



Making a positive difference
for energy consumers

Interconnector developers and
other interested parties

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Dear stakeholders,

Decision on the Initial Project Assessment of the FAB Link, IFA2 and Viking Link interconnectors

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 The consultation closed on 2 May 2015. We received 15 responses (two of which were partially confidential). We carefully considered these responses and this letter sets out our decision on the IPA of the FAB Link, IFA2 and Viking Link interconnector projects. This letter also sets out our proposed next steps on the Greenlink project, on which we have not yet reached a decision.

Background

In August 2014 we established our cap and floor assessment process for electricity interconnectors.² Five projects applied for cap and floor regulation in our first application window.

Our IPA 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. This is the first stage of the cap and floor process. The second stage is the Final Project Assessment (FPA) which assesses detailed costs, finalises the design of the regulatory regime and sets the provisional levels of the cap and floor. The cap and floor levels are then confirmed following a post-construction review process.

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 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>

Our decision on the IPA

FAB Link, IFA2 and Viking Link

We have reviewed the consultation responses and carefully considered the points raised. Overall, we do not consider that the points raised changed our minded-to positions for the FAB Link, IFA2 or Viking Link projects as detailed in our March 2015 consultation. We still think that the three projects are likely to be in the interests of GB consumers. We have decided to grant these interconnectors a cap and floor regime in principle, subject to the conditions indicated below.

These three projects represent a substantial increase in GB electricity interconnector capacity, which is currently just under 4GW. The total is expected to increase to over 7GW with the Nemo, ElecLink and NSN projects.³ The three projects included in this decision represent a combined capacity of 3.4GW. Overall, the projects in the pipeline could increase GB's interconnector capacity to almost 11GW. Further interconnection is expected to benefit consumers by allowing access to cheaper generation, providing more efficient ways to deliver security of supply and supporting the decarbonisation of energy supplies.

The cap and floor regime design which these projects have been granted is as set out in our May 2014 consultation and August 2014 decision. We previously stated that we are willing to consider project-specific variations to the detail of the regime, if a developer demonstrates that a proposed change better protects the interests of GB consumers when compared to our default regime. This remains the case, and we expect that any changes would be reflected in our FPA decision.

Greenlink

Our March consultation sought views on our minded-to position not to grant a cap and floor regime to the Greenlink project, developed by Element Power. We are continuing to review the detailed analysis submitted by Element Power, the Greenlink developer, and other relevant information from the consultation responses. We expect to publish further information on this project shortly.

Key themes raised in consultation responses

A number of respondents strongly supported our conclusions. Others raised some points in relation to how we had reached our conclusions. This section clarifies our thoughts on some recurring themes.

Interactions between the cap and floor regime and government policies

Some responses raised issues with our considerations of how the GB carbon price floor may affect the needs case for further interconnection. We agree with respondents that this affects price differentials between markets, and that our conclusions on potential welfare gains are sensitive to the level of the GB carbon price floor. This is why we asked Pöyry to undertake a sensitivity to test our conclusions if the carbon price floor is later changed or removed. The results of this showed that GB consumers could benefit from the three projects even if the carbon price floor was removed. Based on Pöyry's report only the Viking Link project would not be expected to benefit total GB welfare, and we note that this changes when estimated system operation impacts are also accounted for.

Potential interactions with government policy on Contracts for Difference (CfDs) for renewable generators were also discussed. Some respondents noted that although GB consumers are likely to benefit from lower wholesale prices as a result of further

³ The Nemo and ElecLink projects will have a capacity of 1GW each, and the NSN project will have a capacity of 1.4GW.

interconnection, the potential gains from this may be partly offset by increased payments to generators that have (or will in future be granted) CfDs. This is because a fall in wholesale price would create a larger difference between the wholesale price and the strike price set in these contracts. We agree that this is a potential side-effect and that this may lead to larger payments to generators where the wholesale price is lower than the agreed strike price for the relatively small number of CfD contracts already in place. We expect this to be one of the dynamic effects which, as discussed in our March consultation, may mean that the benefits of interconnection could be partially offset through other mechanisms. However, we note that CfD generators currently account for a small section of installed generation capacity and that any payments to CfD generators are currently capped under the Levy Control Framework (LCF), which is set for the period up to 2021. Any extension to the LCF for the period covered in our analysis (and interactions with interconnectors and other policies) is a matter for government. We also note that this is not an issue specific to interconnectors and would equally apply to any downward pressures on wholesale prices.

