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11 April 2013

Dear Rachel,

Update on the Electricity Balancing Significant Code Review (EBSCR) and request for comments on proposed process to review future trading arrangements

Thank you for the opportunity to provide views on the revised scope of the EBSCR and the proposed process to review future trading arrangements. This response is provided on behalf of National Grid Electricity Transmission plc (NGET) and is not confidential. National Grid owns and operates the high voltage electricity transmission system in England and Wales and, as National Electricity Transmission System Operator (NETSO), we operate the Scottish high voltage transmission system.

In the UK, our primary duties under the Electricity Act are to develop and maintain an efficient network and to facilitate competition in the generation and supply of electricity. Our activities include the residual balancing in real time of the electricity system.

Summary

In our response to Ofgem's initial consultation on EBSCR (published on 1 August 2012), we stated that the EBSCR should focus on reforms to the cash-out regime rather than wider reforms to the balancing processes. We welcome Ofgem's decision to reduce the scope of the EBSCR to cash-out arrangements (e.g. more marginal cash-out price), and to consider wider reforms separately.

We consider that the range of issues captured in the scope of the proposed future trading arrangements work is appropriate; and our views on the specific areas covered in these arrangements are given in the Appendix to this response.

We welcome the holistic approach for developing the initial vision for the future trading arrangements. With so much work going on in the industry at the moment, an overriding means of ensuring co-ordination between the work areas will be key to their success.

We consider it important that the overall market design vision builds upon core NETA principles such as strong incentives on generators and suppliers to self-balance, and for risks to be faced by those best placed to manage them, with the System Operator

exclusively responsible for directing residual balancing activities in the last hour before real time. We also agree that these principles may need to be extended or adapted to better reflect policy objectives such as security of supply and efficient operation. We consider that the stability reflected in this vision may help give investors confidence in making investment decisions.

In our view, the timing of the launch of the proposed new project and its duration are important considerations in order to ensure that the future trading arrangements are developed as efficiently and effectively as possible. This would require high-level coordination across a range of ongoing initiatives (in particular the Target Model and EMR) and the proposed project could play a leading role in ensuring coherent achievement of the set objectives.

This coordinated approach may make it easier to align the GB arrangements with the requirements of the European Target Model and EMR. We consider it important that the scope and timescales of any project allow it to both capture the necessary interactions between those work areas in scope and to be sufficiently flexible to allow work to adapt to changing circumstances.

In our view, it is essential that the proposed new project promotes effective working between the various ongoing strands of work and the new initiatives that will be required to deliver the Target Model. Whilst we acknowledge that some areas of work still contain significant uncertainties, an effective means of co-ordination should ensure efficient communication and ability to react to change.

Given the proposed wide scope and long duration of the project, we consider that this project could be akin to a way of working and does not necessarily require an end date. This approach could facilitate the coordination of various areas of work (as stated above) on an ongoing basis.

The remainder of this response in the Appendix provides our thoughts in relation to the specific questions asked within the consultation document.

If you wish to discuss the content of this letter further or have any queries please contact Ian Pashley on 01926 653446 in the first instance.

Yours sincerely

Mike Calviou
Director of Transmission Network Service

Appendix: Responses to questions raised in the consultation

1. Do you agree Ofgem should launch a project to create a high level design for the future electricity trading arrangements?

If not, why not and how would you see the changes to the industry noted above being managed?

In our response¹ to Ofgem's initial consultation on EBSCR (published on 1 August 2012), National Grid stated that the EBSCR should focus on reforms to the cash-out regime rather than wider reforms to the balancing processes. We welcome Ofgem's decision to reduce the scope of the EBSCR to cash-out arrangements (e.g. more marginal cash-out price), and to consider wider reforms under a separate longer-term project.

We agree with the overall purpose of the new project which is intended to deliver:

- Efficient operation of existing assets;
- Appropriate incentives to maintain existing assets and invest in new capability²;
- Effective and efficient integration with wider European markets to the benefit of GB consumers.

