



Via email: RIIOElectricityTransmission@ofgem.gov.uk

Email : Tom.Steward@RWE.com

9th September 2022

Ref: Accelerating onshore electricity transmission investment

Dear RIIO Team,

RWE is a leading global energy player, with a 44GW global generating capacity worldwide, and a clear target: to get to net zero by 2040. With its new strategy 'Growing Green' (announced in November 2021) RWE expects to invest €50 billion gross in its core business globally - an average of €5 billion gross each year for offshore and onshore wind, solar, batteries, flexible generation and hydrogen.

In the UK, RWE is one of the largest power producers, accounting for around 15% of all electricity generated, with a diverse operational portfolio of onshore wind, offshore wind, hydro, biomass and gas, amounting to over 10 GW pro rata (12 GW installed capacity) - enough to power over 10 million UK homes.

RWE is the one of the largest renewables generators in the UK with a diverse operational portfolio of renewables including onshore wind, offshore wind, hydro and biomass with a combined installed capacity of over 2.79 GW (pro rata) (4.8 GW installed capacity.) In addition to its growing renewables portfolio, RWE operates around 7GW of modern and efficient gas-fired capacity in the UK, making us one of the largest providers of firm flexible generation, which is crucial for security of supply. Overall, and including its committed investments in projects already under construction, RWE expects to invest up to £15 billion in new green technologies and infrastructure in the UK by 2030.

Thank you for the opportunity to respond to this consultation on accelerating onshore electricity transmission investment. We believe action in this area is absolutely critical to meeting the government's 2030 50GW offshore wind target.

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Summary

- We strongly support taking steps to accelerate the delivery of infrastructure critical to delivery of the 2030 offshore wind target.
- We fully support additional measures to protect consumers from cost overruns, particularly in the current climate of high prevailing energy bills.
- The time is right to review ESO processes establishing which reinforcement projects should be commenced and halted, and ensure these are sending robust, enduring signals that enable the TOs to invest sooner and with greater confidence.
- There is an urgent need for much greater clarity around why other essential projects are not being accelerated, and in particular a need for a clear pathway to acceleration of MSIP and RII02 Baseline Projects that are also essential for delivery of the 2030 target.
- The assumptions in the CBA are opaque, and the CBA itself is limited in its scope. It fails to capture impacts beyond constraints such as value of carbon reduction, supporting compliance with the government's 2030 target, or where network investment to support offshore projects can also deliver value for onshore development of low carbon generation, such as in mid-Wales (which would strengthen the case).
- We have very significant concerns regarding the implication that the value of network upgrades under Locational Marginal Pricing (LMP), a market design which is yet to be proven as beneficial to GB the system, would form part of the consideration of which projects are optimal for delivery.

Q1: Do you agree with our criteria for identifying projects in scope for the application of the proposed accelerated delivery framework?

We support OFGEM's approach of using the NOA Refresh report as the starting point for identifying which projects should be in scope for accelerated delivery in order to safeguard the 50GW offshore wind by 2030 target. We are concerned that one project, SHNS ('Upgrade substation in the South Humber area') is not currently identified as being accelerated. We assume that SHNS may not be of sufficient scale to be classified as a LOTI project, however we would appreciate further transparency of why projects are or are not considered within the scope of the consultation. If this project simply doesn't reach the scale criteria necessary to be considered under this consultation, it is important for it to be clearly communicated and an alternative route for accelerating delivery of this project to be identified. SHNS is identified in the



NOA¹ as a prerequisite for CGNC, GWNC, TGDC and E4L5 all of which are identified through the NOA Refresh as 'HND Essential' reinforcements that this consultation identifies as requiring exemption from competition (subject to further system studies) to accelerate. We encourage Ofgem to ensure SHNS is also expedited, through alternative mechanisms such as MSIP if applicable, to avoid this reinforcement becoming a blocker for other HND Essential reinforcements.

The NOA Refresh identifies 56 reinforcements as 'HND Essential', however we note that the criteria focus on projects of a scale deliverable through the LOTI mechanism (this is 26 out of the 56 identified). This excludes any projects that might be deliverable through MSIP or RIIO-2 baseline funding by TOs. It would be helpful to understand the justification for this. It would also be useful to clarify how Ofgem is going to ensure that projects delivered through the MSIP re-opener or baseline funding, that are HND Essential, are delivered on time.

