going forward.

We would also like to see Project TransmiT consider how a range of generation mix scenarios might be impacted under the existing and any alternative charging arrangements. This analysis will aid understanding of whether the current arrangements are fit for purpose both now and in the future. If it is understood that current arrangements are no longer robust to meet the aim of TransmiT then this analysis might also allow amendments to be developed which are evolutionary in nature.

The transmission charging regime should facilitate generation connections and aim to encourage the development of the optimal, most economically efficient transmission system, whereby the total of fixed network costs and constraint costs are minimised. The transmission charging regime should therefore reflect the costs of transmission assets required for an economically efficient transmission system to provide security of supply and meet generator capacity requirements. It is important that a future transmission charging regime ensures that generators are cognisant of the level of costs they incur onto

³ National Grid, "Transmission Networks Quarterly Connections Update Including Seven Year Statement Update", July 2010, <http://www.nationalgrid.com/NR/rdonlyres/414194AE-86E2-4002-B89B-B80F7CF606D9/42658/TNQCJuly10v13.pdf>

⁴ 'RIIO: A new way to regulate energy networks. Final decision', Ofgem, October 2010

the system to ensure that the size of the network that consumers have to fund is minimised.

This is currently facilitated through the use of locational charging which ensures that there are signals to generators to locate in the most sensible areas which minimises the transmission investment and costs to consumers. This will ensure that, for example, investors faced with two independent and exclusive investment decisions with similar NPVs (prior to taking TNUoS into account) are encouraged to locate closer to demand and so avoid the additional transmission costs associated with locating in a less sensible location. Flat charges across GB are likely to result in too much generation being located in locations furthest away from demand centres which might result in an over sized transmission system and a higher cost than necessary to future consumers.

We believe that when booking transmission access a generator is booking the right to generate at any time, and so the transmission system is designed and built to support this investment. Capacity charges therefore continue to remain appropriate as they reflect the "rights" that the generator has to export power at any point within a charging year. They also reflect the fact that transmission assets are fixed and do not vary with a generator's output. Utilisation-based, "postage stamp" or 'time of use' based charges will undermine the way in which transmission access rights are available to all generation technologies on an equivalent basis. Furthermore time of use charges for generation might encourage the connection of a larger proportion of low load factor or intermittent plant. This could have significant security of supply issues if the availability of other generation is insufficient to meet peak demand. Consequently we believe that a "postage stamp" or £/kWh charge would be inappropriate.

Finally we would note that there are very good reasons why the costs incurred by the system operator (currently recovered through Balancing Services Use of System (BSUoS) charges) are levied on both demand and generation split equally on a £/MWh basis. All balancing services and actions are part of a service provided by the system operator to all users of the system; in this respect there is a wide societal benefit to a balanced and stable system. The logical and appropriate conclusion is that the costs of system balancing should be shared by demand and generation.

1.4 Electricity charging issues

Charges for onshore, offshore and island generators

Current arrangements

The existing charging methodologies currently specify the treatment of both onshore and offshore generation in respect of the calculation of local circuit tariffs. The arrangements for island generation have been the subject of consultation in November 2009; however, no conclusions have yet been presented by National Grid.

The current methodology calculates local circuit tariffs for (onshore and offshore) generators based on the principles of investment cost related pricing. National Grid has a licence obligation to avoid undue discrimination between classes of user and the existing arrangements reflect this principle. There are some elements of the methodology where the treatment of offshore generators is not wholly consistent such as in the use of expansion factors, and modifications to reflect the different technologies used for offshore generation connections. However, these elements were included in the proposed methodology to more accurately reflect on generators the costs arising from their own connection design and were approved by the Authority in March 2009.

The highly cost reflective local circuit tariffs for offshore generators results in a charge that recovers a large proportion of the allowed revenue which is passed to the offshore transmission owner. The consequences of this combined with the 27/73 split of generation and demand revenue is that the onshore generator tariffs reduce to ensure that only 27% of all revenue is recovered from the generator community as a whole.

Role for TransmiT

As the arrangements for island charges remain uncertain we believe that it would be appropriate for the issues to be considered in TransmiT. There are many charging issues which are relevant to developers of island generation (such as the creation of island demand zones and the treatment of intermittent generation) and these should be considered holistically in TransmiT.

The interactions of local circuit charges and the generation and demand split as described above are in our view resulting in unintended consequences. It is anticipated that as the size of the radial offshore network increases the onshore generation tariffs will continue to reduce. The current 27/73 split is in effect an arbitrary division of revenue and its continued application along with materially increasing costs for offshore connections seems to result in perverse outcomes. This anomaly should be reviewed by TransmiT.

