NorthConnect KS
Serviceboks 603, Lundsiden
4606 Kristiansand
Norway

Ikbal Hussain
Ofgem - Interconnectors team
9 Millbank
London
SW10 3GE

Email: cap.floor@ofgem.gov.uk

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RE: Response to Ofgem Consultation 'Cap and floor regime: Initial Project Assessment of the GridLink, NeuConnect and NorthConnect Interconnectors'

Dear Ikbal,

NorthConnect KS is a consortium of Nordic partners (Agder Energi, E-CO Energi, Lyse Produksjon and Vattenfall), seeking to develop the NorthConnect project. As such, we welcome the opportunity to respond to Ofgem's Cap and Floor Window 2 consultation. This is a public response and we are content for it to be distributed on the Ofgem website.

We attach our responses to Ofgem's Initial Project Assessment (IPA) consultation below, providing, first, some high-level key messages and then responding to each specific question raised by Ofgem.

Key messages

We welcome Ofgem's minded-to position to grant NorthConnect a cap and floor regime. The proposed NorthConnect interconnector will provide a 1.4GW link between the hydro-dominated Norwegian electricity system to the increasingly mixed thermal and renewables electricity system of Great Britain. These two systems are highly complementary and we strongly agree with Ofgem's assessment that NorthConnect will bring considerable benefits to GB consumers, with virtually no downside risk.

Indeed, while we recognise it is incumbent on a regulator to be conservative[1] in its assessment of benefits in any regulatory intervention, **we set out below our thoughts on**

[1] See Ofgem, Table 9, ¶3.5 and ¶4.36.

why the actual benefits of NorthConnect to GB consumers are likely to be <u>even higher and at a lower risk</u> than those set out in the IPA consultation.

We cite six key reasons why Ofgem might have underestimated the benefits of NorthConnect

1 <u>Capacity markets</u>: By connecting to a hydro-dominated market, NorthConnect provides an extremely reliable incremental source of electricity to the GB market – as evidenced by a de-rating factor of 94% suggested in the IPA.[2] This is potentially very beneficial to GB consumers as it provides an additional supply of secure capacity. As a price taker in the Capacity Market (CM), NorthConnect is likely to exert downward pressure on CM prices, meaning that, because of NorthConnect, GB consumers will have a more secure system at lower cost.[3] This is contrary to the assumption in the IPA that assumes that CM prices would remain unchanged.[4] The materiality of this benefit to GB consumers might be quite large - for example, were prices to be £1/kW lower in the CM as a result of NorthConnect, this would imply an additional £850m benefit to GB consumers over the period of the Cap & Floor that is not currently included in the IPA assessment. We note, also, that Ofgem excludes the impact of capacity market revenues that NorthConnect might accrue when assessing the likely impact on cap and floor payments. In our view, this is a potentially unduly conservative assumption – meaning that, in practice, there is an even lower likelihood of floor payments by GB consumers and higher likelihood of cap payments to GB consumers.

2 <u>Ancillary services</u>: We agree with Ofgem that, because NorthConnect will be a new and alternative potential provider of ancillary services to National Grid, there will be greater competition in these markets. This will lower the overall cost of AS procurement to NG which, in turn, will lower the overall cost borne by GB consumers. We understand that the analysis to date has focused on frequency response and black start services. We disagree with the assessment that no reactive power issues should be expected around Peterhead.[5] We foresee that Scotland will, during periods of low wind generation, rely heavily on imports (from either England or Norway) or back-up plants. During such periods, there will be a need for reactive power infeed in order to maintain the requirements on sufficient voltage levels in the transmission grid. We consider that NorthConnect will be well placed to provide these reactive power services.

3 <u>Balancing / re-dispatch</u>: Because of Norway's hydro-dominated system, NorthConnect is well placed to meet the growing demand for flexible generation that is likely to be needed in the 2020s and beyond. Indeed, a combination of: i) the introduction of 15 minute trading periods (scheduled to be introduced in the Nordic

[2] Ofgem Window 2, Table 17. We note that DECC ("Capacity Market update: De-rating Interconnector CMUs", 2015) presents a range of 82-93% based on Baringa analysis and states that additional research by Pöyry shows results at the top end of this range.

[3] We note also that this is a relatively common view of the impact of interconnectors on the CM. For example, in 2015 DECC noted that "*This is the first year [ICs] are eligible to participate, increasing the competitive <u>pressure on the auction clearing price</u> and helping to ensure that security of supply is delivered at least cost to consumers.*"

[4] Pöyry Window 2, p.78.