Interactions with network tariffs

Some respondents noted that generators in other countries may not pay the same network charges as GB-based generators and that further interconnection could distort economic signals, creating an uneven playing field for generators. While network charges are structured and levied differently in other markets, there is work ongoing at European level to move towards harmonising these tariffs. Further, removing GB network tariffs for interconnectors was implemented partly because of European legislative requirements. A robust connection process is in place to ensure that interconnectors are efficiently located on the GB transmission system.

Use of constraint costs and ancillary services in our analysis

Some respondents suggested that our use of a single-year constraint cost figure over a 25-year period may not accurately reflect the true system cost of any given interconnector project, as options are available that would allow the transmission system operator to manage any enduring constraints (such as reinforcing the network). This could suggest that our current methodology has overstated the likely cost of any such constraints. We accept that it provides for a reasonably conservative long-term scenario and the likelihood would be that constraints costs or alternative investment costs might be lower. Our positive decisions for FAB Link, IFA2 and Viking Link would not be affected by using a different methodology as this would only be expected to improve the modelled economic benefits of the projects.

A number of other views given in the consultation responses are discussed in Annex 1.

The basis of our decisions and managing project progression

Our decisions are based on analysis of welfare impacts from 2020 onwards, and on information provided as part of each IPA submission. We recognise that as the projects are developed, it may be optimal for the developers to alter details of the projects in the light of further analysis or engagement with partners or suppliers. We support ongoing optimisation of the projects, but we also need to ensure that this does not undermine the basis of our decisions. We deliberately limited the first window to relatively mature projects in order to mitigate this risk but in the light of experience to date, we think we need to go further in explaining how we will manage changes to project characteristics.

In particular, we note that our decisions for each of the successful projects are contingent on progress generally in line with the timelines, cost estimates and commercial arrangements provided in the project submissions. 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, the original estimates provided, 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 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. We expect to start the FPA process for the NSN project shortly and will give more guidance generally on the FPA in the light of that experience. We currently expect our FPA decision for each project to be timed to coincide with developers reaching internal financial approval for projects and signing supply chain contracts. To make sure consumer interests remain protected, we also require developers 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 developers to provide us with quarterly reports, starting by the end of September 2015. As part of the first report, developers should confirm the project timelines that were included in IPA submissions or give an update and any reasons for changes to them.
- **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 changes to the project's design, such as changes in capacity, connection location or connection date.** Following any such change, developers must explain the rationale for the change and the implications for project costs and delivery timescales.

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.

Further developments

While our cap and floor decision confirms the regulatory treatment, 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.⁴ 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. Supply chain plans have been used successfully in other areas of energy infrastructure, most notably for CfD generation projects, to provide greater visibility and awareness in the supply chain. Adopting a similar

⁴ 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>

approach for interconnectors would allow the use of established templates from other sectors, such as the CfD process, as a suitable basis.⁵

Our August 2014 decision explained that we expected our second cap and floor application window to close in September 2015. Having considered information presented to us by stakeholders, we have decided that it is appropriate to delay the second application window. We will continue to consider the optimal timing of the second window and we invite developers to continue to engage with us and update us on their respective projects.⁶

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

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⁵ Supply chain plan guidance for CfDs:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/340033/Supply_chain_plan_guidance.pdf

⁶ More information on our decision to postpone the second cap and floor application window is available at:

<https://www.ofgem.gov.uk/publications-and-updates/decision-postpone-second-cap-and-floor-application-window-electricity-interconnectors-2016>

Annex 1: Summary of consultation responses for the Initial Project Assessments of the FAB Link, IFA2 and Viking Link and Greenlink interconnectors

Our consultation on our minded-to position on the Initial Project Assessment (IPA) of the FAB Link, IFA2, Viking Link and Greenlink interconnectors ran from 6 March 2015 to 2 May 2015. We received 15 responses, two of which are partly confidential. Respondents included five interconnector developers,⁷ one generator, four electricity generation and supply businesses, two trade associations, one transmission system operator (TSO), The Crown Estate and one supply chain participant. There were no responses from consumer groups.

The non-confidential responses have been published on our website and copies are also available from our library. Below we summarise the main points raised in response to each question, and we provide clarifications on the issues identified.

Question 1: Do you agree with our minded-to positions on the four projects considered in this consultation?

Yes: Of the 14 respondents who answered this question, eight generally agreed with our conclusions, including four of the project developers.

