SUBMISSION FROM THE OFFICE OF THE GAS AND ELECTRICITY MARKETS

Ofgem is the independent economic regulator of the gas and electricity markets. Our principal duty is to protect the interests of existing and future consumers. The interests of gas and electricity consumers are their interests taken as a whole, including their interests in the reduction of greenhouse gases and in the security of supply of gas and electricity to them.

We welcome the opportunity to provide evidence to the Economy, Energy and Tourism Committee. Our response concentrates on our role of regulating the monopoly companies that own and run the transmission and distribution networks, and in particular how this facilitates the connection of renewable generation across Scotland.

- What further improvements are needed to the grid infrastructure or heat supply networks both at a national and a local level? Additionally, are we confident that the necessary infrastructure can be developed and financed so that Scotland can export any excess electricity generated to the rest of the UK and/or the EU?

Significant investment is needed in Scotland’s electricity networks over the next decade to meet the renewable targets set by both the UK Government and the Scottish Government, and to ensure continued security of supply. To support and encourage network companies to meet these challenges, we announced a change in the way we regulate. In areas of the gas and electricity industry where companies maintain an effective monopoly we regulate with a mechanism called a “price control”. Our new model for setting these price controls is known as RIIO or Revenue = Incentives + Innovation + Outputs. It is designed to drive real benefits for consumers; providing companies with strong incentives to meet the challenges of delivering a sustainable energy sector at a lower cost than under our previous approach.

Key elements of RIIO are:

- greater emphasis on effective stakeholder engagement - companies and Ofgem to engage effectively with wide range of stakeholders
- the requirement to develop well-justified business plans identifying how they have considered and reflected stakeholders’ views
- The requirement to provide greater evidence of an overarching strategy to deliver environmental responsibilities

Flexibility delivers projects to connect renewable generation

In previous price controls, the majority of investment was agreed at the beginning of the price control period. However, new mechanisms were introduced in the middle of a price control period in recognition that additional investment was needed to connect renewable generation.
In 2004, we introduced the Transmission Investment in Renewable Generation (TIRG) mechanism which provided the three transmission licensees with revenue to connect renewable generation that was not previously forecast. TIRG comprised four specific projects: Beauly-Denny, Sloy, South West Scotland and the Anglo Scottish Interconnector and allowed additional investment of around £560m (2004/05 prices).

For the fourth price control period, a similar mechanism was introduced called Transmission Investment Incentives (TII). This provides project-specific, interim funding for critical, large-scale investments. Under TII, £617m of investment was agreed, including funds for the Western HVDC link and the Eastern HVDC link, both of which enable the transmission of electricity between Scotland and the rest of Britain.

**RIIO-T1 – transmission price control for period 2013-21**

The next electricity transmission price control, known as RIIO-T1, will be the first to reflect the RIIO model. It will set the outputs that the gas and electricity transmission owners must deliver over the eight-year period from 2013-21, and the associated revenues they may collect from consumers.

RIIO-T1 recognises from the start of the control that there is significant uncertainty over a number of the investment projects that are likely to come forward during the eight years. This is due to a number of factors including planning considerations and user commitment, or in other words the financial commitments a generator must make before a transmission owner will begin work on their connection. The RIIO model gives the companies the flexibility to bring the projects to Ofgem for consideration once a needs case can be demonstrated i.e. during the next price control period.

**Fast-tracking of Scottish companies’ business plans**

A significant innovation in the RIIO model is the introduction of fast-tracking as a possible treatment for companies’ business plans. It provides strong financial and reputational incentives on network companies to step-up to the challenge of providing well-thought and well-justified business plans. Companies that submit high-quality plans can be “fast-tracked”, agreeing the control a year early so they are then able to focus on delivery of these plans.

In January, we published our assessment of the plans put forward by the two Scottish electricity transmission owners, SHETL and SPTL including our view that the plans were well-justified and suitable for fast-tracking.

Under these Initial Proposals we would allow upfront funding for around £2.3bn of investment in the Scottish transmission network with scope for an additional £3.7bn to be brought forward for assessment during the RIIO-T1 period. This gives total investment of around £6bn in 2009/10 prices (or £7.6bn after inflation).

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1 Scottish Power Transmission Ltd (SPTL); Scottish Hydro Electric Transmission Ltd (SHETL) and National Grid Electricity Transmission Ltd
Figure 1 (see appendix) sets out an indicative guide to the key investment projects proposed by SPTL and SHETL in their business plans. The majority of the projects in this diagram will be brought forward for assessment during the price control period, and are not included in the £2.3bn baseline investment. The £2.3bn does include significant investment to increase the capacity for cross border flows from its current capacity of 3300 MW to 6600MW. It also includes funding for various pre-construction outputs such as routing, siting studies, environmental assessments and planning consents.

What does this mean for the meeting the UK Government and Scottish Government’s renewable targets?

SHETL’s generation investment plan indicates that since 2005, 900MW of renewable generation has been connected, with around 10GW currently under construction, consented or in the planning and development process.

SPTL’s generation investment plan includes as its best view an additional 3GW of renewable generation by 2021, giving a total of circa 5GW of directly connected renewable generation.