We would stress the need for a flexible approach in order to ensure alignment with other ongoing industry developments (e.g. European Target Model and EMR). National Grid considers that such an approach continues to be important for the design of any future trading arrangements.

2. What key issues should be examined as part of a work stream on future GB trading arrangements?

We welcome specific comments on our initial thoughts set out in Annex 2.

We consider that the range of issues captured in the scope of the future trading arrangements is appropriate. Our views on the specific areas covered in these arrangements are given below.

2.1 Integration of renewables

The consultation suggests a shift from the position originally considered in the EBSCR, which suggested aggregation and central balancing of renewable output (separate from the main market), to integration of renewables in the main market. We welcome this approach as we consider that renewable generation should have the same incentive to self-balance as other technologies in order to facilitate efficient and economic operation of the system. We consider that the environmental goals should be achieved with minimal market intervention for any class of technology.

We agree that the integration of renewables was not the primary aim of the NETA design. One consequence of the increasing renewable penetration, which was not envisaged at NETA time, is the greater need for more flexible plant, or greater DSR, to cater for the variable output of renewables. We consider that accurate forecasting of renewable output (particularly at a local level and in operational balancing timescales, say 4-6 hours ahead of real-time) is fundamental to the efficient balancing of the system.

We note the importance of a liquid market close to real time to enable renewable generators (and other generators, as well as demand side providers) to trade out imbalances at or near gate closure. As stated in our response to Ofgem's consultation on

¹ <http://www.ofgem.gov.uk/Markets/WhlMkts/CompanEff/electricity-balancing-scr/Documents1/National%20Grid%20EBSCR%20IC%20response.pdf>

² Including power generation, transmission, interconnectors, storage and demand side capability.

wholesale power market liquidity ("consultation on a 'Secure and Promote' licence condition"³), the development of a GB Hub by National Grid Interconnector Limited and BritNed under the North West Europe Market Coupling project should have a positive impact on GB liquidity; this could increase opportunities for renewable generators (as well as other generators) to trade closer to real time.

The consultation states that a Balancing Energy Market (BEM) may provide a focus for liquidity close to real time. In our response to the initial consultation on EBSCR, we highlighted several issues with the concept of a BEM:

- Trading out imbalances in the BEM could undermine and reduce market liquidity before gate closure which could adversely impact smaller players;
- A BEM may resolve forecast imbalance at gate-closure, but post-gate closure imbalance (e.g. demand forecast error and plant loss) would still need to be managed via the Balancing Mechanism, with potential loss of synergies due to the need to unwind some of the actions taken in the BEM;
- Provision of a statistical NIV forecast for the BEM may lead to undesirable participant behaviour which may exacerbate the unwinding of BEM actions.

Overall, National Grid agrees with the suggested approach to integrate renewables in the main market (rather than considering renewables separately) and considers that initiatives such as the GB Hub may support the liquidity better than the BEM. We acknowledge that there may be merit in holistically assessing the most appropriate approach for the integration of renewables.

2.2 Facilitating Demand Side Response

National Grid supports the principle of integrating Demand Side Response (DSR⁴) within the current market design. We already procure substantial volumes of demand-side reserve under non-BM STOR arrangements⁵, and have stated in our response to the initial consultation that the non-BM STOR volumes should feed into imbalance prices in the same way as the BM STOR volumes do.

As noted in the consultation, industrial and commercial customers respond to the 'triad avoidance' signals by reducing load during peak periods which allows them to reduce their exposure to TNUoS6 charges. This type of DSR from smaller businesses is also increasing through demand aggregators. Although the current impact at the transmission level is not yet significant, if volumes increase in response to sharper price signals then it will become important for us to have adequate information regarding the volume and location of DSR if we are to continue to operate the system efficiently. Without this information there will be increasing uncertainty regarding demand levels and the volume of response that may be delivered. In both import and export constrained areas of the system this could then force us to operate to wider margins due to the uncertainty involved.