No: Two generation and supply businesses disagreed with our conclusions and proposal to award FAB Link, IFA2 and Viking Link a cap and floor. One stated that merchant interconnection provides better value for GB consumers than the cap and floor regime. The other, while agreeing that there could be significant benefits from greater interconnection, commented that the net welfare case considered was not sufficiently robust.

A third generation and supply business agreed with our minded-to decision for FAB Link, IFA2 and Greenlink but did not support our conclusions on Viking Link. This respondent considered that there is a substantial downside risk due to length of cable and large capacity, which they consider will result in high project costs, and that relying on long-term price differentials between the two markets to recover these costs is a high risk. They also commented that the GB wholesale price savings in the base case seem optimistic and the system operation (SO) impacts are not sufficiently substantiated. They considered that the 'No Carbon Price Support (CPS)' and 'low gas price' sensitivities present downside risks. As a consequence, according to this respondent, GB consumer benefits of Viking Link seem overstated.

Our thinking: As set out in our NSN decision, the cap and floor regime retains incentives for developers to bring forward projects that are likely to deliver benefits to consumers. We do not consider that the Carbon Price Floor (CPF) receipts and the participation of interconnectors in the Capacity Mechanism (CM) remove the rationale behind our cap and floor regime as set out in our May 2014 consultation. Our principal objective is to protect the interests of GB consumers, and we also assessed the impact on overall GB welfare as a result of each interconnector. We tested the base case scenario without CPS, which still resulted in positive GB consumer and GB welfare benefits from FAB Link, IFA2 and Viking Link. However we note that Viking Link can reasonably be expected to have higher technical risk than shorter links to France. We incentivise developers to efficiently maintain availability and consider that our availability threshold and incentive should ensure consumers are protected where technical risks do materialise. We will consider the developers' treatment of risk in more detail at the FPA stage.

Other comments: Element Power, the developer for Greenlink, disagreed with our minded-to decision because it considers that our modelling methodology did not reflect the

⁷ Two of these developers are RTE and Energinet.dk, who are also the transmission system operators in France and Denmark respectively.

new Irish wholesale market (I-SEM) arrangements. Element Power also disagreed with the system operation analysis attributed to Greenlink. It has requested that we reassess the analysis of constraint costs, particularly given potential revisions to the projects connection design. National Grid Electricity Transmission (NGET), while recognising that we were minded to not award Greenlink a cap and floor regime as the project did not offer GB welfare benefits, suggested that we should consider additional information provided by Element Power in its response.

Both of the above responses highlight new information that has become available during the consultation process. As indicated in our decision letter, we will continue to consider the new information provided by Element Power to ensure our decision-making is underpinned by robust, up-to-date and accurate analysis.

Question 2: Is there any additional information that you think we should take into account when reaching our decision on the IPA of the projects?

The respondents who answered this question had mixed views. Nine respondents suggested additional information that we should take into account.

CfDs, CPF receipts and the CM: Three respondents stated that our assessment should have further considered the impact of increased interconnection on Contracts for Difference (CfDs), CPF receipts and the CM. These respondents thought we should test whether the projects would still be beneficial without these policies in place. We have accounted for the impact of CM on the welfare benefits that each project delivers. The Pöyry analysis assessed the impact of welfare benefits with and without CPS to demonstrate that the economic needs case does not rely on CPS. The Pöyry analysis did not take CfDs into consideration. Further, we do not think CfDs would be material in our assessment of projects and note the uncertainty over the price and quantity of CfD-backed generators beyond the current allocation round. We do consider this to be one of the dynamic effects discussed in our consultation document.

I-SEM design and solution to reduce constraint costs: Both Element Power and NGET have asked that we consider the use of an intertrip on Greenlink to assess the impact that may have on constraint costs. Element Power also requested that in reaching our final decision we reflect new I-SEM arrangements. In addition, Element Power has requested that we reassess the operational impacts of Greenlink connecting to the GB transmission system. As explained in our decision letter above, we will consider all points raised by both NGET and Element Power separately and publish further information on Greenlink shortly.

Existing interconnectors: One generation and supply business raised several points in response to this question. Firstly it suggested we clarify whether existing interconnectors to GB or those being developed, such as Eleclink and Nemo were accounted for in our analysis. We can confirm that both Pöyry's analysis and NGET's SO analysis took account of existing interconnection. This respondent also noted that our IPA didn't reflect the dynamic effects (such as generators' responses to changes in profit levels) or consequences for GB generators if increased interconnection encourages new generation to be built overseas. When reaching our minded-to positions on each project, we did consider distributional impacts and wider dynamic and efficiency effects, such as investment driven by longer-term impacts of changes to generator profit levels.

