

Charlotte Ramsay  
Head of European Electricity Transmission  
ITPR Team  
Ofgem  
9 Millbank  
London  
SW1P 3GE

Lewis Dale  
Regulatory Strategy Manager

Lewis.Dale@nationalgrid.com  
Direct tel +44 (0)1926 655837

[www.nationalgrid.com](http://www.nationalgrid.com)

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Our Reference NG/LAD

Dear Charlotte,

**Response to “Integrated Transmission Planning and Regulation (ITPR) Project:  
Emerging Thinking” (Consultation 83/13)**

Please find attached a response from National Grid’s Business Development Department to the above consultation.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'LAD', with a stylized flourish at the end.

Lewis Dale

Cc: Pete Boreham  
Paul Whittaker

## **Integrated Transmission Planning and Regulation Project: Emerging Thinking A response from National Grid Business Development**

National Grid's Business Development Department welcomes this opportunity to contribute to the ITPR project. We jointly own and operate the IFA and BritNed interconnectors (2 of the 4 existing links to GB) with our partners RTE and Tennet, respectively. We are actively progressing new developments including the Nemo link to Belgium (with our partner Elia), an interconnector to Norway (with our partners Statnett), more capacity to France via a new link (with our partner RTE), and proposals for additional capacity to Ireland and other countries which may wish to export renewables to GB. National Grid's interconnector and other business development activities are ring-fenced and separate from National Grid's transmission and distribution undertakings. This response contains no commercially confidential information.

In overview, we agree with the characterization of the existing transmission planning and regulation arrangements and we agree that there needs to be improvements in order to get the best balance for consumers between:

- a) coordination (which can harness economies of scale through anticipatory action while minimizing the risk of stranded investment);
- b) contestability between solution proposers (which can discover efficiencies in solution provision); and
- c) investment environment (which helps make available capital at efficient cost).

Specifically on electricity interconnection:

- 1) These projects are multi-jurisdictional and must reconcile the primary benefits they bring to overall European welfare with the specific impacts they may have on particular stakeholders, especially the impacts on prices and security of supply for GB consumers. While the cost impacts on the existing national transmission systems will be important in establishing an overall efficient design, these costs will usually be a relatively minor subset of the total cost for links to GB due to the large capital costs of the subsea cables and convertor stations. The controllable nature of this link technology also mitigates certain system integration issues which on a fully ac system would cause much larger interactions between transmission and interconnector circuits. On this basis, whereas interconnection in continental Europe is strongly meshed with transmission activities and so generally an inseparable part of the activities of national transmission system operators, in GB there is more scope for developer led interconnection (but still a need for close coordination).
- 2) The technology risks associated with these projects means that their design from high level concept to detailed equipment choices must be carefully optimised to achieve both successful delivery and operation. Keeping the design, delivery and operation activities in the same organisation that will be exposed to the eventual performance will minimise interface and hand off risks between the key project design activities. Nevertheless, these projects cannot be designed in isolation from other transmission developments and so an effective interaction between transmission system and subsea link design must be achieved.

Where the primary role of an interconnector would be to improve the European market by facilitating international energy market trading, there are public interest benefits from maintaining

a developer-led approach to formulating, delivering and operating hvdc interconnectors to GB albeit with suitable coordination arrangements to ensure locational and transmission system operational issues are appropriately addressed (as discussed below). In circumstances where the primary role of a link is to deliver renewables or other services to meet GB policy objectives, for example as arranged through inter-governmental agreements, then there is possibly a greater role for central coordination of the network solutions to address specific requirements of such arrangements.

In general, coordination issues will also become more important when the evolution of networks to meet combinations of interconnection, user connection and transmission reinforcement duties (so called multi-purpose network projects) is considered. The sharing of these network assets between specific connectees and wider users provides significant synergies due to superposition effects. However, uncertainties in the timing and the needs of the different users and classes of user means that the overall design must be focused on ensuring flexibility in operation and modularity for future development. If underwriting of all costs and risks by end-consumers is to be avoided then the framework must encourage developers to bring forward proposals for those parts which they can accept operational and delivery risk. Ensuring the framework is predictable in terms of the future treatment of investments is key to this.