The onshore and offshore transmission systems are different and distinct, primarily due to differences in technology and the requirements for demand security onshore. We believe that the onshore network should be funded by onshore users and that it is reasonable to

consider the offshore network as separate and distinct and so recover costs of those assets from offshore users.

Demand charging

Current arrangements

As described previously the current DCLF ICRP model calculates tariffs to ensure that National Grid recovers 27% of its revenues from generators and 73% from demand. We note these charging arrangements are not aligned with those employed in mainland Europe, where network operator charges are mainly recovered from demand (load) as opposed to generators⁵.

Role of TransmiT

Generators recover these network costs through the wholesale energy price, which also include a risk premia and a rate of return to ensure that the investor is compensated and the plant remains operational in the long run. As wholesale prices are recovered through retail tariffs, demand will ultimately pay for 100% of TNUoS either directly or indirectly through wholesale prices.

We believe that TransmiT should review the current split of TNUoS charges between generation and demand in GB. We believe that as generators already recover their fixed costs of access through the wholesale prices, it would be appropriate for the generation tariff to net to zero. This would reduce the level of charges that generators would have to fund whilst ensuring that the locational signals from TNUoS charging were maintained. We believe that this would be a more cost effective and efficient solution than charging demand indirectly, as this will remove the risk premium generators will also seek to recover. In addition this would have a minimal impact on demand charges.

This arrangement might also benefit customers by more closely aligning GB charging arrangements with Europe, with the associated benefits of improved trade, security of supply and liquidity. However, we would also wish for TransmiT to ensure that the appropriate principles of GB charging arrangements are not undermined by any alignment with existing or future European requirements.

In managing the annual fixed costs of transmission both generators and suppliers value the within-year stability of charges which has historically been provided, noting that the ability to respond to price changes varies between classes of user. Where there is a risk of a step change in charges this risk is likely to be passed through in market prices and ultimately borne by end consumers. Stable and predictable transmission charges allow both generators and suppliers to manage this risk internally and should therefore be a primary focus of the charging methodology. Where significant step changes are introduced reasonable notice of this should be provided, for suppliers a minimum of 24 - 36 months might be sufficient to ensure that unnecessary risk premia are not passed through to consumers.

⁵ Entso-e "Overview of transmission tariffs in Europe: Synthesis 2010", July 2010

Distributed generation

Current arrangements

Generally, generators connected to the distribution networks (Distributed Generation) that export less than 100MW can either:

- (a) accede to the Connection & Use of System Code (CUSC) and enter into a bilateral embedded generation agreement (BEGA) with National Grid and receive 'triad benefit' as a negative demand TNUoS payment if they export energy over the three triad half hours or;
- (b) contract with a Supplier so that their generation volumes over the triad offset the Supplier demand TNUoS charge

Distributed generation (DG) structured in this way does not pay generation TNUoS, BSUoS or transmission losses. In fact they receive a credit for demand TNUoS and avoid any charges for demand transmission losses and BSUoS (either directly or via the Supplier).

The current arrangements for DG are based on the assumption that their generation offsets the local demand on the distribution network and therefore DG does not 'use' the transmission system. It is assumed that DG reduces the amount of transmission investment that National Grid would be required to undertake were they to have connected to the transmission system.

Additionally, and because DG generally does not participate in the balancing mechanism, the transmission system operator (SO) has no visibility of the output of DG and there are limited arrangements to allow the SO to reduce the output of DG at times of energy imbalance and system constraints.

Creating the right incentives

Latest estimates from National Grid suggest there is 8GW of generation connected to distribution. Whilst some DG is exposed to distribution charges (for connection or use of system) precise arrangements vary across GB. As the volume of DG increases it is likely that an increasing number of grid supply points (GSPs) will export energy onto the transmission system. Indeed, there is evidence that some GSPs are already starting to export at times of high wind and low demand⁶. As a consequence, it is possible that transmission connected generation, including low carbon generation may need to be constrained off the wider transmission network at times of low demand, whilst at the same time distribution connected small and micro gas-fired plants continue to generate (an obvious negative carbon impact).

This gives weight to the need for such generation to be balanced with demand, either at a local level via the role of a Distribution System Operator (DSO) or by development of a

⁶ http://www.scottish-southern.co.uk/SSEInternet/index.aspx?id=23088&TierSlicer1_TSMenueTargetID=1368&TierSlicer1_TSMenueTargetType=1&TierSlicer1_TSMenueID=6

regulatory and market regime which allows the transmission SO visibility and access to these generators.