Response and reserve: The trade association considered that it would have been useful if our analysis considered how interconnectors could help to balance intermittent wind generation and how interconnectors reduce price volatility. NGET's qualitative SO analysis, which supports our IPA, sets out that interconnectors may be able to provide both frequency response and reserve. According to NGET, additional frequency response and reserve could help to manage the variability and intermittency of future generation sources. We have also qualitatively considered the impact of increased interconnection on price volatility in our consultation. We consider that interconnection reduces the potential for extreme prices and/or volatility.

Question 3: What are your views on the approach Pöyry has taken to modelling the impact of cross-border interconnector flows?

Respondents generally supported Pöyry's approach, commenting that it seemed logical and well-considered. Some comments were made on the modelling specifics.

Assumptions: One respondent commented that interconnection capacity assumptions behind the 'Low' scenario assumed too much interconnection. We assessed a range of scenarios and sensitivities which assumed varying levels of interconnection. The scenarios were developed with the assessment of interconnector value in mind, ie the Low scenario was designed to result in circumstances that would be unfavourable to the development of interconnectors, and the 'High' scenario in favourable circumstances. For this reason, we have assumed higher levels of interconnection in the Low scenario than in High. In general we consider that the High and Low scenarios present relatively extreme, but still plausible, views to test the upside and downside for interconnector value.

Two interconnector developers provided responses to this question.

CM revenue distribution: One interconnector developer did not agree that our suggested 50:50 split of GB CM revenue would reduce GB welfare in practice. In our consultation we set out that some GB generators would be displaced from the CM by new interconnectors. Since interconnector revenues are shared between two connecting countries, instead of having 100% of the CM revenues allocated to a GB party (ie a generator), there would be a split between a GB and non-GB party. This, from a welfare modelling perspective, results in a welfare transfer from GB generators to non-GB interconnector developer. While this doesn't have a bearing on our conclusions, we would be open to discuss this point with any interested party if required.

I-SEM design: The second interconnector developer noted that Pöyry's methodology has not reflected the latest design of the I-SEM, which they consider has had an adverse impact on the assessment of their project. This respondent also commented that Pöyry's modelling doesn't sufficiently account for variations in assumptions, which again could have a particularly significant impact on their project. Analysis has been provided and this will be considered separately for Greenlink.

Three generation and supply businesses responded to this question.

Higher CfD payments: The first respondent considered that loss to GB generation would need to be subsidised via higher CfD payments to account for the fall in wholesale prices and the Pöyry modelling should have reflected that. As discussed in the main body of this letter, we expect this to be one of the dynamic effects which may mean that the full potential consumer benefit of further interconnection is partially offset.

Impact on CPF receipts: The other generation and supply business supported the view that increased interconnection could benefit GB consumers but thought that the net welfare case for the three interconnector projects considered for approval wasn't sufficiently robust. This is because the assessment of GB welfare doesn't include potential for a reduction in CPF receipts. Their view was that if new interconnection displaces expensive GB generation then this is likely to have a corresponding impact the value of CPF receipts. We consider an assessment of the impact of increased interconnection on HM Treasury carbon support receipts is beyond the scope of our assessment.

Removing carbon price support in GB: The third generation and supply business stated that the analysis is well considered and broadly aligns with their expectations. In particular they agreed with the inclusion of the sensitivity that removes the carbon price support in GB. However, this respondent thought that further consideration should be given to the effect on estimated GB welfare of generators in connecting markets not paying equivalent transmission charges to GB-based generators.

Price differentials: This respondent also noted that there was a risk that if more interconnectors are built, particularly between Denmark and other member states, then the price differential between Denmark and GB could be substantially reduced (as it's a relatively small market). We can confirm that Pöyry's modelling scenarios did include an increase in capacity from new future interconnectors between Denmark and other countries in the assumptions.

Question 4: Do you have any additional evidence in this area that we should take into account?

Effects of more interconnection: One generation and supply business suggested that the Pöyry analysis should include the dynamic effects of increased interconnection, such as generators' responses to changes in profit levels. While such factors are not included in Pöyry's analysis, we did take this into consideration when reaching our minded-to decision, as noted above. We note that a robust and reliable range of dynamic factors would be difficult to consider in Pöyry's analysis because of uncertain timing and scope of potential future changes in the energy market. The current base, low and high cases capture a reasonable range of future changes but doesn't seek to take a firm view on unannounced future changes in GB and European policy, or on the impact of the market behaviour of individual participants.