**Question 1:** *Do you think we have appropriately characterised the future challenges to network development? Where do you see the main challenges? What are the long-term strategic and sustainability implications of these challenges?*

**Question 2:** *Are any of the review areas under ITPR more relevant than others?*

As developers of hvdc network solutions we agree with the overall conclusions of SKM: There are significant potential benefits from applying new technology to develop effective multi-purpose network solutions but there are formidable challenges in achieving cost-effective working solutions. Given that there will be contestability between equipment suppliers, finance providers and project management teams, we agree that the main challenge is the design arrangements (from high-level concept down to detailed equipment characteristics).

In their submission, Cambridge University and Imperial College highlight the importance of efficient price signals and institutional arrangements for informing efficient developments and enabling contestability but they give rather less attention to the question of how efficient design can actually be achieved. Too many design decisions made centrally and separated from delivery and plant operation considerations risks muting innovations from solution providers. Too little coordination means that efficiencies from standardization, economies of scale and system flexibility will not be accessible.

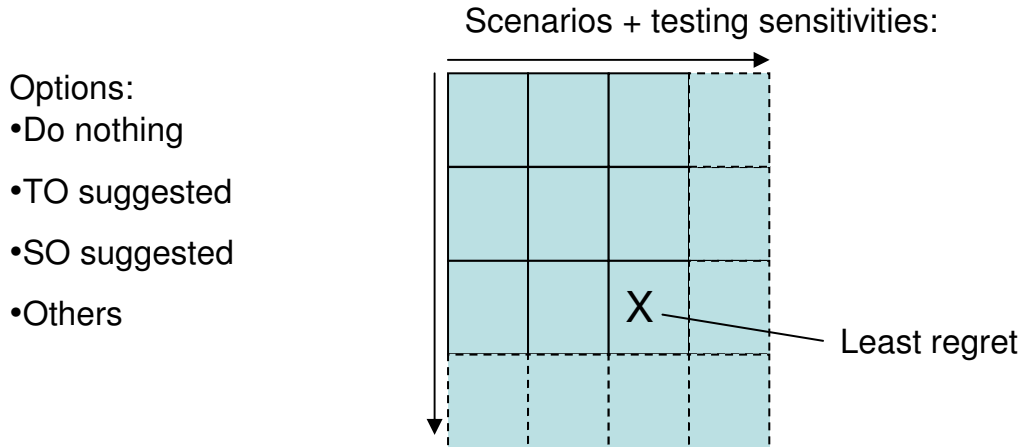
**Question 3:** *What are your views on the options for system planning discussed in this chapter? Are there other approaches to system planning that you think we should be considering within the ITPR project?*

**Question 4:** *Do you think that it would be beneficial to strengthen the role of a coordinating body working with relevant parties to facilitate efficient decision-making? In what areas could this coordinating body add most value to the process?*

In the case of interconnectors, many signals for efficient design and operation are directly observable in European market prices but these are not sufficient to ensure efficient link coordination. Similarly, for offshore and offshore connection tasks, many signals will come directly from the particular network users but, again, not all. To fill-in the missing information concerning interactions between existing and potential future network developments, enhanced activity from

the system operator would be valuable (extending the coordination activities already trialed to inform interconnector location).

We suggest the coordination activity of the system operator should be directed at searching for least regret options (consistent with NGET's Network Development Policy). With reference to the following diagram, the system operator would establish scenarios (as now) and extend these by producing testing sensitivities that distinguish the merits of development options as they emerge (the columns). From the collation of development options, the system operator is well-placed to evaluating the benefits and regrets of the options under the identified scenarios/sensitivities (the rows). Where alternative or modified options may perform better, the system operator will have an important role in calling for developers to bring forward such options.



It is unlikely that a pure and time-unbounded least regret search can occur in practice so the system operator will have an important role in managing the process including its transparency (given some information will need to remain commercially confidential). We suggest this coordination task is consistent with the "Enhanced coordinator" role identified in the consultation.

**Question 5:** *What are your views on the (real or perceived) conflicts of interest that could occur from parties holding dual responsibility in system planning and asset delivery and ownership? What are your views on potential options for institutional arrangements, separation and transparency measures to mitigate this?*

As identified above, there are strong public interest benefits in ensuring design decisions effectively address delivery and operational issues and so, as well as potential conflicts of interest, there are also important synergies from having system planners informed by delivery and operational experience. While it is for others to comment on their perceptions, we note that ring-fences and business separation arrangements are common throughout the industry and work best when the required treatment of specific defined information items is identified. On this basis, the adequacy of ring-fence and business separation arrangements is best ascertained when the specific operation of an enhanced coordinator role is formalized.

