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Dear Andrew

Transmission Investment Response to the Consultation on the Interconnector Policy Review: Working Paper 2 – Socio-economic modelling

Transmission Investment, as one of the UK's leading independent transmission companies manages one of the largest offshore electricity transmission portfolios. Our managed portfolio of Offshore Transmission Owner (OFTO) assets includes the connections to seven offshore wind farms, and we will take over management of a further three offshore wind connections in 2021 – in total a portfolio of approximately 3.2GW and over £2bn in capital employed. We are one of the largest managers of offshore wind transmission in GB, which is the largest offshore wind market in the world.

Transmission Investment is also a strong advocate of introducing competition into the delivery of onshore transmission and we continue to support the development of the required arrangements *inter alia* through industry groups, responding to consultations such as these and providing evidence to parliament.

Transmission Investment is leading, in partnership with the French national grid company RTE, the development of a proposed 1400MW HVDC interconnector between France and Britain via Alderney ("the FAB interconnector project"). This project was granted Cap and Floor regulatory treatment in 2015 and whilst it continues to experience Brexit related delays, it will commence construction as soon as the regulatory process allows. Transmission Investment is also in the early stages of developing a 700MW HVDC interconnector between Scotland and Northern Ireland ("the LirIC interconnector").

Our response addresses the questions posed by Ofgem in line with the structure of the consultation document. We have raised our significant concerns towards the approach taken by AFRY in their study and questioned whether the results should be directly used by Ofgem to make a decision on this workstream. In response to the conclusions Ofgem propose "*There is likely a need for further GB interconnection, and a need for a regulatory regime to incentivise further investment in a way which continues to be beneficial for consumers*". We agree with this initial proposal. However, Ofgem need to clearly identify the shortcomings in the future IC Policy Review decision to ensure any potential future conflicts in future analysis can be avoided.

Ofgem's Approach to Workstream 2

We have some concerns on the approach Ofgem have taken to Workstream 2. These are set out below:

- We do not recognise the need for the additional independent study performed by AFRY. The Integrated Transmission Planning and Regulation (ITPR) concluded that the National Grid ESO *“will be required to undertake a new network options assessment to...consider the value of potential additional interconnection to other countries”*¹. Furthermore, in paragraph 1.2 of the same concluding document Ofgem state that the ESO will *“Assess options for meeting the future needs of the network and for new interconnection, and provide its assessment to the relevant delivery party and to us to support the decision-making process”*. This analysis is being undertaken by National Grid ESO using a methodology that is annually approved by Ofgem as part of the Network Options Assessment (NOA). We therefore do not recognise why Ofgem, at additional cost to consumers, were able to justify the need for a further independent study especially given the outputs from the NOA were used as part of the review of *“external studies”*. The NOA is not an external study, it is required by Ofgem, is independent and performed to support Ofgem in its decision making. If Ofgem had deemed the NOA as insufficient to fulfil part of its objective this should be addressed prior to approving the methodology.
- Ofgem sought interested stakeholder feedback on the modelling scenarios, methodology and results. This was completed through a mini call for evidence in October 2020 (on scenarios) and May 2021 (for feedback on the AFRY study). We recognise that some of this feedback was used to amend and add to the number of scenario's used in the AFRY analysis. However, unlike the other Workstreams no commentary on this feedback has been included in this consultation nor have Ofgem addressed any key points that may have been raised. Furthermore, the questions posed in the consultation are largely repeated from those in the mini call for evidence. We recognise that the responders to this consultation may be from a wider range of stakeholder and so it may be beneficial to request similar information. However, without recording at least key points that may have already be raised creates inefficiency in the consultation process and requires responders to repeat previously supplied information.
- The aim of workstream 2 is to help Ofgem determine whether there is likely a need for further GB interconnection beyond those with pre-existing regulatory approval. Ofgem have recognised in WS3 that the need for further interconnection is not only driven by the traditional socio-economic welfare (SEW) (as identified in the AFRY report) but also through wider impacts. Ofgem have stated that this is out of scope of WS2 but considered in WS3. WS3 has only identified that the justification for the need for further interconnection does indeed exist beyond the traditional SEW. However,