Some technologies also have potentially adverse impacts on a grid system if appropriate industry standards have not been established. For instance, while the coordinated

³ <http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=324&refer=Markets/RetMkts/rmr>

⁴ DSR has many definitions. In this context DSR can be defined as a deliberate change in demand for electrical power observed on the national electricity transmission system from the demand that would otherwise be expected. This may be either a shift in demand from one time period to another, or a permanent change of electrical power. Changes may be put into effect by either managing electrical load or by the self-supply of electrical load from local non-Balancing Mechanism generation sources.

⁵ For example, in Autumn 2012 ('season 6.4'), National Grid procured 1,637MW of STOR from BM sources whilst 1,306MW was procured from non-BM sources including bio-diesel, biomass, gas reciprocating engine, diesel, open cycle gas turbines, landfill gas, combined heat and power, and load reduction.

⁶ Transmission Network Use of System

switching off of a large volume of small devices (e.g. domestic fridges and freezers) may be beneficial to the system in response to a frequency drop, without sufficient randomised hysteresis in the individual devices' control systems a similar coordinated switch-on a few minutes later could be just as damaging to security of supply as the fault that caused the original frequency drop.

As a result it is likely to be necessary for industry standards to be developed and applied to such technologies. A real example of this type of risk is the use (and more particularly the setting) of Rate of Change of Frequency (ROCOF) protection on solar PV. An initial frequency drop could trigger the coordinated disconnection of over 10GW of solar PV in Europe potentially resulting in a dangerous low frequency excursion and widespread demand disconnection. We note efforts to deal with these phenomena at a European level and support ongoing efforts to arrive at an effective and proportionate solution.

Current rules may not efficiently facilitate the use of DSR from parties other than suppliers as there is no easy mechanism to account for the use of such resource within the settlement systems. As the volume of DSR increases, it will be important to integrate the DSR in the market design in the same way as the generation side so that it can be fully reflected in the market signals (e.g. via imbalance prices).

The Capacity Market design is committed to DSR receiving fair and equitable treatment to generation in the enduring design to ensure that its potential value to consumers is harnessed. To ensure all potential barriers to their participation are identified and addressed, transitional arrangements are being developed to start in advance of the enduring capacity market. This period will offer DSR providers, other market participants and the system opportunity to better understand the impact of DSR at scale and ensure that the resource can be integrated into the energy market.

Roll-out of smart meters may create opportunities for greater demand management in the future. National Grid notes a range of initiatives mentioned in the consultation (e.g. DECC's DSR pilot auction to facilitate a clear route to the market, and Ofgem's Smarter Markets project). In our view, these initiatives should be allowed to develop into detailed solutions before considering incorporating them into the balancing arrangements. However, as a general point it is worth noting that "smart meters" will only offer any real benefit when they are associated with real time tariffs that can provide price signals to consumers' equipment to respond. The current trend to limiting suppliers to only 4 tariffs will act as a blocker to the development of tariffs designed to suit specific types of consumer. For instance, a customer with an electric vehicle to charge, or electric storage or water heating may be very well placed to offer a DSR service, but only if they have an appropriate tariff.

2.3 Efficient balancing and system operation

Our primary role as System Operator is to balance the system in an economic and efficient manner. Since the system demand and supply is balanced on a second by second basis, we need to ensure that there is sufficient reserve available at various points ahead of real time to deal with unforeseen plant loss or demand changes. Reserve is procured weeks and months ahead in order to ensure its availability close to real-time.

Future reserve requirements are likely to increase as the volume of variable renewable output on the system increases. Anticipated increase in the largest plant loss from 1320MW to 1800MW is also likely to result in additional reserve requirements. The increased requirement for reserve and subsequent procurement could interact with the Capacity Market, although we recognise that the reserve requirement may be a short-term requirement for flexible plant whereas the Capacity Market may only secure longer-term but potentially less responsive plant. Any future market design should therefore be aligned with the Capacity Market such that the objectives of the future market arrangements (e.g. appropriate incentives to maintain existing assets and invest in new capability) are met.

As stated in the consultation, a separate reserve market (e.g. day ahead) may provide a focal point and a route to market for the desired flexibility. This is an area that directly interacts with the capacity that will be made available under the Capacity Market. In order to develop an optimum market design, it will be important to consider how, and in what timescales, this interaction will materialise so that there are no duplications across the two regimes.

