

## GB Connections Reform – Consultation Submission (Final) from Research Relay Ltd

1 Do you generally agree with our overall initial positions on each of the foundational design options and key variations? Are there any foundational design options or key variations that we should have also considered?

Yes I think they are covered adequately between the 4 TMOs

2. Do you agree with our initial view that the current issues with the connections process could potentially be addressed on an enduring basis through other, less radical, and lower risk means than the introduction of capacity auctions?

I agree that Capacity Auctions are not the way forward as they would tend to advantage larger players. Also, a Pay Highest Get Capacity approach would tend to rule out holistic design and diversity of technology types.

3. Do you agree with our initial view that the reformed connections process should facilitate and enable efficient connection under either a market-based (i.e. locational signals) or 'centralised' deployment approach (or an approach somewhere between the two), but not mandate which approach to follow?

Agree up to a point, however... 'Locational Signals' are a relic from an outdated system concept where fuel and generation could be located closer to major areas of demand. In a renewable, distributed and storage based dominated system, locational signals undermine the opportunity to harness natural resources where they occur. Charging regimes should reflect today and future need to move toward the Net Zero requirement. At present the Locational Signals reflect past goals such as 'Dash For-Gas' in the 1980's/90s and increasingly outdated assumptions of demand – as industry has changed and increasing electrification of transport, agriculture and heating will tend to increase demand in less dense areas of habitation. New storage technologies and high-demand Hydrogen production are also likely to be in peripheral areas near to renewable generation. For some users, such as marine and heavy goods transport, power is more likely to be transported (as compressed H2) by sea rather than through wires, thus reducing constraints and bills to electricity consumers.

A centralised deployment could prove problematic if the assumptions made at the root of the design proved to be inefficient or wrong.

I would propose an area 'modular' approach rather than to try to have an overarching combined land and marine solution for the whole of GB which would be increasingly unwieldy with inefficiencies increasing with complexity.

The wrong Locational Signals and or a wrong model for a cumbersome whole GB approach are likely to lead (as at present) to distorted Use of System charges – typically with Northern generators paying significantly more than similar in the South or a lower return for outturn price under REMA for Northern generators.

4. Do you agree with our initial recommendation that TMA A to TMA C should all be progressed, irrespective of the preferred TMO?

Yes – pre-Application is sensible as long as it is not too protracted. It would rely on good and accurate published data (on the portal) (Q6) and the ability of developers to have key one to ones with ESO/TO (or for Embedded Generators with the DNO).

5. Do you agree with our initial recommendation on the introduction of a nominal Pre-Application Stage fee, discounted from the application fee for customers which go on to submit an application within a reasonable time period?

Yes it seems fair that a nominal fee should be discounted from the fee for full application within a reasonable timeframe.

6. Do you agree with the importance of the TMA A ‘Key Data’? Please provide suggestions for any other key data that you suggest we consider publishing at Pre-Application Stage.

The quality of the data available to developers in this part of the project would be key, in that it is up to date and as accurate as possible. Developers should be encouraged that it is in their interest to allow sharing (within reason) of their plans for capacity (which could be anonymised as far as possible by ESO) so that developers would have an early assessment of likely connection dates in advance of formal application.

7. Do you agree with our initial recommendation with regard to TMA D (requirements to apply)?

Yes I agree with the Requirements to Apply – conditions need to be clearly defined and easy to follow. Standardised forms (at Gate 1 in particular) designed as far as possible to weed out speculative applications. For land based projects, Letters of Authority (as proposed by this review) are a reasonable requirement.

8. Do you agree with our initial recommendation with regard to TMA E (determination of enabling works), including that it is right to wait until the impact of the 5-Point Plan is known before forming a view on whether further changes to TMA E are required?

Do we need to wait until the impact of the 5-point plan is known? This could take some years. Surely it would be prudent to work up a TMO which uses as its base a prediction that the plan can be implemented otherwise there is a risk of a circular iteration failing to achieve the goals. Elements of the 5 –point plan such as Non –Firm connections (TMA E3), Storage and planning assumptions SQSS (Security Factors) should be built in to the preferred TMO. Offers of non-firm should not be used, in the longer term, to defer or rule out required reinforcement or novel approaches which are needed to move rapidly to Net Zero.

Anticipatory Investment (AI) - TMA E4 – is as important for land based projects as it was in the Holistic Network Design (HND) of the proposed Offshore Network. Indeed it is difficult to envisage a real impact on Constraints and their increasingly high and damaging costs to consumers without critical infrastructure included under AI. It could be argued that a strategic approach to connections cannot be undertaken in any degree other than ‘tinkering’ with the existing network (TMA E 1-3) without a degree of AI.