Relatedly, although we support the need for ensuring value for consumers, we are not clear on the justification for considering projects out of scope because they do not meet a particular high threshold of consumer benefit for accelerated delivery. If a project is deemed essential for delivery of the 2030 target, but offers only marginal consumer benefit from an accelerated timescale, we do not believe this is sufficient justification for failing to meet the government's offshore wind target. This is particularly important given the CBA methodology used to make this determination assesses consumer benefit only on constraint costs and does not consider the value of other metrics such as carbon reduction or security of supply, for example. Any such cases should be clearly flagged for wider discussion / examination of the assumptions.

We have very significant concerns regarding the reference to the REMA project made in the consultation, which appears to imply that the perceived value of planned network upgrades under a Locational Marginal Pricing (LMP) system would form part of the evaluation criteria of projects considered optimal for delivery. LMP is not currently being implemented, nor are there formal plans to do so. The case for LMP as supportive of a cost-efficient transition to net-zero is far from proven in GB. Given a lack of investment in grid infrastructure is the root cause of the high constraint costs, further delaying network investment on the basis of a policy option currently being considered, and with the explicit aim of reducing constraint payments (albeit only by moving them from billpayers to generators without creating additional value) is, at best, highly counter-productive. Furthermore, given the offshore leases that will deliver the 50GW target have already been awarded – meaning that project locations are already set – it is not clear that LMP will have a significant impact on constraint volumes in the medium term – only upon who pays for them.

¹ ESO (2022) [Network Options Assessment](#)



Q2: Are the 26 projects identified the correct ones to initially focus on?

Given the information currently available, the 26 projects in question appear to be justified in being considered for acceleration². However, it would be useful to understand more about which projects are currently not under consideration, and why – most notably SHNS, which is identified in the NOA³ as a prerequisite for CGNC, GWNC, TGDC and E4L5 all of which are identified through the NOA Refresh as ‘HND Essential’ reinforcements.

We strongly support the commitment to keep projects under review to facilitate the addition of later projects at a later stage if necessary – in particular to allow additions from the HND2 process. As set out in our response to question 12 however, it is important for TO certainty that although projects may be added to the list of critical for 2030, those currently identified cannot be subsequently removed or given a “hold” or “stop” status in subsequent NOA reports unless the needs case changes significantly, and over a prolonged period. We recognise that if there is no longer a need for the reinforcement (due to a change in the generation background, for example) then it would not be economic or efficient to continue to build the network reinforcement. However, the practice of some infrastructure projects being repeatedly started and stopped by the NOA process in response to updated modelling assumptions is a cause of significant uncertainty for the TOs. This could lead TOs to prioritise projects that deliver lower levels of consumer benefit, but have a higher degree of certainty associated with them. Therefore, breaking this cycle of uncertainty by providing early and robust clarity on decisions to proceed with investments across all HND Essential works is a prerequisite to the timely delivery of the network infrastructure necessary to meet the 2030 50GW offshore wind target.

Q3: Do you agree that it is in the consumer interest to consider exempting projects from competition?

Yes – Although competition may indeed be an effective means to reducing network development costs, 2030 is less than 8 years away – this justifies looking at alternative approaches to ensuring timely delivery whilst delivering best value for end consumers.

We note OFGEM’s concerns that consumer benefit will be significantly reduced if TO projects are delayed beyond 2030 due to increased constraint costs, and that this risk is partially mitigated by the proposed changes to the incentive scheme. We would urge OFGEM to go further than simply assessing impact of constraint costs

² We are making the assumption that “E4LF” is a typo of “E4L5”.

³ ESO (2022) [Network Options Assessment](#)



on consumer bills, and also include additional benefits such as reduced carbon emissions, reduced wholesale costs, and CfD impacts. There is precedent for such consideration of wider issues in the “Additional CBA” in the SWW Final Needs Case for the Orkney electricity transmission project⁴ and it is unclear why Ofgem has not considered these as valuable for inclusion in this CBA.

In addition, any steps taken to reduce timescales for connection not only support swifter delivery of projects, but also increase the probability of delivery of such projects by 2030, even for projects with an Earliest in Service Date “EISD” before 2030. The EISDs in the NOA are made on a P50 basis – that projects have a 50:50 chance of delivery on time. This is a high degree of risk for such strategically important developments, therefore any steps that can be taken to ensure timely delivery of these projects is likely to be highly in the consumer interest.

To this end, we would also be supportive of a mechanism to monitor timely delivery of milestones to ensure that these HND essential reinforcements, but also wider TO reinforcements, are monitored to avoid cases of late delivery. We note that RIIO-2 introduced the Large Project Delivery mechanism which includes a Late Delivery Charge, however we consider more focus should be given at an earlier stage to monitor progress against key milestones. This is particularly relevant for reinforcements identified as essential for delivery of the 50GW target. Identifying a project as behind schedule only at the point where it was expected to be coming online is far too late if the 2030 target is to be met.