[5] Ofgem, ¶5.21.

markets in 2020), ii) the XBID intraday trading mechanism; and iii) the comparatively low cost of Norwegian flexibility (relative to other European providers of flexibility) means that NorthConnect will be well placed to deliver significant benefits to GB consumers. Furthermore, NorthConnect intends to adopt a design with overcapacity in its converters – allowing significant up-rating for short-term operation – up to potentially 1,600MW or 1,700MW. This will allow the deployment of additional ancillary services at low cost without the need to reserve any of the 1,400MW of capacity at the day-ahead stage. Conversely, it also allows the potential for significant incremental export to Norway in the event that there is excessive wind production in Scotland – thereby negating the need for potentially more costly re-despatch costs. Notwithstanding Ofgem's understandable need to be conservative in its assessment, we believe that these are all material incremental potential benefits to GB consumers that are not fully captured in the IPA.

4 Hydro storage / flexibility: As with most electricity market models, the BID3 model is likely to underestimate the volatility of wholesale electricity prices. This, together with an assumption of losses of 7.5% on NorthConnect relative to our latest estimate of below 5%, means that the overall utilisation factor of 60% seems unrealistically low. In practice, we believe that the utilisation rate will be much higher than this, which, in turn, implies that congestion revenues would be higher and therefore a lower likelihood of floor payments by GB consumers and higher likelihood of cap payments to GB consumers.

5 GB grid impacts: National Grid estimates a large negative system operation impact for NorthConnect. This appears to be partially driven by the FES scenario selection. We consider that in practice, NorthConnect is likely to reduce GB constraint costs as it represents additional demand at times of low demand in Scotland.

6 Impact on cost of renewables subsidies: We note that, as part of its assessment, Ofgem has included the higher cost of paying for renewables support mechanisms that arise as a function of lower wholesale prices. This is, in our view, the theoretically correct approach. However, we believe that the modelling may not capture the full nuances of the European system and hence potentially overstate the cost borne by GB consumers in this regard. In particular, we note that Norway has very limited wind generation and low to moderate wind generation correlation with GB and continental Europe. It seems likely therefore that, in practice, at times of high wind production in GB and continental Europe, Norway will provide additional demand which, in turn, will be beneficial to GB consumers.

Responses to Ofgem's Consultation Questions

Chapter Three (Summary of our Initial Project Assessment)

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

We welcome Ofgem's conclusion on its minded-to position on NorthConnect and we agree that NorthConnect is a highly attractive project that brings very material benefits to GB consumers, with additional upside in the form of cap payments. We also welcome the observation that NorthConnect is the most beneficial project in Window 2: it creates the

highest net value to the connecting countries and also the highest net value to the European countries overall.[6]

Furthermore, we observe that downside risks to GB consumers from NorthConnect interconnector are limited and that there is no expectation that GB consumers would need to provide floor payments to NorthConnect under the assumption that capacity market payments remain in place.

We do not express a view on any of the other interconnectors in Window 2.

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?

We agree with Ofgem that their modelling is conservative. Therefore, as explained above (see page 2), NorthConnect's welfare impacts are likely to be even more positive than currently estimated by Ofgem in the Base Case.

Chapter Four (Economic market modelling of the impact of interconnector flows)

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

We recognise that the modelling of interconnector flows is a highly complex exercise (as observed by Pöyry)[7] and that the modelling approach has been deliberately conservative.

However, in our view, a 60% utilisation factor for NorthConnect that has been derived by the Pöyry modelling in its Base Case suggests that the modelling and/or input assumptions may have been very conservative. A higher utilisation factor for the cable would, other things being equal, increase GB consumer benefits (by further reducing average electricity prices and/or by increasing the amount of above-cap repayments).

We think, in particular, that the thermal loss factor assumption of 7.5% is too high. More generally, our view is that the BID3 model used by Pöyry – although suitable for Ofgem's needs – is unlikely to capture the full nuances of the Norway's hydro system. This is why for our IPA submission we employed specialist hydro modelling consultants to capture more accurately the value of NorthConnect. Also, as noted in our introductory comments, we think that a more nuanced modelling approach might have led to conclusion that the net impact on GB consumers on the cost of renewables support mechanisms is lower.

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

Other than our observation regarding the assumption on the thermal loss factor, we have no additional evidence.

Chapter Five (Impacts on the GB transmission system)

Question 5: Do you have any views on the information presented in this chapter?

The information is provided in qualitative terms only. We understand that National Grid has withheld the quantitative information for confidentiality reasons.

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[6] Pöyry, Figure 3, MA case and Ofgem, Table 10.

[7] Pöyry Window 2, p.49.

We agree in principle with Ofgem's observation that NorthConnect can contribute to a variety of ancillary services.[8] However, due to the absence of quantitative information, we cannot comment on whether the estimated contribution has accurately reflected the value that NorthConnect can bring to the system.