¹ From:

https://www.ofgem.gov.uk/sites/default/files/docs/2015/03/itpr_final_conculsions_eso_document_publication_final.pdf

WS3 does not seek to quantify these impacts or consider how they may impact the conclusion of WS2. Given the study employed in WS2 concludes with specific levels of additional beneficial interconnection we would expect at least some commentary from Ofgem on how the wider impacts identified in WS3 may impact the results of WS2. Ideally the identified wider impacts should be quantitatively or qualitatively assessed in WS2 for it to fulfil its objective of determining whether there is a need for further interconnection. We urge Ofgem to include consideration of the wider impacts from WS3 when Ofgem conclude on the need for future interconnection from WS2 in the decision for the IC Policy review.

- In BEIS's recently published Energy White Paper², BEIS state "*We will work with Ofgem, developers and our European partners to realise at least 18GW of interconnector capacity by 2030*". This appears to be a clear target from BEIS on beneficial levels of interconnection by 2030 but has not been considered as part of this WS2. This is a significant increase in the current levels of interconnection with pre-existing regulatory approval but there is no view from Ofgem on whether the current regulatory framework is sufficient to achieve this target. We would hope Ofgem are able to recognise and directly address this target in any decision.

Independent socio-economic market modelling study

During the mini call for evidence on the scenarios we raised a concern on how the scenarios were derived. Scenarios should be developed setting out a view on the evolution of electricity markets ensuring that generation capacity, demand, commodity prices etc. are forecast to evolve in an internally consistent manner. However, each of the scenarios used are a combination of data sources from independent publicly available sources: FES, TYNDP and BEIS³. This could have created scenarios that were internally inconsistent with possibly implausible pathways on which the energy systems are forecast to evolve. i.e. there is no evidence to suggest that the BEIS high forecast commodity prices align with the underlying GB FES CT/LTW demand data and that combined they indeed produce a high economic value scenario for further interconnection. The FES20 scenarios were developed in 2019 and considered the latest UK Government's decarbonisation ambitions. The TYNDP20 scenarios were developed at a similar time but using national data from a year earlier. (For instance, the underlying UK data within the TYNDP20 scenarios was sourced from FES19 which did not achieve the UK government's Net Zero target). This issue will manifest with all underlying national data within the TYNDP20 dataset and so given the recent shift in Government ambitions for decarbonisation across Europe this may create conflicting evolutionary paths between GB and neighbouring markets' inputs. This concern is demonstrated and exacerbated in the need to adjust the inputs and adding future GB interconnection to create secure scenarios potentially moving away from the plausible pathways which these consulted on scenarios set out. A preferred approach may have been to use the latest national data available from each of the most influencing markets in much the same way as the FES20 data

² Available from:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/945899/201216_BEIS_EWP_Command_Paper_Accessible.pdf

³ FES – Future Energy Scenarios, TYNDP- Ten Year Network Development Plan, BEIS – Department for Business, Energy & Industrial Strategy

is used for the UK. We would hope that Ofgem address this in the IC Policy Review decision and ensure any consistency concerns are avoided in any future SEW analysis scenarios.

In the modelling approach Ofgem identify that AFRY added interconnectors to the initial baseline to maintain internal consistency of scenarios. The objective of WS2 was *“to assess the socio-economic need for further interconnection beyond those projects currently with regulatory approval”*. This requirement aligns the assessment of further interconnection beyond those already in operation, construction or with regulatory approval. However, the *“Additional interconnector capacities”* (in Exhibit B.5 of the AFRY report) which are required *“to maintain internal consistency of scenarios”* have not been assessed in the same way as the *“potential interconnectors identified in the step-wise approach”* (in Exhibit 4.2 of the AFRY report). The capacities in Exhibit B.5 are not considered in any of the SEW analysis nor in the Cap and Floor payments analysis. The results therefore miss a significant proportion of benefits and costs associated with what appear to be, not just beneficial, but essential interconnector capacities to secure the future GB power market.