Q4: Which of our options for exempting projects from competition do you favour?

Based on current information, we are supportive of option one. If EISDs within the NOA are based on P50 likelihood of timely delivery, that implies that 3 out of the 6 projects that would face competition under option 2 would be delivered *after* 2030. We would argue that commencing development of these projects at the earliest time necessary to have a high probability (>90%) of timely delivery to support the 2030 target would be most appropriate.

⁴ [OFGEM \(2019\) Decision: conditional approval of the SWW Final Needs Case for the Orkney electricity transmission project](#)



Q5: Do you agree that without upfront certainty that they will be delivering enough of the investment needed for 2030, TOs will face significant difficulties mobilising the supply chain to deliver the works on time?

Every effort must be made to ensure the TO's supply chain has as much visibility and certainty as possible to support delivery of the 2030 target. We propose that OFGEM works not only with the TOs, but also directly with their supply chains, to establish what regulatory levers can be pulled to allow them to invest with confidence and at pace.

The TO's supply chain must keep pace with the development of new generation capacity. To meet the 2030 target requires an average of ~5GW of new offshore wind capacity to be delivered each year between 2022 and 2030, and it would not be desirable to backload this into the final few years of the decade. To do so would seriously jeopardise the meeting of the target by relying on the supply chain to meet huge volumes of production in a condensed timeframe, whilst also creating a dangerous cycle of "boom and bust" for the supply chain.

Although this consultation is rightly focussed on delivery of the 2030 target, thought must also be given to ensuring that the steps that are taken on route to 2030 leave a sustainable and robust legacy to support the continued decarbonisation of the energy system well into the next decade and beyond.

Q6: Do you agree that it is in consumer interest to consider streamlining our regulatory processes?

As set out in question three – any steps taken to reduce timescales for connection not only support swifter delivery of projects, but also increase the probability of delivery of such projects by 2030.

The EISDs in the NOA are made on a P50 basis – that projects have a 50:50 chance of delivery on time. This is a high degree of risk for such strategically important developments, therefore any steps that can be taken to ensure timely delivery of these projects is likely to be highly in the consumer interest.

We note that although there is theoretically potential for reduced certainty of costs under a streamlined regulatory regime, we believe that a higher-level strategic needs case assessment is more appropriate for reinforcements identified as HND Essential. This is because the 'need' for these reinforcements is already well established.



We do not believe streamlining the regulatory approval process will increase the risk of abandoned costs, relative to the current LOTI process due to the removal of the initial and final needs case stage gates. The purpose of the initial need case stage, as set out in the LOTI Guidance is to 1) assess the need for the project 2) understand and assess the evidence used and process followed by the TO to reach its favoured technical solution. We would argue that reinforcements identified through the HND already have been shown to have a clear needs case and the technical solution has been identified by the ESO through the HND, and then would be refined through the Detailed Network Design (DND) stage. Therefore, we are not clear what additional benefit an initial needs case process for these reinforcements would bring, and therefore agree that a strategic needs case assessment is more appropriate.

If an ex-post review of costs is to be introduced, the TOs must have a very high degree of certainty regarding which costs could be considered efficient and inefficient project spend. Without this certainty, ex-post review brings with it a significant level of risk for TOs stemming from concerns that costs already incurred may be deemed inefficient and therefore non-recoverable. We suggest that OFGEM works closely with the TOs to establish what can be done to give them comfort that legitimate costs they incur will not later be considered inefficient project spend.

Q7: Which of our options for streamlining our regulatory processes do you favour?

We support the minded-to proposal of a combination of approach 1 and approach 2 – we believe this allows for projects to begin to progress quickly, but with continued checks and balances along the way to ensure consumers are not exposed to unnecessary risks.

We propose that there may be further opportunities to speed up review. For example, we believe the second stage of full project cost assessment (such as Ofgem's review of the project assessment submission and any iterative review stages) could begin after consent has been submitted, but *before* final planning consent is granted. Although we recognise that it might not be appropriate for Ofgem to consult on the cost assessment for a project prior to consent being granted, OFGEM's internal work could begin beforehand. This would mean that, wherever planning is granted without major alterations, OFGEM would be in a position to consult very shortly after consent is granted and progress the cost assessment process as quickly as possible. Given that OFGEM's working assumption is only one in fifteen accelerated investment projects are abandoned, and the strong track record of LOTI projects receiving planning consent, we



consider this would be a least worst regrets use of resources and an efficient approach to further speed up the regulatory process.

