



First Hydro Company is part of a joint venture between  
International Power plc and Mitsui & Co., Ltd.

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Dear Graham,

### **Operating the Electricity Transmission Networks in 2020**

Thank you for the opportunity of commenting on your informal consultation document outlining the issues that National Grid could face in operating the electricity grid in 2020 and beyond. This response is submitted on behalf of International Power Mitsui's UK business.

We have included some general comments that perhaps go wider than the scope of the 2020 document but we believe these are required to give context to the discussion. We have also set down some more specific thoughts on the various subject areas highlighted in each chapter of the report.

In particular, we note that the consultation is based on the assumption that the 'Gone Green' scenario is achieved. Whilst this is a laudable aspiration, we believe that any subsequent proposals to change current contracting and market arrangements should be robust enough to manage an under- (or over-) shoot of this objective.

#### **General Comments**

- We believe that the main role of National Grid is to provide a reliable transmission network that allows demand to be met by generation, in parallel with the bilateral energy markets, subject to an economic level of constraints. National Grid is also responsible for procuring system services (frequency response, reserve, black start etc) via an economic, market-based approach. This market-driven approach should

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continue to form the basis of the trading arrangements and underpin the methodology for the procurement of services.

- Whilst we fully appreciate the policy objectives for 2020 that have been set by the EU and UK government, the actual level of penetration of renewable generation (principally wind) and potential changes to the pattern of demand is far from clear. There remains significant uncertainty over whether renewable targets in particular can be practically met in this timeframe. Even assuming UK compliance in this area, there is a wide range of potential plant mix scenarios to consider. In this climate of uncertainty we believe that a flexible market-driven approach to the operation of the network is essential.
- The current framework for the procurement of reserve services has worked well since NETA. With modest incremental change we believe that it remains fit for purpose for 2020 scenarios. Whilst additional reserve volumes are forecast to be required from time to time under high wind scenarios, we would anticipate that existing mechanisms are fully capable of coping with additional actions by National Grid. There is, however, concern that significant interventions (such as CAP 170) risk destabilising the investment climate for reserve plant. This could lead directly to a reduction in the quantity of reserve available to cover generation and demand uncertainty.
- We are further concerned that additional intervention by policy-makers to support investment in low carbon technologies could risk undermining the energy market, and impact on the investment signals needed to secure an adequate level of reserve/peaking capacity.
- We believe that the reliability of the transmission network and the disposition of generation within the network are important areas that should be addressed in a follow up report. The general maintenance philosophy is to replace assets only when they are beyond their economic life. Most of the 400kv network is now over 30 years old and is starting to show signs of age. Upgrading the network can result in significant constraint costs if assets are replaced at a suboptimal time. Similarly as constraints increase on the system, both during periods of high and low wind, a significant quantity of plant can be sterilised, effectively removing its availability to provide system services. These issues can materially affect whether and how National Grid can access the increased volumes of reserve that it anticipates are necessary in most 2020 scenarios. Some geographical assessment of this should be performed.

We set out below further comments on the some of the issues raised in the consultation.

### **Developments in Electricity generation**

Impact of the Industrial Emissions Directive (IED)	Under several proposed options to be further considered by the European Parliament later this year, the IED will have a significant effect on the operating regimes of the remaining coal plant from 2016. Material capital investment would be required to fully comply by 2016, and it is expected that the majority of plant that has opted into the LCPD (giving it the option to operate beyond 2015) will be dependent on one of these “flexibility” options. It is further possible that a number of the older CCGT fleet may also
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	<p>opt for one of these limited running hours options.</p> <p>Overall, this means that there will be a large tranche of capacity subject to operating restrictions between 2016 and 2020, with some closures by 2023.</p> <p>The impact of this legislation should be considered under further work by National Grid on 2020 issues.</p>
Embedded generation	There will be significant penetration of intermittent embedded generation that will effectively lead to a larger standard deviation of demand.
Demand Shape	We do not believe that there will be a significant flattening of the demand peak unless there is a change to the pattern of within day working.
Smart metering	This could have an effect on the absolute level of customer demand due to increased customer awareness. It remains to be seen how effective smart metering will be in changing domestic consumer behaviour that will cause any significant demand time shifting. It remains the case that the majority of demand elasticity is in the business/industrial sectors.
Electric vehicles	We believe that a 10 year time horizon is too short to see a significant growth in the number of electric vehicles. Carbon related transport savings are likely to come from better use of public transport and the replacement of the existing stock of inefficient/high emissions vehicles.

### **Reserve and Operating Margin**

Reserve margins	Driven by the high wind penetration scenarios we agree that there will be a significant increase in the quantity of plant/demand that is needed to provide reserve. This plant by its nature will be low load factor but the service provision requires significant energy backing at given times. In the wider market context it is therefore critical that pricing signals are sufficient to incentivise availability of increased reserve capacity, and that any reform to the wholesale markets does not suppress these signals.
Reliability of network	We have concerns over the reliability of the existing 400 kV network. We believe that an increased level of planning will be required to deal with the fault outages of existing equipment, in order to better ensure full access to generation and reserve providers.
Wind predictability	We do not expect a significant increase in the forecast accuracy of individual farms but some smoothing and improved forecasting will occur as a larger number of wind farms are connected.
Location of plant	Location of generation or demand services can exacerbate constraints. It will be important to understand the geographical issues associated with the provision of reserve services.
Active demand management	Although this may provide some reduced reserve requirement, it could lead to a suboptimal solution as the system operator will need to use the system frequency as the trigger rather than an explicit despatch instruction that can be used to build frequency prior to an event.
Demand scenarios	We consider that the high winter demand and low wind scenario combined with gas supply issues is a scenario that should be explicitly considered.

## Network Operations

Constraints	We believe that as constraints become more widespread increased information must be provided to market participants by National Grid to enable effective re-despatch of generation by participants to avoid constrained areas.
Demand Control	Currently little market information is provided on activity (instructions) in this area; if greater demand-side participation is anticipated, it is imperative that systems be developed and deployed to address this.
Increased use of BM	We think the BM will be able to cope effectively with the potentially increased number of instructions.

## Balancing Services Development

Contract duration	The potential durations of contracts may need to be increased to allow for investment in new equipment. However, National Grid must ensure that it maintains a healthy mix of contracts in order that competition is encouraged.
Storage technologies	Depending on the future plant mix, new storage solutions that have significant energy backing may be of significant value but the cost of provision of storage and the lead time of development present challenges for the developer.
Balancing Services Statement	We support the production of a long term Balancing Services statement covering a 10 year time horizon.
Impact on wholesale market	As long as the current contracting methodologies are followed, with incremental change where appropriate, we do not believe there will a significant effect on the operation of the wholesale market. Clearly, we might expect increased liquidity in the short term markets, particularly in response to changing wind forecasts. However, we see no reason why current trading mechanisms do not have the capacity to cope with additional traded volumes.
Interconnectors	We believe that the commercial terms on which capacity is sold on interconnectors will drive their ability to provide reserve services as well as the differential pricing across interconnectors. This could change their ability to provide services on a daily or weekly basis.

Yours sincerely,

Andy Rimmer

Trading Analyst