We agree that the 'Connect and Manage' arrangements are likely to continue to impact transmission constraints. This further enhances the need for flexibility in future market design to manage system congestion. National Grid will continue to manage transmission congestion efficiently, and consider reinforcement and investment where appropriate in order to meet our regulatory obligations.

The consultation outlines the passing of balancing responsibility from market participants (pre-gate closure) to National Grid (post-gate closure), and notes that, whilst National Grid balances the system on a second-by-second basis, the market balance is settled at half-hourly resolution. We note the importance of a clear transfer of responsibilities to a sole counter-party and the provision of accurate physical notifications at gate-closure to enable efficient balancing decisions to be taken; we acknowledge that the ongoing SCR retains within its scope the potential for developments around the provisions for notification of contracts, such as post-gate notification of trades undertaken prior to gate-closure, which may help to ensure efficient transition between the market and the BM. We would be keen to ensure that market arrangements continue to reflect (as far as possible) the practicalities of the physical assets that comprise the electricity system, rather than the other way round.

The consultation also notes the need for appropriate incentives and signals for parties to balance. We agree with this, but also consider it important that parties offer their plant into the Balancing Mechanism to assist with our residual balancing role. Any review of this area will need to take into account the developments in European balancing code; and we would note the increasing importance of access to sufficient cross-border balancing resources as part of this.

2.4 Effective integration with the wider European market

The wider European market has the potential to benefit the GB market, and ultimately GB consumers. As we stated in our response to Ofgem's consultation on wholesale power market liquidity, the development of a GB Hub by National Grid Interconnectors Limited and BritNed under the North West Europe (NWE) Market Coupling Project could have a positive impact on GB liquidity; this has the potential to reduce entry barriers for smaller independent parties and ultimately benefit the GB consumers.

The NWE project represents a significant step towards compliance with European legislation, particularly the CACM network code. However, we note the potential for the Balancing Code to have significant interactions with the GB balancing arrangements. In particular, we consider that access to balancing services across interconnectors will remain and become even more important for efficient system operation. There is a risk that the tools available to us will be limited to post gate-closure timescales, which could impact on volumes available to us. We would be keen to ensure any work on future market design recognises the importance of effective balancing services across interconnectors, and involves all relevant parties to ensure this is the case.

Compliance with European legislation would require high-level coordination across GB initiatives which could be undertaken within the new proposed project. This would also help mitigate the risk of having to unwind the GB market design.

The task of applying the requirements of EU legislation to the GB regulatory frameworks (including, but not limited to, the GB codes) is non-trivial and fundamental to the

successful transition to an enduring set of market arrangements that meet the stated aims of the proposed project. We consider it essential for there to be clarity around this work so as to inform the proposed project's next steps.

To minimise the potential for nugatory work, it may be appropriate to consider, at this stage, the high level impact on the GB balancing arrangements. We consider that a coherent and flexible approach is needed to ensure effective application of European Codes to the GB frameworks.

In a broader sense, greater integration with Europe also raises fundamental questions regarding certain obligations placed on us by the Electricity Act, namely, "to develop and maintain an efficient, co-ordinated and economical system of electricity transmission" (Electricity Act s9(2)). European law takes precedence over UK law and so we need to be conscious of our obligations arising under Article 12 of the Electricity Directive to coordinate and cooperate with other TSOs in relation (amongst other things) to cross border activities. Conceivably, certain system operator actions may result in an increase in GB market costs but result in far greater savings in other European systems / markets (initially most likely to be in the SEM, or in France, Belgium, or the Netherlands but possibly more widely). The reverse may also occur with the GB market being a net beneficiary of actions undertaken by European TSOs. We consider that the objective of the Third Package is to capture all such benefits, recognising that there may be "winners and losers" in relation to individual actions but that the net position will be to the overall benefit of EU consumers. Careful consideration will therefore be needed regarding the way in which balancing arrangements in GB contribute to capturing the maximum social welfare. As such, and given the requirement for national law so far as is possible to be interpreted so as to be consistent with EU law, we consider that compliance with the obligations to be "...economic, efficient and coordinated..." should wherever appropriate be assessed taking into account a wider European view. This raises a further question regarding whether the presence of a GB focused SO incentive scheme could be in conflict with wider European obligations and objectives. We believe the proposed project provides an ideal opportunity to consider such issues and the principles that should apply to balancing activities (as well as to network design and development).

