Interconnector developers and
other interested parties

ofgem
Making a positive difference
for energy consumers

Direct Dial: 020 7901 7134

Email: Cap.Floor@ofgem.gov.uk

Date: 30 September 2015

Dear stakeholders,

Decision on the Initial Project Assessment of the Greenlink interconnector

In March 2015 we published a consultation on our minded-to position on our Initial Project Assessment (IPA) of the FAB Link, IFA2, Viking Link and Greenlink interconnectors.[1] We then sought views on our updated assessment of the Greenlink project to Ireland in August 2015.[2] This letter is our decision on the IPA of Greenlink.

Background

In August 2014 we established our cap and floor assessment process for electricity interconnectors.[3] Five projects applied for cap and floor regulation in our first application window, including the Greenlink project, a proposed 500MW HVDC subsea interconnector between Wales and the integrated Irish electricity transmission system which is being developed by Element Power.

Our IPA is the first stage of the cap and floor process and looks at whether the interconnector is likely to be beneficial and in particular whether it is likely to be in the interest of GB consumers.

Key themes raised in consultation responses

We received 14 responses (some of which are confidential) to the consultation. Responses from the developer and GB based generation and supply businesses focussed on the additional analysis, the conditions we had provisionally proposed and the impact of these on our overall decision. A number of further responses (mainly from Irish consumers and consumer groups) focused on a broader context of the project, especially in relation to renewables development in Ireland, but did not raise specific issues relating to the key

[1] Our March 2015 consultation is available at: https://www.ofgem.gov.uk/publications-and-updates/cap-and-floor-regime-initial-project-assessment-fab-link-ifa2-viking-link-and-greenlink-interconnectors
[2] Our August 2015 consultation on Greenlink is available at: https://www.ofgem.gov.uk/publications-and-updates/cap-and-floor-regime-update-our-initial-project-assessment-greenlink-interconnector
[3] Our August 2014 decision to roll out the cap and floor regime can be viewed at: https://www.ofgem.gov.uk/publications-and-updates/decision-roll-out-cap-and-floor-regime-near-term-electricity-interconnectors

questions in the consultation. We have informed the Irish regulatory authorities of those specific responses. We address the key themes raised by respondents in Annex 1.

Our decision on the IPA of Greenlink

We have reviewed the consultation responses and carefully considered the points raised, in particular in relation to the new analysis we set out. Overall, we note that whilst there were some points raised to question aspects of the new analysis, there were also indications of support for our approach. We continue to consider the updated analysis provides an appropriate basis for this decision. Given that, we now consider that the project is likely to be in the interests of GB consumers and GB as a whole. We have therefore decided to grant Greenlink a cap and floor regime in principle, on the same basis as set out in our previous IPA decisions[4], and subject to the conditions indicated below.

Conditions relating to our decision and managing project progression

Our decision is based on analysis of welfare impacts as set out in our August 2015 update letter. We recognise that as the project develops, it may be optimal for the developers to alter details of the project in the light of further analysis or engagement with partners or suppliers. We support ongoing optimisation of the project, but we also need to ensure that this does not undermine the basis of our decision.

As for the other IPAs, we note that this decision is contingent on progress generally in line with the timelines, cost estimates and commercial arrangements provided by Element Power in its IPA submission. For cost estimates, the condition is that the costs submitted by the project developers do not materially rise. We will consider the threshold for materiality of any cost escalation against the potential impact on the needs case and consumer benefits and comparable costs for similar projects.

In order to maintain eligibility for the cap and floor regime, each project is already required to submit sufficiently detailed information for our Final Project Assessment (FPA) to start within two years of this decision. This information will need to be informed by detailed discussions with the supply chain and tender returns to support cost estimates. This requires an FPA submission for Greenlink from Element Power by the end of September 2017.

In order to ensure consumer interests remain protected during the interconnector development process Element Power will also be required to:

- **Provide us with quarterly written reports on progress against a number of key development milestones**, including (but not limited to) development work, consenting and permitting, procurement, financing, operational management plans and costs, project management and other factors that had an impact on our IPA welfare assessment. We expect the Greenlink developer to provide us with its first quarterly report at the end of October 2015. We note that Greenlink have advised us of a change to the expected delivery date and we expect this, along with any other relevant changes from the IPA submission, to be set out fully in the first progress report.
- **Confirm the timing of FPA submission in writing to Ofgem at least two months before the expected submission date.**
- Additionally, give formal written notice of **any material change to the project design, such as changes in capacity, connection location or connection date.** Following any such change, Element Power must explain the rationale for the change and the implications for project costs and delivery timescales.

[4] Our July 2015 IPA decision is available at: https://www.ofgem.gov.uk/publications-and-updates/decision-initial-project-assessment-fab-link-ifa2-and-viking-link-interconnectors

The Office of Gas and Electricity Markets
9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk**

Notwithstanding the specific conditions we set out below, if any information given to us before making our FPA decision leads us to consider that the basis of our IPA decision has materially changed, then we may choose to require a new IPA stage. In this case, we may re-run our analysis in order to confirm whether or not the project continues to be in consumers' interests and should continue to be granted a cap and floor arrangement. Alternatively we may require the project to resubmit in the next cap and floor application window. Material changes would include any prospective delays in project delivery of more than 24 months. This is additional to the current arrangement that any delays to delivery beyond the end of 2020 will result in a shortening of the cap and floor regime period.