Question 5: Do you have any views on the information presented in the chapter on GB system operation (SO) impacts?

Accuracy and analysis: Of the eight respondents who answered this question, three supported NGET's analysis of the SO impacts. One acknowledged the difficulty in estimating future operational costs with a high degree of accuracy. Another noted the system security benefits that Viking Link in particular could bring to the GB system as it strongly connects both the Nordic and German market. NGET noted that, while the analysis was presented appropriately in Chapter 5 of our consultation, it had some concerns over how constraint costs values had been used. We met with NGET to understand why our treatment of constraint costs was not considered appropriate, and this is discussed further below.

Other respondents had mixed views.

Wider works costs: One interconnector developer questioned the appropriateness of allocating wider works costs to IFA2 as wider works should not be directly attributable to any specific project. In our consultation we attributed £57m of wider works costs to IFA2 for installation of static VAR compensators (for fast frequency response) and mechanical switch capacitors (for voltage support) on the south coast. This cost was based on information obtained from the system operator. We consider it appropriate to allocate a portion of costs to IFA2 as the project is one of three parties directly triggering, and benefiting from, the work required at the SC1 boundary. This is boundary-specific and so is not a consideration for the other projects.

One generator responded to this question noting that there was insufficient information in the consultation to assess whether the SO impacts are efficient.

Conflicts of interest: Two respondents suggested that further work is needed to audit the information provided and assess whether alternative arrangements could result in greater efficiencies. One generation and supply business considered that there is a risk that conflicts of interest could arise as a result of National Grid being involved both as project developer and the source of independent modelling for our assessment. This concern was highlighted in response to the NSN consultation. We continue to think that NGET, as the system operator, is best placed for assessing impacts of interconnectors on system operation. We still consider that its analysis of SO impacts was a transparent assessment of all projects. We would reiterate that National Grid Interconnector Holdings (NGIH) and NGET are legally separate businesses and NGET's Electricity Transmission Licence contains

obligations which prevent NGET from providing preferential or discriminatory treatment to any of its affiliated businesses.⁸

NGET engagement with TOs: In our consultation we set out that the NGET assumptions are aligned with the Year 7 ETYS boundary capabilities which are informed by each of the TOs. One generation and supply business considered that it would be beneficial if NGET engaged with the TOs directly to determine whether this sufficiently addressed boundary capability impacts for all TOs. We note that one of the outputs of the Integrated Transmission Planning and Regulation (ITPR) project was for the system operator to produce a Network Options Assessment (NOA). We have recently published our statutory consultation on licence amendments requiring NGET to produce the NOA.⁹ This will require NGET to consult with interested parties, including TOs, on the development of the NOA methodology (as required under proposed Standard Licence Condition 27). We feel that this should provide adequate opportunity to ensure that TOs are engaged and can contribute, beyond the role that TOs currently have in feeding into the existing ETYS assumptions and methodology (which formed the basis of parts of NGET's modelling).

Redacted results: One respondent noted that they found it difficult to assess how robust the analysis was and to determine how proportionate the benefits were as many of the results are redacted. While we appreciate that many of the results were redacted, we were unable to publish all of the analysis as it contained commercially sensitive information.

Impact on prices tendered by generators: This respondent also noted that there are a number of uncertainties in the assumptions (ie which market prices had been assumed). Further increased competition from interconnectors providing ancillary services may have an impact on prices tendered by generators (ie generators may adapt the pricing of ancillary services in response), and the respondent didn't think that this had been considered. The respondent felt that the benefits of interconnection were overstated as a result. The value of black start was based on existing plant, frequency response was based on projected cost for 2020 and reactive response was based on historic values. NGET's analysis does confirm, particularly in relation to frequency response, that increased competition in providing ancillary services would result in cannibalisation of values. Our view is that if increased interconnection leads to increased competition in the provision of ancillary services and as a result costs are reduced, this would be beneficial to GB consumers. We note that the additional benefit of competitive pricing for ancillary services is less likely to be realised without interconnector participation.

Constraint costs: Element Power thought constraint costs, particularly for their project, were overstated and the analysis did not adequately consider the potential benefits of connecting to Ireland, particularly the provision of fast frequency response. We will consider this further alongside the other points raised by Element Power.