As explained above (see page 2), we consider that National Grid's assessment of NorthConnect's system operation impact is unduly negative. We note Ofgem's observation that NorthConnect alleviates system constraints under the Gone Green scenario, and in some years in the Slow Progression scenario.[9] The modelling techniques used in this assessment by National Grid are generally recognised to be relatively basic and, indeed, are being updated for National Grid's future analysis.[10] In practice, we would expect that NorthConnect will generate system benefits under all scenarios by virtue of its ability to provide a 'release valve' towards Norway for intermittent generation exports, particularly as it is sited north of the B6 boundary. Indeed, our view is that NorthConnect should, over time, serve to obviate the need for some incremental transmission investment in Great Britain – which would be a significant benefit to GB consumers. We note also that Ofgem has recognised that NorthConnect's connection to Scotland would "*increase the integration of renewable energy sources and facilitate efficient dispatch of renewables*".[11]

Overall, while we cannot provide detailed comments on Ofgem's findings, we consider that the overall benefits of NorthConnect for the system operation would be positive.

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

We do not have any additional factors to add.

Chapter Six (Hard-to-monetise assessment of interconnectors)

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

We strongly agree with Ofgem's recognition of the value that NorthConnect will bring to GB in terms of strategic benefits (e.g. diversification of the generation mix) and sustainability impacts given that it connects GB to a country with a low-carbon generation mix.[12]

We also agree with Ofgem's recognition that NorthConnect would contribute to GB's security of supply as evidenced by the high de-rating factor.[13]

Finally, we welcome and agree with Ofgem's observation that NorthConnect provides strongly positive impacts across all categories of hard-to-monetise benefits assessed and in fact is the best performing one among the three interconnectors being assessed.[14]

[8] Ofgem Window 2, Table 20.
[9] Ofgem, ¶5.36 to ¶5.37.
[10] National Grid's January 2017 document "Long-term Market and Network Constraint Modelling" discusses National Grid's move from ELSI to BID3 modelling.
[11] Ofgem, ¶6.9.
[12] Ofgem, ¶6.8.
[13] Ofgem Window 2, Table 17 and DECC (2015).
[14] Ofgem, Table 20.

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

We consider that Ofgem could have elaborated more clearly on the benefits that NorthConnect brings in terms of efficient dispatch (alluded to at ¶6.9) which may translate into reduced renewables curtailment.

We also expect NorthConnect to contribute positively to the liquidity of GB wholesale power market, by providing access to the Norwegian (and wider Scandinavian) markets.

Chapter Seven (Assessment of connection location, capacity, cable routes and technical design)

Question 9: Do you have any views on the information presented in this chapter?

We agree with Ofgem's view that the proposed route for NorthConnect is the most economic and efficient one. This is in line with National Grid's assessment undertaken as part of the CION process.

We note Ofgem's observation that NorthConnect has not yet specified a preferred cable and a final cable route. Significant progress has been made in this regard. It is worth noting that NorthConnect had already placed its subsea survey framework contract at the time of the IPA submission, and the first Lot A off the Scottish coast was undertaken shortly afterwards. The Call-Offs for the rest of the route survey have also been placed, and Lot B, from the North Sea to the Norwegian coastline, was completed over the summer allowing finalisation of micro routing along that section. The final Lot C, within Hardangerfjord, is currently mobilising for completion in early October. We will update Ofgem on further progress as appropriate as we progress towards the Final Project Assessment (FPA) and we look forward to engaging with Ofgem on this.

Chapter Nine (Assessment of project submissions)

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

We note that Ofgem expects NorthConnect to provide more detail on its supply chain and procurement plans, and its financing plans.[15]

Since the IPA submission, NorthConnect has had, on average, two further detailed meetings and exchange of technical information with each of the six largest European suppliers in addition to other suppliers. NorthConnect is now in a position to prepare outline specifications currently underway, in order to be ready to go out to pre-qualification of tenderers within this year, and tendering within 2018. This means the overall project programme is kept within Window 2 timescales.

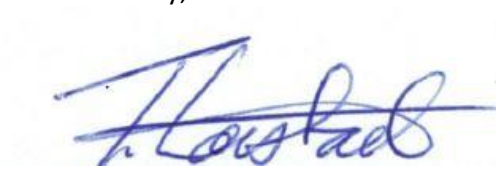
We intend to provide regular updates on our plans to Ofgem and we look forward to engaging with Ofgem on this in due course.

We also recognise that the regulatory arrangements in Norway are critical to the success of the NorthConnect project. We propose to engage with Ofgem on a timely basis regarding our engagement with the relevant Norwegian stakeholders and the development of the regulatory framework in Norway that will apply to NorthConnect.

[15] Ofgem, Table 21.

We look forward to further engagement with Ofgem.

Yours sincerely,



Tommy Løvstad, CEO
NorthConnect KS

CC: Asbjørn Høivik, Richard Blanchfield