In addition, this decision is contingent on some conditions specific to the Greenlink project. These are intended to reflect assumptions that our updated analysis is particularly sensitive to. These conditions will need to be fulfilled by the point at which we consult on our FPA, unless otherwise agreed with us at the FPA stage. These conditions are:

- The final form of Greenlink's connection agreement must not negatively affect our updated analysis. The connection agreement would be the vehicle to confirm the use of an intertrip on the project. It is for National Grid Electricity Transmission (NGET) and Element Power to agree a bilateral connection agreement. We require confirmation of this agreement prior to Element Power's FPA submission. As previously mentioned, we expect that any costs incurred by Greenlink as a result of intertrip use should be excluded from calculation of any cap or floor payments.
- The I-SEM market design should not negatively affect our updated analysis. If the final design is different to the current direction of travel and this could reasonably be expected to negatively affect the welfare case for the project then we will reassess this as necessary.
- Our granting of a cap and floor regime in principle applies to only 50% of the project's costs and revenues. The other 50% of the value of the project should be appropriately supported, including through the Irish regulatory regime.

Further developments

While this decision confirms the GB regulatory treatment for Greenlink, we recognise that projects face a number of other challenges to delivery, notably for funding and supply chain availability.

On funding, since our recent open letter, we have started talking to interested parties on financing interconnector projects under the cap and floor regime.[5] We anticipate sharing further information on this process in the autumn.

On supply chain challenges, we will be looking to work with project developers in order to provide a public-form supply chain plan for each project. This is consistent with the request set out in our July 2015 decision on the FAB Link, IFA2 and Viking Link projects.

For further details on this decision please contact Stuart Borland at Cap.Floor@ofgem.gov.uk or on 020 7901 7134.

Martin Crouch

Senior Partner, Electricity Transmission

[5] Our open letter on interconnector financing is available at: https://www.ofgem.gov.uk/publications-and-updates/open-letter-financing-electricity-interconnectors-under-cap-and-floor-regulatory-regime

The Office of Gas and Electricity Markets
9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk**

Annex 1: Summary of consultation responses for our updated Initial Project Assessment of the Greenlink interconnector

Our consultation on our updated Initial Project Assessment (IPA) of the Greenlink interconnectors ran from 10 August 2015 to 11 September 2015. We received 14 responses, some of which are confidential. Respondents included Element Power as the project developer, three electricity generation and supply businesses and 10 Irish consumers or consumer groups.

The non-confidential responses have been published on our website and copies are also available from our library. Below we summarise the key themes raised in the responses, and we provide clarifications on the issues identified.

Interactions between the cap and floor regime and carbon price floor tax receipts

Some responses raised questions around our consideration of how further interconnection may affect the tax receipts that government receives via the Carbon Price Support (CPS) mechanism. We agree with respondents that increased interconnection may affect the value of these receipts. The CPS is designed to provide an incentive to reduce fossil fuel power generation and invest in low-carbon generation. Any inclusion of HM Treasury carbon support receipts in our analysis would need to be offset by valuing the carbon saved – we are taking this valuation as implicit in the CPS design. We think our decision-making on interconnectors is broadly consistent with government's energy policy goals as interconnection can support investment in, and integration of, renewables.

There are a number of other direct and indirect effects that we have not fully taken account of in our quantitative analysis due to uncertainty, such as interconnector participation in the Capacity Market or the impact of lower wholesale prices on the economy as a whole. As mentioned in our March 2015 consultation and our July 2015 decision on the FAB Link, IFA2 and Viking Link projects, we have considered these dynamic effects qualitatively and do not think they would have a material impact on our analysis or decisions.

Wind generator bidding behaviour in I-SEM and intra-day market changes

A respondent suggested that the bidding behaviour of Irish wind generators might be different from what was assumed in the Pöyry's model as these generators will not have a perfect foresight of wind output at a day-ahead stage. According to the respondent, this could mean they might bid more conservatively to avoid imbalance charges, leading to higher marginal prices in I-SEM than modelled. Whilst it is true that Pöyry model assumes perfect foresight of wind output, this is a standard simplification that has to be made as we have no way of knowing what the actual bidding behaviour will be. In addition, it is worth noting that even if wind generators bid more conservative amounts than the expected output, it does not mean that wind will not be at the margins as Pöyry's assumptions suggest that the total installed capacity of renewables in Ireland will significantly exceed the average system demand from 2025 onwards.