The approach taken to assessing the socio-economic need initially assessed the commercial viability by identifying the Internal rate of return (IRR) of a theoretical project and then performs the socio-economic assessment only on capacities that achieve above a 7% IRR. The commercial viability is a separate assessment to the socio-economic assessment and therefore the results set out by AFRY may not provide a view on the most socio-economically viable capacities to take forward. In completing the objective of WS2, the modelling approach should identify interconnector capacities which are the most socio-economically advantageous in themselves. These identified capacities would be those deemed necessary to enable the wider market benefits (possibly linking to WS3). Thereafter the commercial assessment should be made to establish whether the developer-led model combined with the Cap and Floor regime in place is sufficient to bring these projects forward. If there is a strong socio-economic need identified but low commercial viability this should have been fed into and taken account of in WS1 when considering changes to the current C&F regime. The aim is to first assess the socio-economic need and then second to assess whether the regulatory framework is fit for purpose to meet this need. The approach AFRY have taken is therefore the wrong way around and so does not address the requirement of WS2. This is a significant shortcoming in the AFRY analysis and should be avoided in any future assessment.

Additionally, AFRY have not addressed the potential benefits of proposed projects from the perspective of the connecting market. This perspective may alter the viability of recommended interconnector capacities and therefore may alter the study's results. Interconnector benefits are to a degree interdependent and by deeming capacity on one border as unviable due to the perspective of the connecting market, may change the forecast benefit on another border. This may lead to a different set of results and therefore should have been considered at least on a qualitative basis in the report.

Additionally, but not directly addressed by Ofgem in the consultation document, we have significant concern on the representation of conclusions by AFRY in section 5.3 of their report. The following is a list of selected AFRY conclusions and our comments on them:

- AFRY state: *If a Net Zero pathway is followed in GB and its neighbours, additional interconnectors are beneficial from an overall socio-economic perspective and commercially feasible, based on the assumed IRR threshold.*

The report shows that the additional interconnectors set out in Exhibit B.5 (without regulatory approval) are necessary to achieve internally consistent (and therefore sufficiently secure) scenarios. It should be concluded that if the Net Zero scenario was followed then a specified amount of interconnector capacity is necessary to achieve a secure scenario and that a further specified amount of interconnector capacity above this is forecast to be economically beneficial. This should also be set out as a profile over the timeframe of the study (and beyond if considered in the scenario). This should be the key outcome/conclusion from the AFRY study, and it has been omitted.

- AFRY state: *As the economic case for additional interconnection is linked to the price volatility created by growing penetration of intermittent renewable power generation, interconnectors commissioned later in the period perform best in this analysis.*

This assessment shows that the economic case for additional interconnection is not only linked to price volatility but also to ensuring a secure energy future. The report does not consider the economic case for the additional capacities in Exhibit B.5 and so this conclusion cannot be drawn. If these interconnector capacities are required to ensure an internally consistent (and therefore secure) scenario then this is what should be concluded – Further interconnection is required to achieve the wider economic benefits of the Net Zero ambitions of the UK and its neighbours.

- AFRY state: *None of the identified interconnectors benefit GB consumers (except for the interconnectors to the Irish Single Energy Market in the High scenario). This is due to the way GB and its neighbours are expected to meet their net zero ambitions. While GB has excellent offshore wind resources, other countries are expected to rely more on onshore wind, solar PV, nuclear, and other forms of low carbon generation. GB is also expected to utilise CCS gas and CCS biomass, often more so than its neighbours. These combined effects lead to GB becoming a net exporter of electricity. Therefore, additional interconnectors would be expected to export more than they import, leading to them having a negative effect on GB consumers.*

We disagree with this conclusion on two points:

- The report shows that all identified interconnectors economically support the UK's development towards the Net Zero ambition. The statement that this is not in consumers' interests is entirely misleading, contradicts the findings of the study and should have been removed from the final report.
 - The statement that as interconnectors export, they will have a negative effect on GB consumers is incorrect. Factors such as reducing the level of subsidisation to generation as well as the wider benefits of adding system flexibility to support further renewable generation and avoidance of its curtailment counter this statement. As specified above, there are significant limitations to the study which AFRY has performed in answering Ofgem's question and so this again is a misleading conclusion which Ofgem should not be supporting.
- AFRY state: *It should be noted that we assume no capacity market revenues for any of the assessed links. In fact, going forward, interconnectors are not expected to be able to directly access capacity markets under European legislation.*

This is an expectation of AFRY and not a conclusion. Until any decision is made by Her Majesty's Government (HMG) the baseline should consider interconnectors being active in the capacity market. Given capacity market forecasted revenues have not been included in the commercial assessment, this appears to be a shortfall in that analysis. Including a statement of fact that AFRY do not expect interconnectors will be able to directly access capacity markets pre-empts a position yet to be made by HMG. This expectation should have been removed from the conclusions of the final report and clarity added to the treatment within the commercial assessment section to show what was assumed and qualified as an assumption that currently has no legal basis.