Total maximum demand in Scotland is around 6GW. Taken together, if all of the projects put forward by SPTL and SHETL in their business plans were to proceed, the potential connected capacity would be more than enough to meet 100% of Scotland’s maximum total demand.

- **What will be the impact on consumers and their bills?**

The transmission companies levy charges on users of their networks, and this is shared between generators and demand consumers. For domestic customers, network charges comprise around 20% of their bill, of which 16% is distribution charges and 4% is transmission charges.

Based on the Scottish transmission companies’ estimates, the cost of this investment will be **£2.56 per average domestic consumer in 2012/13, rising to approximately £5.36 in 2020/21.** The recovery of network costs will be spread across the life of the assets (between 20-45 years) and across all users of the networks. A substantial proportion of the costs will therefore be met by industrial and commercial customers.

It is also important to note that these figures only represent the impact of the SPTL and SHETL settlements, and do not include the costs of investment in the electricity transmission network in England and Wales. Just as the SPTL and SHETL costs will be also covered by customers in England and Wales, National Grid Electricity Transmission plc’s costs will also be covered by Scottish customers. This will mean that the final number for the increase in transmission charges will be higher reflecting the investment across the whole network.
Investment in distribution networks

There is also a need for significant investment in the distribution networks to connect renewable generators. To ensure there are no regulatory barriers to restrict the development of smarter, more responsive networks, we have put in place a number of new requirements on distribution network operators (DNOs) including:

- DNOs must now have in place a Distributed Generation Connection Guide and Information Strategy to help customers navigate their way through the process
- new connections standards set out minimum timescales for the connections process, including compensation when these are not met, and
- all DNOs must now publish a long term development statement to enable existing and potential users of the network to scope out where opportunities and capacity exists

However, we remain concerned that distributed generation (DG) customers have encountered a number of difficulties in getting a connection. We have held a series of “DG Forum” events in London, Glasgow and Cardiff which were attended by a broad range of stakeholders.

Key themes from these events included the need for transparency of cost information so that customers can feel confident that they understand and can challenge costs; and the need for better and more frequent engagement with DNOs. The DNOs have now provided us with a plan of action for how they will take these issues forward.

The next electricity distribution price control – RIIO-ED1

Significant investment in the distribution networks is also needed to avoid customers who want to connect incurring costs and delays because network reinforcement is needed further downstream. We expect there to be an increased take-up of low carbon technologies such as heat pumps, solar panels as well as electric vehicles and small scale renewable generation during the next electricity distribution price control (called RIIO-ED1), which begins in 2015.

A key objective of RIIO-ED1 will be to ensure that DNOs accommodate these low carbon technologies in a timely and cost effective way. A key challenge will be to strike a balance between ensuring that network capacity is in place to accommodate low carbon technologies whilst ensuring that customers do not pay for redundant assets.

Offshore transmission networks

The development of offshore renewable projects will also require significant investment in a new offshore transmission network. This includes an expansion in sub-sea cable construction to transmit the power to the onshore grid. To facilitate this, Ofgem and the UK Government’s Department of Energy and Climate Change (DECC), established a competitive, asset-based regulatory regime for the sector in
2009. This will ensure that new offshore renewable generation projects are connected to the onshore GB electricity network economically and efficiently.

Within the Offshore Transmission regime, Ofgem manages a competitive tender process which grants licences for developing and operating offshore networks. The regime will also regulate these parties within the UK’s overall transmission regulatory framework.

Ofgem (in collaboration with DECC) has been examining opportunities for, and the costs and benefits of, the development of a coordinated GB offshore electricity transmission network. Future wind farms will be substantially larger and further offshore. Instead of building individual connections for each development, and separate reinforcements of the onshore network where necessary, they could be interlinked to lower the overall construction and operating costs.

Analysis undertaken by consultants appointed through the Coordination Project suggests that a coordinated approach could reduce the cost of GB offshore connections by 8-15% (£0.5-3.5 billion). This would help contribute towards the UK Government’s target of reducing the cost of offshore wind from £150-190 per mega watt hour (MWh) to £100 MWh by 2020.

Links could also be built between offshore wind farms that have a wider system benefit by allowing greater onshore power flows from increased renewable generation. In time, these changes could potentially be adapted to also help the development of a European offshore network if this does materialise. Early discussions are currently taking place through the North Seas Countries’ Offshore Grid Initiative about how this might work in the future. Ofgem is now consulting on how coordination might be achieved by making changes to the current GB regulatory regime for offshore transmission assets.

There are potentially seven offshore transmission projects around the coast of Scotland that licenses will need to be granted for through the OFTO regime (giga watts outlined in brackets): Islay (TBC), Argyll Array (1 GW), Beatrice (1 GW), Inch Cape (1.05 GW), Neart na Goithe (0.45 GW), Moray Firth (1.5 GW), and Firth of Forth (3.7 GW).