Thus, TMO4 –which it is stated would later include inclusion of AI should carry this in its design from the outset and allow for a fair balance between financial risks and costs to connecting generators

and those of the consumer – bearing in mind short term risk and longer term year on year savings through reduced Constraint Costs . The ability for ESO and TOs to forward plan reinforcement is both difficult to assess and inefficient to plan without a degree of proactivity.

**9. Do you agree with our initial recommendation with regard to TMA F (criteria for accelerating ‘priority’ projects)?**

TMA F – Yes the criteria for accelerating ‘priority’ projects seem reasonable as far as they go. Much will depend on the clarity and robustness of how TMA F2 is defined and applied to eligible projects in a clear and transparent manner. Readiness to connect (F3) would seem to be a clear criterion for advancement – though problems in the detail may crop up if a priority project under F2 is vying for advancement with an F3 project.

Increasingly diverse technologies such as marine renewables and storage (particularly where it is integrated with Renewables), which may be important in the move to Net Zero, should also be included in deliberations for accelerating projects – for instance sharing (asymmetrically phased outputs) of renewables within an area and/or strategic in electrically connected areas (nodes) could be taken account of when making decisions about advancing projects. This is also important when undertaking Queue Management TMA G.

A price – based mechanism (capacity auctions) in, my view, would advantage larger players whilst missing out on goals to design a holistic system and should not be taken forward.

**10. Do you agree with our initial recommendation with regard to TMA G (queue management)?**

Reactive Queue Management (RQM), as per the status quo, is likely, when considering ESO’s introduction to this document, to make only a modest impact on the problem as stated.

RQM + where priority is allocated under TMA F, above, would seem reasonable and should make a (likely slightly) bigger impact than RQM.

As far as a ‘tougher approach’ to project milestones (CMP376) due weight should be given to issues beyond the control of developers (who may already have sunk considerable funds into a project) such as the increasingly complex and unwieldy planning process on land – and probably likely to be repeated for marine projects.

It is disappointing that ESO seems to have ruled out Proactive Queue Management (PQM). Anticipatory Investment and a more imaginative design including diverse technologies (as described above) could act as enablers of PQM with a resultantly greater impact than RQM or RQM+.

**11. Do you agree these four TMOs present a reasonable range of options to consider for a reformed connections process?**

Yes, the proposed TMOs seem to represent a range from near Status Quo (TMO1) and modest stages of reform through TMO2 and TMO3 to TMO4.

**12. Do you think any of the four TMOs could be materially improved e.g. by adding, removing or changing a specific aspect of the TMO? If so, what and why?**

I think that TMO4 could be improved by the addition, from the outset, of a level of Proactive Queue Management (PQM) as a result of improved design and more imaginative look at a more modular approach where mix of generation types, storage, and new demand based on using more local renewables could lead to the most efficient use of the Network. To that end the expansion of the definition of a Large Embedded Generator for RDC from 10MW to more than 30MW would assist system planning where expensive infrastructure such as undersea cables are concerned.

13. Are there any important TMOs we have missed?

No – based on improving the scope of the better of the 4 TMOs rather than creating a new one.

14. Do you think 'Submit Consent' is too early for Gate 2 in TMO2 to TMO4? If so, what milestone should be used instead and why?

By 'Submit Consent', in the context of the whole document I am reading that as 'submit a planning consent application to the relevant authority'. In which case, I would agree that it is not too early for Gate 2.

15. Do you agree that TMO4 should be the preferred TMO?

Yes – with the proviso of adopting the suggestions in Q12

16. Do you agree with our design criteria assessment of the four TMOs? If not, what would you change any why?

I think ESO has covered the important aspects although has been a little too limited in leaving out some of the TMAs.

17. What are your views on the stated benefits and key challenges in relation to TMO4?

I think that the stated aspiration of getting more generation, efficiently and more quickly connected and operating are partially met by the TMO4 – but as currently written does not go far enough.

18. Do you think that there is a better TMO than TMO4? Whether that be TMO1 to TMO3, as presented, a materially different option, or a refined version of one of the four TMOs we have presented?

An improved (as Q12) TMO4 is, in my view, the better of the options.