Scenarios: One interconnector developer also disagreed with how NGET's analysis has been matched with Pöyry's Base, High and Low scenarios. NGET also sought clarification on how we had aligned the Gone Green scenario to Pöyry's High, Medium and Low scenarios while deriving project specific values. Pöyry modelled a base case, high and low interconnector scenario. We combined this with NGET's SO analysis to present a view of the highest and lowest possible value that each project could deliver, to give a broad range of potential costs and benefits. We seek to refine this going forward and consider that there will be further enhancements realised through the NOA process. For example, the NOA process will require NGET, as system operator, to produce an assessment of changes in wholesale prices as a result of interconnector flows as well as the assessment of SO impacts.

⁸ See Special Condition 2C 'Prohibited Activities and Conduct of the Transmission Business': <https://epr.ofgem.gov.uk/Content/Documents/National%20Grid%20Electricity%20Transmission%20Plc%20-%20Special%20Conditions%20-%20Current%20Version.pdf>

⁹ Licence changes to enhance the role of the system operator <https://www.ofgem.gov.uk/publications-and-updates/statutory-consultation-licence-changes-enhance-role-system-operator>

Question 6: Are there any additional system operation factors that you think we should have considered?

Only two respondents answered this question.

Constraint cost forecasts: NGET advised against using constraint costs forecasts from NGET's SO impact analysis (which was based on a single scenario for a spot year) in long-term investment decisions over 25 years. We have since engaged with NGET on this point. NGET suggested that, although we should consider the potential impact of constraints over the duration of the cap and floor regime, the actual constraint costs may be lower than estimated over the 25-year horizon. NGET has suggested that it may be more efficient to reinforce certain boundaries rather than allowing constraints to continue over an extended period. We have established that going forward, the CION process¹⁰ will help forecast constraint costs for each interconnector and this may be used in future assessments. We note that the underlying suggestion is that our estimation of constraint costs over 25 years (by extrapolating the single-year value for 2020) is likely to provide a conservative view of constraint costs. As a result, we do not think that this impacts our decision for the FAB Link, IFA2 or Viking Link projects.

Effects on transmission system: One generation and supply businesses thought that NGET's modelling should take account of the physical characteristics of the transmission system that each interconnector is connected to. This respondent stated in particular that the provision of fast frequency response at one end of an interconnector may have an impact on the other system which could limit the capability and benefit associated with the interconnector. We note that aspects of NGET's modelling of SO impacts did assess whether the connecting system would be capable of providing certain ancillary services (ie if the connecting system could support the provision of fast frequency response). We feel that this was appropriately considered in NGET's analysis.

Question 7: Have we appropriately assessed the hard-to-monetise impacts of the interconnectors?

Of the nine respondents who answered this question, six agreed that the hard-to-monetise impacts had been appropriately assessed.

System meshing benefits and generation mix: Element Power disagreed with certain aspects of our assessment of the hard-to-monetise impacts of Greenlink, in particular our conclusions around the level of system meshing benefits. They considered that there was no analysis to support this. In addition to this, Element Power commented on our conclusions about the generation mix as it did not feel that this fully accounts for the diversity in wind generation patterns between Ireland and most of GB.

Costs to consumers: One generation and supply business didn't think our assumptions around the CM fully considered the impact on final cost to consumers. This respondent had concerns that interconnector benefits may be overstated as they did not account for consumers having to pay more toward the CM. This is discussed further in the main body of this letter. We note that DECC has previously suggested that interconnectors participating in the CM increases the competitive pressure on the auction clearing price and helps to ensure that security of supply is delivered at least cost to consumers.

Security of supply: This respondent also thought our assessment of security of supply benefits should have examined the likelihood of a coincident stress event in the connecting markets to establish whether each interconnector could deliver during periods of system

¹⁰ As part of the development of an offshore connection, NGET as System Operator coordinates with Transmission Owners (onshore and offshore) and Developers in an optioneering process to identify the most economic and efficient connection and infrastructure option. This is known as the Connection and Infrastructure Options Note (CION) process.

stress. We can confirm that this was considered in our analysis as the Pöyry analysis based de-rating factors on a proxy analysis of a coincidental stress event.

Energy targets: This respondent also queried our assessment of the impact each interconnector would have on meeting energy targets as it was their view that a meshed system would make it difficult to assess direction of electricity flows and their carbon impacts. We considered this in our consultation where we note that imported electricity is assumed to have zero carbon impacts in GB. While we agree that it would be difficult to assess carbon impacts across Europe, we have assessed impact of increased interconnection on GB consumers and that is why we focused on UK energy targets only.