Q8: Do you agree with the costs and benefits methodology we have established?

There appear to be some shortcomings in the assumptions of the cost-benefit methodology which we would like to highlight:

- Over-reliance on constraints as a measure of consumer value – Constraint costs are only one dimension of the value of improved grid infrastructure. Levels of carbon emissions must also be considered along with the impact on wholesale prices, CfD costs, and the value of meeting the government’s 2030 offshore wind target to investor confidence, as well as a net-zero power system by 2035.
- Volume of constraints - It is also not clear if the constraints considered are linked only to generation volumes delivered by offshore generators as part of the pathway to 2030, or if the relief of constraints on onshore generators are also considered – without which benefits are likely to be undervalued. Relatedly, more information on the assumed deployment of onshore low-carbon generation in constrained regions ahead of 2030, and how this has been included in the cost-benefit analysis, would be welcome.
- Value of constraints - More clarity on the value which has been attributed to a constrained MWh of electricity, and what it is based on would also be welcome. I.e. does it reflect only the cost of bids in the BM, or also the offers accepted to bring additional generation online the other side of the constraint. Given the current international gas crisis, the cost of this redispatch may be substantial in the near to medium term.
- Probability of causing delay of connection of a generator – if a piece of onshore grid infrastructure which was critical to the timely connection of a generator were to be delivered late, and so delaying connection and commissioning, this too would have an associated cost. It is not clear how this has been included in the cost-benefit analysis.
- Additional benefits of HND infrastructure - There are some developments set out in the HND which identify a need of connection, but have yet to establish the nature of the connection e.g., PSNC – the North-South Wales link. This could be delivered by onshore 400kV OHLs and cables, or via a sub-sea HVDC link. This decision will have a material impact on both the costs, and benefits, of such a connection. Sub-sea cables would be likely to be much



higher cost, leading to increased TNUoS costs for demand users in South Wales, compared to a counterfactual of an onshore 400kV connection. This would not only likely be lower cost in of itself, but also facilitate the connection of multiple prospective onshore wind developments. Given Wales's commitment to decarbonisation, high wind resource, and proximity to demand centres, there is already a strong needs case for an onshore North-South Wales Transmission link. Selecting an offshore route for PSNC would miss such benefits, and would not alleviate the need for a subsequent onshore link. It is not clear how effects such as these are captured in the cost-benefit analysis.

Q9: Do you agree with the conclusions of our cost and benefits analysis?

Notwithstanding the above-mentioned challenges with the methodology, we agree with the high-level conclusions of the cost-benefit analysis that there are significant consumer benefits to be derived from accelerating the timescales for delivery of onshore transmission infrastructure. We also note that the modelling of the 10 projects as if they had an EISD of 2031, when four of the ten have a later EISD is likely to have led to an underestimate of the benefit that the improved timescales are likely to deliver.

Q10: What are you views on introducing a package of regulatory measures which Ofgem may apply to protect consumers?

We believe a package of regulatory measures which protects consumers from excessive cost overruns, balanced with offering incentives to TOs for early delivery, is entirely appropriate. This is particularly important in the current context of high energy bills, however the high and rising cost of constraints, stemming in large part from high gas prices, demonstrates the significant value for consumers which may be delivered from early delivery of grid projects.

Q11: What are you views on the design of each of regulatory measure? (Please clearly reference which measure(s) your comments relate to e.g., Accelerated delivery Output Delivery Incentive, Ex post efficiency review, etc)

Given the strategic importance to the infrastructure projects within the HND to the effective delivery of the 2030 offshore wind, 2035 zero carbon grid, and 2050 net zero targets, we support the creation of licence requirements to deliver these projects on time. Where OFGEM is considering making use of Price Control Deliverables in addition to licence changes, we would be keen to see some practical



examples of how this could improve delivery, above and beyond licence change alone.

In addition, we believe that establishment of formal routes to effective cross-industry engagement is critical. This could come through a forum akin to the (now disbanded) Electricity Network Strategy Group (ENSG). Before 2017, GB network planning was pursued through the Electricity Network Strategy Group (ENSG), which was chaired jointly by BEIS and Ofgem. The group took responsibility for agreeing a series of major network reinforcements based on independent technical, economic, and environmental analysis. A wide range of stakeholders (developers, OEMs, large energy consumers, local community representatives) were consulted in an open and transparent policy-led process. We believe that returning to an ENSG-style approach could offer a route to effective delivery of crucial cross-industry engagement. If project timelines are beginning to slip, this must be communicated early to enable mitigating discussions to be held, and to allow the TOs be held to account and reasons behind the delay given.