19. Do you agree with our views on DNO Demand in respect of the TMOs

It seems logical to include Demand requirements when dealing with connections at GSPs. The early entry at Gate 1 (Window 1) in TMO4 should give a signal to designers as to options, if any, for some integrated nodal design and more flexible connection – particularly at sited where there is significant Embedded Generation and which may be of mixed technologies. RDC would be vital in these cases as generation/storage/demand could be offered in inter-window periods. Connections at Gate 2 could then be allocated efficiently with the probability of avoiding extended dates to wait for additional reinforcement.

20. Do you have any views on the appropriate mechanism to incentivise accurate forecasting of requirements and avoid more RDC than is necessary being requested by DNOs?

I have outlined how this could work in Q21 which would enable an RDC to be more accurate and enabling and would avoid duplication of effort ESO/DNO.

21. Do you agree with our views on the process under which DNOs apply to the ESO on behalf of relevant small and medium EG that impact on or use the transmission system, including that (under TMO4):

i) DNOs should be able to request RDC via application windows to allow them to continue to make offers to EG interwindow; and

ii) resulting offers should be for firm access until relevant EG has reached Gate 2 (at which point they can request advancement and an earlier non-firm connection date)?

The use of RDC through DNOs would be a useful strategic tool and would align well with the aims of TMO4 to look at a group of applications together and apply a design which is most efficient and to give opportunities for viable projects to move ahead or at least not get moved back.

If we take an instance where as GSP, besides Demand, has mostly onshore wind, some marine (Tidal in the first instance) and future storage – which may be Embedded, then the treatment of these generators in the TMOs is very important - if only to avoid being caught in unintended consequences with difficulty in aligning application windows where these apply. Under present arrangements CMP298 the DNO can aggregate capacity of small and medium EGs which are less than 10MW per generator. I think that as this consultation is about reviewing and changing the status quo that a suggestion that the definition of a large generator be increased to more than 30MW would be justified. Reasons could be:

Due to the high cost of infrastructure – it would be more cost effective to gather larger lumps of generation rather than small amounts, which may be different technologies, dripping in over a protracted period.

It would encourage far more integration for network planning at the DNO with a resultant increased efficiency to the network (and reducing effort required by ESO) including two way export/import of power through the expensive link and include storage.

The use of a modified RDC would enable TMO4 to be flexible enough to allow smaller parties to connect without discrimination where otherwise they could easily fall foul of Window cut-offs.

22. Do you agree that directly connected demand should be included within TMO4 and that the benefits and challenges are broadly similar as for directly connected generation?

Yes

23. Do you agree that TMO1 to TMO3 would require a separate offshore process, and that this would result in material disbenefits?

If there is need for a separate offshore process then this could impact the working out of an integrated approach – such as envisaged in TMO4

24. Do you agree that TMO4 is the most aligned to the direction of travel for offshore projects? If not, why?

Yes- as far as it goes, though there needs to be more detailed information about how connections for onshore applicants would be integrated with offshore connection nodes and vice versa.

25. Other than the Letter of Authority differences are there any other TMAs which have specific offshore considerations?

Presumably the equivalent would be a licence from the relevant marine licensing authority?

26. Do you agree with our views on network competition in the context of connections reform, including that TMO4 is the option which is most aligned with network competition as it includes the most design time at an early stage in the end-to-end process?

Yes – the design time at an earlier stage could help reduce uncertainty which is a potential barrier to competition.

27. Do you agree with our initial recommendation related to each of the TMAs within this chapter? If so, why? If not, what would you change and why?

I have alluded to changes in/inclusion of TMAs in the preceding questions.

28. Do you agree with our current views in respect of the implementation period?

I think that the late 2025 date should be moved forward if at all possible.

29. Do you agree with our current views in respect of transitional arrangements? What are your views on how and when we should transition to TMO4?

I'm not clear from the document how transitional arrangements would work – if say, a project has applied, under the present system, in mid-2023 and has been given a connection date – is this likely to change after, say, TMO4 is implemented?

30. What further action could Government and/or Ofgem take to support connections reform and reduce connection timescales, including in areas outside of connections process reform?

It is imperative that flexible generation and storage which will exist to support a renewable dominated system are zero-rated on the grid. To do anything else creates an over-engineered system and blocks more rapid deployment of renewables. This will make grid costs to the consumer significantly less. National Grid has indicated an interest in zero-rating t-connected battery systems, this should apply to all battery units.

Faster progress is needed in order to allow generation to be situated in the best places for generation –which is essential for renewables and decarbonisation – with more imaginative area (modular) based Generation and Demand reflecting a mix of technologies coming on stream and changes in the profile of Demand as we move toward the requirements for 2045/50.

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