Other comments: One generator suggested that they didn't believe the hard-to-monetise assessment should be relied upon to justify the approval of the interconnectors and the cap and floor arrangements. As set out in our consultation, when assessing total GB social welfare we considered a number of different factors including hard-to-monetise impacts. However we did not rely on the assessment of hard-to-monetise impacts alone when reaching our conclusions.

Question 8: Are there any additional impacts of the interconnectors that we should consider qualitatively?

Increased CfD payments: Of the respondents who answered this question, one generation and supply business suggested that we should consider the effect of increased interconnection on the Levy Control Framework. In their view, this would address how much consumer benefit (achieved through price differentials) is lost as a result of increased CfD payments. This is considered further qualitatively in the main body of this letter. We agree that some consumer benefit from lower wholesale prices will be partially offset in increased CfD payments, but consider this likely to be small compared with the benefit of lower wholesale prices overall. We note this impact is not unique to these interconnector projects and would equally apply to anything which reduces the GB wholesale price. We still consider that lower wholesale prices benefit consumers and GB as a whole.

2030 EU energy targets: One interconnector developer suggested that the impact of wind export and how that contributes to the UK's legally binding energy targets should be considered further for their project. This respondent recommended that we should consider the importance of interconnection in meeting 2030 European Union (EU)-wide renewables targets. We consider that projections for renewable energy deployment used in Pöyry's analysis are appropriate. We have also qualitatively considered the potential impact of further interconnection on meeting energy targets.

Diversity and resilience: One generation and supply business suggested that the 'diversity and resilience' section could make reference to how increased interconnector capacity may exacerbate distortions between GB and non-GB generators. The 'diversity and resilience' section of chapter six of our consultation aims to address the impact of increased interconnection on the GB energy system's capacity to tolerate disturbance and continue to deliver energy to consumers. An assessment of how increased interconnector capacity might exacerbate distortions between GB and non-GB generators was considered beyond the scope of this section. However, as we mention above, when reaching our minded-to positions on each project we did consider distributional impacts and wider dynamic and efficiency effects, such as investment driven by longer-term impacts of changes to generator profit levels. We have also discussed distortions between GB and non-GB generators as a result of network tariffs in the main body and further below.

Question 9: Do you have any views on the information presented for the assessment of connection location, capacity, cable routes and technical design?

Solution to reduce constraint costs: NGET supported the connection information available for FAB Link, IFA2 and Viking Link but suggested that for Greenlink the current onshore connection may emerge as the most efficient location with the use of an intertrip.

We will consider the use of an intertrip separately alongside other points raised by Element Power.

Enough information: One generation and supply business considered that our consultation did not provide enough information to assess whether the outcomes are efficient. This respondent also suggested that the information provided should be audited and should be further assessed to establish if alternative connection locations or cable routes could result in more efficient interconnection. Our assessment of the connection location for FAB Link, IFA2 and Viking Link was informed by analysis from NGET.¹¹ This provided detail of the alternative connection locations considered. We used this analysis to verify the justification provided for each connection location. From this we consider the connection locations for FAB Link, IFA2 and Viking Link were chosen following a robust process to ensure each resulted in efficient investment. We are unable to publish the detail of this analysis as it contains confidential information.

Question 10: Do you have any comments on our assessment of the project plans?

Milestones: In our consultation we noted that the project plan for FAB Link did not contain any milestones between final investment decision and commissioning. Transmission Investment, the developer of FAB Link, acknowledged that its construction plan did not include any milestones and noted that the construction stage timetable is subject to manufacturing capacity at this stage, so is only indicative.

NGIH, the developer of both IFA2 and Viking Link, also provided project-specific comments. In our consultation we noted that the French TSO, RTE was planning to submit its application for French planning permission for IFA2 in Q3 2015. It was unclear from IFA2's submission how much of this work had been completed to achieve this milestone. NGIH has since provided additional evidence which it considers demonstrates that timescales are achievable.

Capacity changes: In the IPA consultation we noted that the developer of Viking Link is considering alternative capacity options and we considered that a change to the capacity of Viking Link could delay the planned delivery of the project. NGIH has subsequently suggested that any change in capacity would only be done if it enhanced the benefit accruing to GB consumers. In the IPA consultation we also highlighted concerns about timescales for cable-laying. The interconnector developer has since confirmed that while cable length for Viking Link is similar to NSN it's expected that cable-laying for Viking Link will not take as long as NSN, as NSN's route is more difficult to traverse. The interconnector developer also commented on our assumption that no assessment of the main risks facing the project has been included in the Viking Link submission. This was an oversight in our assessment and we accept that the interconnector developer did provide this information. We therefore would provide a green rating for the assessment of 'Contingencies are identified and addressed'.