If Ofgem has the expectation that the potential for interconnectors' exclusion from the capacity mechanism would have a material effect on their economic justification this should have been considered as a sensitivity but not as the baseline.

Regardless of our concerns with respect to the modelling approach and conclusions set out by AFRY, the report clearly supports the need for further interconnection. There is nothing in this analysis that would support the view that there is not a need for further interconnection and therefore we feel Ofgem could be more conclusive in their view of the results. Clearly the report identifies further interconnector capacity beyond that with regulatory approval is necessary to achieving the UK governments Net Zero ambitions in an economically efficient and secure way. The analysis demonstrates economic need for further interconnection with continental Europe and the island of Ireland over all timeframes to 2040.

However, the study is limited in that, whilst the economic need for further interconnection (in exhibit B.5 and 4.2) is established, it does not forecast whether the commercial viability is sufficient to bring all these capacities forward under the current Cap and Floor model (only those in exhibit 4.2). This appears to be a large gap in the analysis under WS2 but given the number of projects currently in development but without regulatory approval, may not be an issue in the nearer term. Over the longer term Ofgem should ensure the developer-led approach remains fit for purpose to ensure these required interconnector capacities are realised.

With regards the external studies identified in the consultation we do not have any further comments beyond that we do not recognise the NOA as an external study for the reasons set out earlier in this response.

Conclusions and Initial Proposals

We broadly agree with the conclusions drawn by Ofgem in the consultation document. However, Ofgem state that based on the modelling exercise performed by AFRY "*there is likely a socio-economic need for further interconnection beyond those projects currently operational, under construction, or in development with regulatory approval under the cap and floor regime*". This statement could be strengthened given the AFRY study demonstrates that the Net Zero ambitions of the UK cannot be securely and realistically achieved without further interconnection. We would support Ofgem being more positively conclusive in any decision here and, as we mentioned earlier, state that it is not clear whether these economically beneficial projects are commercially viable, and therefore commit to focus further on solutions to this issue.

Ofgem state that they recognise that the allocation of benefits from the modelling suggests a negative impact on GB consumers from a socio-economic standpoint. We recognise that Ofgem have caveated this statement in that the assumptions may underplay interconnectors' socio-economic value. However, we do not recognise that the modelling identifies this. The modelling identifies further interconnector capacity is essential to ensure a secure network and therefore to support the UK in achieving its Net Zero ambitions within the scenarios considered. This must be in GB consumers' interests as not developing a secure network with the capability to connect future renewable generation and therefore not achieving Net Zero presents a very bleak future for GB consumers. If there is concern that achieving a secure network may be possible in more economic ways than through interconnection, then this is a question which is beyond the scope of this analysis. However, this concern would conflict with National Grid ESO's economic analysis behind the underlying FES inputs to the scenarios.

Finally, given the AFRY study is being used to support the outcomes of WS2, Ofgem should be clear on how this analysis will be considered in the future. In the initial proposals section Ofgem state they will use future modelling to support their decision making implying they will not be using this AFRY study beyond the IC Policy Review. However, Ofgem may seek consistency between this AFRY study and any future project specific analysis. Given the concerns we have raised here and in previous WS2 comments, Ofgem should include the limitations/shortcomings of this analysis in the decision so that Ofgem can avoid any potential future conflict and be unencumbered by this study in its future analysis and decision-making processes.

We remain supportive of the work that Ofgem are conducting in progressing the IC Policy Review and trust that this input is constructive and helpful and if you would like to discuss any of the comments above, please feel free to contact me.

Yours sincerely,



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Regulatory and Commercial Manager