**Question 6:** *What are your views on potential future approaches to planning interconnection? Should there be increased central identification of potential interconnection that could benefit GB consumers?*

Given interconnectors have two ends, we have found it is problematic to approach their development solely or mainly from the perspective of maximising GB consumer benefits but

rather they must be assessed in terms of European welfare gains, competition enhancements in the European integrated electricity market, and network connectivity enhancements to harness diversity in renewable production between locations and access backup production and flexibility services. We agree that National Transmission System Operators have an important role to play and ENTSO-E will be a key forum for enabling such developments. However, given the technology challenges, it is important that the enhanced coordination delivered by national system operators is not achieved at the expense of curtailing innovation and the contribution of those with particular skills and new ideas.

**Question 7:** *What are your views on the options for delivery of transmission assets discussed in this chapter? Are there other options that you think we should be considering within the ITPR project to address the delivery drivers and challenges identified?*

**Question 8:** *Do you think that it would be beneficial to introduce some flexibility in the existing regimes to provide for alternative delivery routes, where this is in the interests of consumers? If so, what criteria could be used to determine the delivery route for an investment?*

**Question 9:** *If we pursued additional flexibility in application of the regimes, what role should discretion play in identifying the delivery route for a particular investment?*

Some flexibility in the manner in which network assets are regulated to reflect emerging circumstances sounds as if it might have consumer benefits but it will increase the concern that the business case for a project may be significantly changed by subsequent regulatory decisions. This would make financing more difficult and expensive. On this basis, if flexibility in the regulatory framework to be applied is to be established, we would prefer it to be the subject of clear rules that can be interpreted for a particular circumstance well-before an investment decision needs to be made. The governance system for rule changes must have unambiguous and quantifiable objectives. Generally there ought to be a goal of establishing property rights for those establishing assets so that such rights can ensure ongoing value as new uses develop.

**Question 10:** *Do you think that the case for change to current arrangements to enable more integration and coordination is material now, or may become so in the future? If the latter, when?*

There is a pressing need for an enhanced process to better achieve coordination of onshore works in GB and Ireland with a phased development of subsea links between GB and Ireland. Previous work by the TSOs to identify a coordinated approach needs to be updated to reflect 1) the emerging thinking on generator phasing and location and 2) the network capacity enhancement schemes proposed by various link developers. An overall phased and priced development needs to be ready should the British government choose to purchase renewables from Ireland (e.g. in 2015 for delivery in 2020).

We suggest there is more time available to consider coordinated grid options for the north sea because interconnector and offshore developers can progress work on the costs and benefits of integrated arrangements given the onshore development information already provided by NGET.

**Question 11:** *What are your views on our emerging thinking to consider further an enhancement of NGET's role as the SO in system planning to provide for a more coordinated and holistic approach across the GB system?*

As identified above, we support such a development.

**Question 12:** *What are your views on the emerging thinking that introducing further flexibility and applying criteria to designate whether an investment should be delivered by incumbent delivery or competitive selection could address many of the challenges and drivers identified?*

We would be keen to see example criteria and analysis of how these would affect existing development issues. To what extent are coordination benefits facilitated but other development options curtailed? (E.g. the economies of scale from shared offshore transmission links vs the nature of asset stranding or under-utilization if need does not follow expectations?)

**Question 13:** *What other options should we take forward for consideration in the next stage of our work on ITPR?*

We think further thought should be given to the assessment of interconnector benefits (e.g. the representation and reconciling of European and GB consumer welfare aspects in the system operator regret analyses).

In terms of the regulatory aspects, consideration should be given to how financial commitments (either directly by network developers or aggregated by such developers from benefitting users) would be factored into option decision making.

**Question 14:** *Do you have any views on our approach and timetable for our work on ITPR, or on interactions with related areas?*

The areas that might be critical for delivery of GB energy policy goals (for example the international procurement of renewable energy) should be given priority and an explicit time plan.

**Question 15:** *Do you have any other views on the ITPR project not covered by these questions?*

Our experiences over a number of interconnection developments highlight how uncertainties and the complex interactions across multiple jurisdictions concerning need, planning and regulation means that these projects are particularly complex and so often subject to long gestation, significant development costs and many development risks. With certain interconnector developments becoming strategically important to meeting government policy goals, it is particularly important that there is a good fit between government policy delivery and the regulatory framework so network development can be streamlined.