Traffic light system: Element Power didn't think that the traffic light system used in this chapter has been consistently applied across projects. Element Power considers that our concerns for Greenlink around the lack of a clear regulatory regime in the connecting country appear unjustified, particularly when compared to our assessment of other projects. We consider that this has been applied consistently where information and evidence of engagement has been provided.

Additional comments

¹¹ NGET did not provide connection information for Greenlink as they had not yet received a modification application from Element Power which would be required to convert an existing generation connection agreement to an interconnector connection agreement.

There were a number of comments on the consultation received in addition to the questions set out above.

Transmission system charges: One respondent considered that interconnectors are at a competitive advantage (when compared to generators) as they do not have to pay BSUoS and TNUoS charges.¹² This respondent suggested use of system charges should either be removed for generators or imposed on both parties to ensure generators and interconnectors compete on a level playing field. In 2012 we decided to remove use of system charges for interconnectors to better align the GB arrangements with those prevalent in other EU Member States. More fundamentally, this was also to ensure compliance of our national charging arrangements with EU legislation.

In addition, this respondent also commented on a perceived lack of level playing field between GB and non-GB generators due to level of transmission charges that GB generators currently pay. We note that in compliance with European Commission Regulation (EU) No. 838/2010 transmission charges for generators are now capped at €2.5/MWh. We are also aware of the ongoing work both in GB and Europe regarding electricity transmission charging arrangements. For example, Connection and Use of System Code modification proposal CMP227 is aimed to level the playing field for European transmission network charges.¹³ We expect this to come to us for decision soon and we will address this issue in our decision. In addition, ACER is considering how electricity transmission tariffs could be harmonised at a European level.¹⁴ We feel that these are the appropriate forums for changes to charging arrangements to be taken forward.

CM participation: One generator and supply business commented on the apparent lack of risk for interconnectors participating in the CM. In their view, penalties for failing to meet CM obligations may not be a sufficient disincentive if interconnector revenues are topped up to the floor. This respondent requested that we consider whether the floor should be modified to address this. We appreciate that this removes some risk. However, we think this situation is unlikely as annual CM revenues would make projects much more likely to be above the floor, which creates an incentive for them to be available and deliver on CM obligations. Our regime also includes an incentive for interconnectors to remain available, and a risk of payments at the floor not being made if the interconnector was unavailable. We note that DECC has considered technical availability among other factors when setting de-rating factors for interconnectors.

Project viability: One supply chain participant noted concerns with the backstop date of 2020 in the cap and floor regime. They consider that this could create an unnecessary risk to the commercial viability of some projects. This respondent noted that across Europe, interconnector developers, offshore wind projects, oil and gas operators and TSOs are all competing to secure access to limited supply chain resources. The respondent considers that our regulatory framework must be both flexible and pragmatic to enable interconnector developers to deal with the challenges of delivering such large and complex projects.

One project developer also suggested a need for close coordination between regulatory and procurement processes at the FPA stage, to ensure that the FPA process does not cause delays to the developers' procurement processes. This respondent also noted that it's important for regulatory processes and timescales in each connecting country to be consistent and complementary.

¹² Balancing Services Use of System (BSUoS) and Transmission Network Use of System (TNUoS) charges are network charges which apply in GB.

¹³ CMP227: <http://www2.nationalgrid.com/UK/Industry-information/Electricity-codes/CUSC/Modifications/CMP227/>

¹⁴ Cambridge Economic Policy Associates Ltd draft report: <http://www.acer.europa.eu/Events/2nd-ACER-workshop-on-electricity-transmission-tariff-harmonisation/Documents/CEPA%20Scoping%20Draft%20Final%20Report.pdf>

In our May 2014 consultation, we identified the need to have time limits on decisions, and considered several options. Our intention was to balance the need to prevent decisions from being open-ended and to protect developers against events outside of their control. In chapter six of our consultation we set out that we'd expect the supply chain to respond to the upcoming demand for assets by adding output capacity where possible. However we also acknowledged that timescales seem challenging and subject to potential supply chain constraints. This decision will put some additional requirements on project developers to ensure that these are delivered on time. One of these requirements is to provide us with periodic written reports on progress against a number of key development milestones. This will allow us to monitor progress and identify supply chain issues. Our decision also sets out that we want developers to publish a supply chain plan for each project. We consider that supply chain plans will help to provide the supply chain with greater awareness and visibility of each project.