2.5 Incentives to maintain and invest in new capability

The incentives to maintain and invest in new capability are closely linked to the Capacity Market and reserve procurement. The Capacity Market is likely to play a key role in delivering longer-term plant investment and ensuring availability of required capacity. However, there is no guarantee that such capacity would be sufficiently flexible to meet short-term reserve requirements (e.g. larger less responsive plant may meet the longer-term security of supply objective but may not provide short-term flexibility).

There are however other low carbon support mechanisms which incentivise maintenance and delivery of flexible plant. The Renewables Obligation (RO) provides support for both co-fired and dedicated biomass conversions, with this support expected to continue following the introduction of Feed In Tariffs with Contract For Difference (FiT CfD). In addition to the support for Biomass generation, the Carbon Capture and Storage (CCS) commercialisation programme provides another mechanism that supports flexible plant. In the longer term, it is envisaged that support for CCS projects will form part of the FiT CfD mechanism.

2.6 Interactions with gas arrangements

We agree that the gas-fired generation is likely to remain a key component of the generation mix for the foreseeable future, particularly given the flexible nature of this type of generation. This means that any changes to the governance arrangements in one sector are likely to impact the trading arrangements in the other sector; for example, the

gas network has to deal with its own security of supply issues whilst supplying gas to gas-fired plant to support security of supply on the electricity network. The interaction between gas and electricity prices means that the trading arrangements in the two markets are also linked. Given these interactions, the flexible nature of the gas network is likely to continue to be important for the electricity network and it may be that greater co-operation is needed to deliver a coherent operational strategy at times of system stress.

2.7 Institutional arrangements

The consultation highlights the need for re-assessing the balance of responsibilities between different industry parties such as the System Operator, generators, and the demand-side. Although the consultation does not provide any further details on this, we consider that the scope of 'residual balancing' and responsibility for reserve holding may be worth examining. We would like to emphasise that such a review should maintain the primary responsibility for balancing on the market participants.

3. What form should the process take?

3.1 How can the process help increasing certainty about the impact of the EU TM and its interactions with EMR while limiting any unintended detrimental effect on investors' certainty?

National Grid agrees with the overall market design vision that does not envisage a radical departure from core NETA principles (e.g. strong incentives on generators and suppliers to self-balance, and risks to be faced by those best placed to manage them). We also agree that these principles may need to be extended or adapted to better reflect policy objectives such as security of supply. We consider that the stability reflected in this vision may give investors comfort in making investment decisions.

In our view, clarity around the process for applying EU legislation to the GB codes and licence framework is an essential pre-requisite to the successful development of future trading arrangements. We consider it important for any proposed project to clearly identify and manage relevant linkages between ongoing and new work, deliver effective industry communication and engagement; and facilitate a coherent and flexible approach in relations to any changes that are required.

3.2 What structures should we use to maximise the opportunities for stakeholder involvement?

We note the proposed approach for stakeholder engagement consisting of:

- A Senior Advisory Panel to provide strategic input and direction from stakeholders;
- Focus Groups to provide expert input on the key issues identified;
- Regular workshops to discuss the design principles, change proposals and the way forward; and
- A dedicated micro-site on Ofgem's website to keep a wide range of stakeholders informed of progress and thinking. This would involve publishing think pieces, which interested parties could respond to, as well as formal consultations.

We consider that the above approach to develop strategic project direction and engage the stakeholders is sensible.

However, as stated in response to Question 1, consideration should be given to the industry workload for the proposed new project. Given that the same industry resources are likely to be involved in both the EBSCR and the new project, we consider it essential that any project is scoped and managed with this in mind.