Role for TransmiT

With the forecast increase in DG these issues might be exacerbated if the current arrangements are left alone. We believe that the existing charging arrangements for DG might provide distorted investment signals and where there is evidence that DG uses the transmission system it should be exposed to the associated costs. It is recognised, however, that exposing existing DG to an unexpected increase in costs would be a significant issue for such generators. We also recognise the concerns about the threshold of generator size which would be used to impose such a change and the impact this could have to onsite CHP and micro-generation. Nevertheless, we believe TransmiT should include analysis on whether the existing connection and charging arrangements for distributed generation will facilitate the efficient achievement of UK carbon reduction targets while maintaining security of supply and value for existing and future consumers. This analysis would need to consider the appropriateness of allowing existing DG to retain their existing rights and the potential impact of any change to on-site CHP and micro-generation.

1.5 Electricity Connection

Pre-commissioning financial securities

Current arrangements

The existing arrangements for pre-connection securities offer a choice to new generation projects of Final Sums Liabilities (FSL) and Interim Generic User Commitment Methodology (IGUCM). In addressing the sharing of liabilities for transmission works these two options need to be considered in parallel. We discuss the features and considerations for these two options below.

Under FSL security is provided to National Grid based on the estimated costs of their work to construct transmission assets. However, at present only 'local' asset work is secured and no user provides security for National Grid's investment in 'wider' transmission assets. As the costs of transmission asset construction can be shared with other users they are not transparent and can be volatile as and when other users adjust their connection dates. It is also important to note that under FSL, if the connection agreement is terminated, securities are refunded for any transmission work which has yet to be completed.

The alternative IGUCM option allows generators to fix their level of securities based on the requested level of Transmission Entry capacity (TEC) and the expected year of connection. Security is provided against this TEC level as a fixed increasing amount of £1/kW/year in the first three years followed by a fraction of $TEC \times 10 \times TNUoS$ tariff once the project is within 4 years of completion. While this option gives a generator the benefit of a fixed amount of securities if the connection agreement is terminated, securities are not refunded.

Finally we note that at present for offshore development the offshore works must be secured by FSL whilst onshore works may be secured with IGUCM.

Role for TransmiT

We believe that the choice represented by the two options is significant as we consider that a firmer commitment is made by a generator that has chosen the IGUCM. It is therefore our view that the IGUCM and FSL arrangements are interlinked and if reviewed under TransmiT should be considered holistically. The choice to a new investor is also relevant in respect of the stability and transparency of security arrangements and a balance of options should be provided.

When discussing liabilities for transmission works it is relevant to consider the risks associated with termination of new generation projects. Whilst this is extremely difficult to quantify with any accuracy it is true that as a generation project nears completion it should be able to provide stronger evidence of their commitment to the development of a grid connection. It is therefore worth considering if it is appropriate for security for

transmission liabilities to significantly increase as a project nears completion, when the project's own capital expenditure is also increasing rapidly.

In respect of the current FSL arrangements whereby only local works are secured we note that this might allow new generation projects to take advantage of an imbalance of risk in order to make speculative applications for transmission access. It is our view that security arrangements should be set such that projects which are unlikely to progress do not unduly impact on network companies and other generators. However, it is also important that they do not represent a barrier to feasible projects.

In responding to a recent consultation from NG on this topic we noted that we would welcome some further analysis on the expected impact of this under the enduring C&M arrangements for transmission access. The interaction with strategic transmission investment is also worthy of further consideration and we would welcome an impact assessment as part of Project TransmiT to include these two issues.

Finally we would note that this issue interacts with the considerations for anticipatory investment. In this respect therefore the work of RIIO-T1 and the appropriate incentives on network companies is also very relevant.

1.6 Gas connection and charging arrangements

Gas connection

Current arrangements

Unlike electricity where they are incorporated into the CUSC, the connection arrangements in gas are less transparent and not subject to UNC governance. A review of these arrangements is currently being undertaken so that the process, timelines, costs and documentation for gas connections are transparent and governed by the UNC. National Grid has been actively engaged in this work and developing solutions.

Role for TransmiT

The issue of gas connections has undergone significant work and development to ensure that the processes are fit for purpose and transparent. As this work is nearing completion we do not believe that there is value in these issues being subsumed into Project TransmiT with the risk that valuable work and development is lost. We believe that the industry processes and governance have worked as expected to address and resolve this issue. With the implementation of Ofgem's Governance review in 2011, and the incorporation of the connection methodology into the UNC then any Shipper will be able to raise a modification proposal to ensure that this work and agreement is enacted.