Calibrating the incentives and penalties with reference to level of consumer benefit appears to be a logical approach, however we suggest that this should be expanded to consider other aspects beyond constraints. As set out above, wholesale prices impact, reduced carbon emissions, and overall delivery of the 2030 target should also be considered. Given the scope of these works, we would argue that significant weight must be given to the latter of these considerations - delivery of the 2030 target. We agree that the size of the penalty / reward for each project should be fixed at the outset, to allow the TOs to prioritise their activities appropriately.

In regard to how these penalties / rewards are awarded, we would welcome more detail on the checks that are being put in place to establish if projects delivered early are due to circumstances beyond the reasonable control of the TOs. It is reasonable to assert that TOs will be able to highlight where late delivery was owed to factors beyond their control, so a reciprocal process may not be necessary for projects delivered late.

We believe that deadlines for delivery of different projects should be in line with the date the ESO has specified as necessary *at the latest*. If in subsequent versions of the NOA, a project is identified as having an EISD ahead of the RISD, then it would not make sense to consider the RISD as the deadline, as this implies a higher degree of certainty for the TO in question that an early-delivery reward will be achieved.

As noted in question 6, it is important that ex-post reviews of costs do not lead to unintended levels of risk on the TOs. If ex-post review of project costs is to be introduced, then we would suggest that OFGEM works closely with the TOs to



establish what can be done to give them comfort that legitimate costs they incur won't later be considered inefficient project spend.

Q12: Do our you think our proposals raise any financability concerns or create excessive financial risk for the network companies? If so, how could they be addressed?

As set out in our response to questions 6 and 11, it is essential that the TOs can have confidence that the investments they make will not subsequently be deemed inefficient, and therefore not be able to recover their costs.

It is essential too that for the projects identified as critical for delivery of the 2030 target which have received a 'proceed' in the refreshed NOA, cannot be subsequently reclassified as 'Hold' or 'Stop' in a later version of the NOA without a significant change in the needs case over a sustained time period.

There is a strong case for review of the existing network planning regime (made up of the FES, the ETYS and the NOA) to ensure it is robust for delivery of net zero and the transmission network required for it. The NOA uses the ETYS, and therefore FES data, to propose that the most economic and efficient solutions for network reinforcements are given a recommendation to proceed. Other reinforcements are also given a recommendation to hold or stop. This is essentially an annual work plan for the TOs. One of the issues with these current processes is that each is updated annually, and therefore data can (and does) change significantly year on year. This means that the recommendations of the NOA (which uses the FES and ETYS data to determine which transmission reinforcements are needed) also change regularly, and it is common that reinforcements given a green light to proceed are then stopped sometime later.

For example, the planned "Bramford to Twinstead" transmission upgrade in East Anglia has been given a "green light" and subsequently stopped approximately five times in the last decade. This has created significant uncertainty for National Grid TO, local communities and developers whose project connection locations and dates rely on robust decision making with regards to network infrastructure construction.

More certainty regarding future deployment – spatially and temporally – is essential. Process reform could give the opportunity for key onshore (and offshore) transmission reinforcements that may be clearly identifiable as necessary from far in advance (e.g. well beyond 10 years) could be given permission to proceed on a least-worst-regrets for net zero basis at an early stage. TOs, and their supply chains,



must be able to invest with confidence that projects will not be halted following a single updated modelling run.

Q13: Is any further guidance, or additional specific information, needed as part of the TOs' project delivery plans?

No Response.

Q14: Are there any additional timetable issues that need to be considered?

No response.

Additional Remarks

Levels of constraints on the network are rising, the cost of which is greatly exacerbated by the current global gas crisis. The cost-benefit analysis in this paper shows significant consumer benefit arising from accelerated delivery of many onshore transmission upgrade/reinforcement projects. The time is therefore right to review ESO processes establishing which reinforcement projects should be commenced and halted, and ensure these are sending robust, enduring signals that allow the TOs to invest with confidence.

Much focus is currently being given to reducing constraints through the introduction of a new market framework. However, little attention is being paid to if ESO's current processes to assess which areas of the network are right for reinforcement. This is something that will become increasingly critical on the pathway to establishing the Future System Operator fit to deliver net zero. As set out above, given the significant expansion of the electricity network that is necessary between now and 2050, the planning processes for this expansion must be aligned with timely and economically efficient delivery of net zero.

I hope you find this response useful, if you have any questions or would like to discuss any of our response further, please do not hesitate to contact me.

Yours sincerely,

Dr Tom Steward

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RWE