- **Are the reforms of the energy markets and subsidy regimes at both UK and EU level sufficient to meet the challenge of the Scottish Government’s renewable targets?**
- **What will the impacts be on consumers and their bills?**

**Project TransmiT**

Project TransmiT is Ofgem’s independent and open review of transmission charging and associated connection arrangements. As part of Project TransmiT we have considered three main charging options and have assessed them against three broad aims of the project: (i) deployment of low carbon generation across Great Britain (GB) and impact on achieving the UK Government’s Renewable Energy Strategy target of 30% of generation from renewable sources by 2020 and carbon intensity in 2030, (ii) quality and security of supply across GB, and (iii) overall cost of the system as a whole and customer bill impacts.
The three main charging options Project Transmit modelled and examined are:

- **Status Quo** (Investment Cost Related Pricing (ICRP)): retaining the existing Transmission Network Use of System (TNUoS) charging methodology and making incremental changes to reflect issues previously unanticipated (e.g. high voltage direct current (HVDC) and island connections).
- **Improved ICRP**: incrementally changing the current charging approach to improve the accuracy of cost targeting.
- **Socialisation**: recovering transmission costs through a uniform £/MWh tariff applied to all generation users, whatever their type and location. Similarly another set of uniform tariffs would apply to demand users.

These three options are consistent with meeting the UK Government’s 2020 renewable target and carbon intensity goals with no material differences in the implications for security of supply. The key differences between the options are the impacts on power sector costs and consumer bills.

In December 2011 we set out our assessment of these three options, including our initial view that the “improved ICRP” better reflects the costs that renewable generators impose on the need for transmission investment, by taking into account the type of generator and how often they are using the network to transmit power. Improved ICRP would also create **a more level playing field** on which generators would compete across GB and appears to be more consistent with the direction of European policy.

Based on the evidence and our assessment of it, we proposed to **rule out socialised charging** as an option for transmission charging. This is because:

- For any given level of government support the socialised approach reduces the risk of not meeting the UK Government’s 2020 renewable generation target. However in order to meet these targets, it does so at disproportionate cost (to 2020 power sector costs would increase by £2.8bn, **pushing up consumer bills by £6.9bn**).
- It would exacerbate existing regional patterns of fuel poverty. Figure 2 (see appendix) shows the impact of both improved ICRP and socialised options compared to the status quo, with **increases of between £25-30 a year for consumers in Scotland**.
- Socialising wider asset charges only reduces costs and consumer bill impacts compared to full socialisation, but they are still significantly higher than for status quo and improved ICRP (consumer bills rise by £4.8bn to 2020).
- It risks straying into areas of UK Government policy around the degree of support for low carbon generation, which could cause confusion.

Transmission charging alone cannot deliver the Government’s renewable targets. Subsidy from Government is also required. Our analysis assumes that DECC’s Electricity Market Reform (EMR) work sets support for low carbon generation to ensure that the binding 2020 renewable target is met under any charging approach, which DECC has confirmed is an appropriate assumption for the purposes of our modelling. However, we have also established that all three charging approaches are consistent with delivery of the 2020 target even if levels of support are...
maintained at levels equivalent to those in the recently announced Renewables Obligation re-bandung review.

Figure 3 (see appendix) shows indicative average figures for wider zonal tariffs across GB. In general, the modelling results suggest that the effect of the improved ICRP approach is to compress locational variations in generation transmission charges, particularly for low load factor generators including variable and intermittent renewables.

As a result, and all else being equal, zones which currently have high transmission charges, such as North Scotland, become more attractive for siting plant with lower load factors (including low load factor thermal generation) and zones which currently have low positive, or negative transmission tariffs, such as the south of England, become less attractive for plant with this characteristic.

**User commitment**

Project TransmiT has also been looking at the other practical and commercial difficulties generators experience when connecting to the networks. This includes the financial commitments a generator has to sign up to before National Grid will begin work on their connection. These commitments (known as User Commitment) act as a guarantee to National Grid that the generator is committed to using the link once it is complete and avoid unnecessary costs for wider network users and ultimately consumers.

Existing User Commitment arrangements were cited as a barrier to entry, particularly to smaller parties, during the scoping phase of Project TransmiT. While Ofgem has taken the lead on the charging proposals under TransmiT, we asked industry to develop proposals to tackle the user commitment issues and a modification proposal, CMP192, was submitted to Ofgem in November 2011.

The proposed arrangements under CMP 192 allocate liabilities to generators in a manner reflective of the risk that any changes in their plans would pose to efficient transmission investment and consumers. In addition, CMP 192 proposes to separate securities from liabilities and in doing so change the level of security generators are required to post. This would reduce barriers to entry by significantly reducing the security obligations placed on pre-commissioning generators. We consider this to be of a particular benefit to smaller, independent generators. Pre-commissioning generators are currently required to post security for 100% of their liability. Under CMP 192, the level of security would be reflective of the likelihood of the pre-commissioning generators cancelling their project. It is proposed that before the generator has received the necessary planning consents their security should be 42% of their liability. Once these consents have been obtained the security requirements would drop to 10% of their liability.

OGFEM
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2 Generators awaiting connection to transmission network.
Figure 1: Indicative guide to proposed network investment in Scotland under RIIO-T1

Figure 2: Change in average bill vs status quo – 2020 (£/customer)
Figure 3: Indicative average wider TNoUS tariffs for all generation zones 2012