Gas charging

Current arrangements

National Grid's revenue is split into two distinct areas, namely, Transmission Operator (TO) revenue which is used to recover the costs of the assets that National Grid has in the ground and System Operator (SO) revenue which compensates National Grid for managing and balancing the National Transmission System (NTS) on a daily basis.

TO revenue is recovered 50% from entry and 50% from exit. National Grid uses a transportation model (similar to the DCLF ICRP model in electricity) for developing entry and exit charges. Exit charges are set on an administered basis every year and are scaled to a level so that National Grid recovers their revenue from exit (demand) based on their capacity bookings. This is therefore a capacity based charge. For entry, the model derives capacity based charges that are used to set the reserve prices for the entry auctions. Shippers gain access to the system through these auctions and the capacity charges they pay are derived from any successful bids submitted in the auctions, i.e. a pay as bid charging system. Unlike exit the entry charges are not scaled up to meet target revenue as Shippers can procure capacity up to 17 years ahead, when allowed revenue is unknown. In the event that National Grid does not meet its target revenue from the entry capacity auction sales, then it applies a TO Commodity charge to ensure that it meets its target revenue. This is a flat p/kWh charge applied to all entry flows.

The SO revenue is also recovered 50% from entry and 50% from exit. This is recovered through a flat p/kWh charge levied on all entry and exit flows.

Current issues in gas

There are several gas charging issues that have been under development and discussion in recent months. At a high level these are:

- (a) Variability and scale of TO Commodity charge. The level of revenue recovered from entry capacity auctions has been decreasing over recent years so that the majority of TO entry revenue is recovered from the TO Commodity charge. As this is a throughput or utilisation based charge it has been erratic depending on the throughput of gas on the system. A significant piece of work was undertaken to identify solutions to this issue; however NGG's preferred solution was rejected by Ofgem as it was not deemed to be cost reflective.
- (b) Exit Capacity charging. The current model employed by National Grid works when supply outstrips demand, however from 2014 under National Grid's assumptions demand will outstrip supply. This is because in 2012 National Grid will move from forecast demand for charge setting to the baselines in their Licence which determines how much capacity they have to release. The use of baselines for charge setting purposes was a change to the previous methodology, which used National Grid's demand forecasts, and was only implemented in 2009, the intention of which was to improve stability and ensure that Shippers using offpeak capacity remain exposed to some TO charges.
- (c) Embedded supply. National Grid is forecasting a significant increase in the level of biomethane connecting to the distribution networks in response to the Renewable Heat Incentive (RHI). However the current charging methodology does not take these supplies into account, i.e. gas supplied from such sites would attract an NTS SO commodity charge on exit, even though they had not utilised the NTS. These sites are also exposed to a deep connection methodology, which may prove unattractive for investors compared to the shallow connection charging methodology employed for the NTS connections.

Role for TransmiT

The arrangements for gas are by no means perfect and there have been several issues raised and discussed in public fora recently. However, it is the decarbonisation of the UK electricity sector and integration of low carbon technologies in order to meet Governments targets which have triggered TransmiT and are the priority (rather than any real or perceived issues in gas). We therefore believe that gas issues do not need to be covered by TransmiT. If gas is to be considered in TransmiT it should only be progressed if Ofgem are confident it will not unduly delay the conclusions of TransmiT required by Spring/Summer 2011. Of course, any changes to electricity arrangements concluded by TransmiT should be sense checked to ensure they do not create perverse incentives or unintended consequences for gas arrangements.

We also believe that whilst the issues for gas are not as pressing as those facing the electricity regime, gas and electricity are also two fundamentally different fuels with different drivers. Gas has a flexible system in which it can be stored and it faces a period of static or declining demand, which looks to be maintained into the future. As such therefore a stable charging regime is required to provide confidence to investors and ensure that existing assets continue to be utilised.

We therefore do not believe that there are significant drivers for change in gas charging arrangements. However we recognise that some of the principles contained in the current charging methodology and being discussed through the gas TCMF (Transmission Charging Methodologies Forum) are consistent with the current principles contained in the electricity regime. It is important to note the interaction of the locational signals in the siting of gas fired power stations and TransmiT should ensure that in evaluating the appropriate regime for electricity charging that perverse signals to gas generators are not created. . Whilst recognising that the two are materially different fuels with different drivers in the near and long term, we believe that it might be appropriate to review the use of these principles in gas charging at a later date. However, arrangements in electricity should not automatically be replicated in gas (nor should arrangements in gas automatically be replicated in electricity).

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