Relating to the above, one respondent raised a question whether our analysis will consider the potential changes to the new intra-day market arrangements that will be in place in the foreseeable future as part of the EU internal energy market progress. We acknowledge that intraday market coupling arrangements are required by new European legislation and are currently being developed, they are still not in place and we do not have sufficient certainty as to how they might look, such as how intraday capacity will be priced, so it is difficult for us to model them. However, we do consider that intraday market coupling arrangements will further support intermittent generators as they will be able to balance their positions more effectively and would reduce the forecasting and imbalance risk mentioned by another stakeholder above.

The Office of Gas and Electricity Markets
9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk**

Greenlink's proposed use of an intertrip and interaction with European Network Codes

One respondent asked if interconnector payments to firm capacity holders would be reduced as a result of no constraint payments being made to Greenlink. Whilst the Forward Capacity Allocation (FCA) European Network code is still to be implemented in Member State, the current drafting of the code will require interconnectors to compensate users in all circumstances (except force majeure). Therefore we do not expect that these payments would be reduced if Element Power is not compensated by a third party.

Another respondent asked to how the cost of energy lost as a result of activating the intertrip would be replaced via the balancing mechanism. Whilst the details have yet to be agreed between Element Power and National Grid, we expect there will be no constraint payments made to Element Power when the intertrip is activated.

One respondent asked whether costs incurred through use of the intertrip would be recovered from all users if it resulted in Greenlink's revenue falling below the floor. In our recent open letter we stated that consumers should not be liable for costs as a result of any intertrip agreement, this includes recovery of revenue to the floor. This is the intent of the first condition listed above on page 3.

Greenlink's impact on Ireland and interactions with the Greenwire project

All Irish consumers and consumer groups (10 respondents in total) raise significant concerns that our analysis did not sufficiently consider the impact of our decision on Ireland.

A key theme in these responses was opposition to the installation of wind farms in the midlands of the Republic of Ireland. Our consultations to date, and this decision, relate to the proposed 500MW Greenlink HVDC interconnector only. Our cap and floor regime is only applicable to market-to-market interconnector projects (ie the cable between two national electricity transmission systems).

Greenlink would connect the GB and Irish transmission grids (with Great Island as the current expected connection point in Ireland) but doesn't include any specific wind generation proposals. Our analysis does take assumptions on the rate of increase in wind generation on the Irish system. This varies in the Low, Base and High scenarios that were considered in Pöyry's analysis. We think these represent a feasible range of eventual wind capacities in Ireland. Our Base case figure is informed by Eirgrid's All-Island Generation Capacity Statement (GCS)[6] and we continue to see this as a reasonable estimate. We note that, in its response to our March 2015 consultation, Element Power suggested that our assumptions on wind capacity in Ireland were too low. We didn't take this into account in our updated assessment because we considered that our lower estimates seemed reasonable.

Some respondents also raise issues with broader environmental impacts of the project. Whilst we have taken account of some environmental impacts of the project being realised in assessing the needs case for Greenlink, such as potential benefits in terms of renewable generation, the environmental impacts of the construction of the interconnector are generally outside the scope of this IPA. Generally, for Greenlink we expect Element Power to engage with Irish government and regulatory authorities on energy policy matters, and with local and national planning authorities on consenting matters, as appropriate and in accordance with the relevant regulatory and legislative frameworks.[7]

[6] More information is available at: http://www.eirgrid.com/media/Generation%20Capacity%20Statement%202014.pdf

[7] An Bord Pleanala and local authorities are responsible for planning and consenting in Ireland. More information is available at: http://www.pleanala.ie/index.htm

The Office of Gas and Electricity Markets
9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk**

Irish export limits on existing interconnectors

One respondent suggested that we should take account of current export constraints on the Irish transmission system. Currently the Irish transmission system requires export volumes to be restricted due to high system frequency in Ireland. However, we note the power system of Ireland and Northern Ireland is in a period of transition driven by national and European policy, particularly with respect to renewable energy. This will result in a change to the power system generation portfolio and the operational characteristics of the system.

EirGrid and SONI (the Republic of Ireland and Northern Ireland transmission system operators) have put in place a programme of work, "Delivering a Secure Sustainable System" (DS3), to address these challenges. The DS3 Programme aims to develop solutions to the challenges of operating the electricity system in a secure manner while achieving 2020 renewable electricity targets. One of the aims of the DS3 programme is to adapt and refine system operation policies to assist in securely managing the voltage and frequency on the Ireland and Northern Ireland power system.

Any changes to Irish policy on frequency control are due in 2017-2018 so should have been completed well before the Greenlink project is in place.

Provision of fast frequency response and other cross-border ancillary services

Some respondents expressed doubts over the potential ability of Greenlink (and by extension the Irish system) to provide fast frequency response to the GB system. We agree that this is uncertain at this stage, and have not attributed an estimated economic benefit at this stage due to this uncertainty. As noted in our updated assessment in August 2015, we acknowledge that the provision of cross-border services needs further consideration by the relevant transmission system operators (NGET and Eirgrid) before any potential value could be accurately identified.

The Office of Gas and Electricity Markets
9 Millbank London SW1P 3GE **Tel** 020 7901 7000 **Fax** 020 7901 7066 **www.ofgem.gov.uk**