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Dear Dena

Locational BSUoS charging methodology – GB ECM 18

EDF Energy welcomes the opportunity to respond to this consultation. We believe that Ofgem should not consider Locational BSUoS in isolation and should veto its implementation for the following reasons:

- The proposal undermines the Government's preferred choice of transmission access model and the UK's ability to meet legally binding renewable and carbon targets.
- Locational BSUoS is discriminatory as it seeks to target a subset of transmission connected generators only.
- The introduction of Locational BSUoS would expose generators behind a derogated boundary to large risks which they cannot manage or hedge.
- Two crucial aspects of the effectiveness of this proposal are questionable
  - The ability of generators to forecast Locational BSUoS;
  - How generators can reflect Locational BSUoS in wholesale prices.
- We are concerned that no modelling has been undertaken which considers the impact of uncertainty on market efficiency and potential risk premia.
- National Grid's analysis indicates Cheviot boundary constraint costs of £58m and this is used to assess the impact of the proposal on individual market participants. Given that Cheviot boundary constraints are forecast at £180m the impact assessment is misleading.
- The Locational BSUoS methodology is complex, has not been subjected to sufficient stress-testing and uses an ideal price (rather than actual prices) to calculate the costs of the derogation.

Locational BSUoS must not be considered in isolation

This proposal is one of many other regulatory changes which will have a direct influence on the UK's ability to meet its legally binding renewable and carbon targets by 2020. Therefore, Locational BSUoS should be considered holistically alongside:

- The DECC determination on transmission access.
- Other locational pricing proposals, e.g. zonal losses.
- Administered intertrip proposals, e.g. CAP170.

The recent statement from the Government confirms their decision to consult on a Connect and Manage (C&M) Socialised model for enduring transmission access. This preferred model of access is viewed by DECC as optimum in meeting its 2020 targets.

When approached holistically rather than in isolation, the merits of Locational BSUoS and its contribution to the investment climate required to meet UK 2020 targets look very different. The implementation of a highly volatile ex-post charge (such as Locational BSUoS) will act as a significant deterrent to new transmission connected generation projects behind the current derogated boundary. This is contrary to DECC's desire for the connection of renewables to meet 2020 targets; and therefore Ofgem should veto Locational BSUoS and prevent its implementation.

The Locational BSUoS proposal is discriminatory

There are various grounds against which it could be argued that the proposal is discriminatory and we discuss each of these in turn. EDF Energy views the proposal as fundamentally flawed and, even if these issues were to be resolved, we would still have sufficient grounds to argue that Locational BSUoS should be vetoed.

The proposal seeks to target constraint costs at a subset of transmission connected generation, and yet embedded generation and demand also contribute to the need for derogation and the associated level of constraints. Proposing to impose the costs of managing this derogation solely on larger transmission connected generators is discriminatory. The proposal will also widen the existing charging differentials between transmission and smaller distribution connected generation (which currently do not contribute to TNUoS, BSUoS or transmission losses). We suggest that additional analysis should be carried out to determine if Locational BSUoS results in perverse incentives for generators to connect inefficiently.

The additional costs imposed by this proposal on some participants are extremely large; therefore an interim solution where the distribution connected generation issue is solved at a later date is far from desirable. Locational BSUoS charges for some but not all generators will further distort the competitive market. Generators cannot relocate to avoid these retrospective costs, and so the proposal could ultimately result in the early closure of power stations; this would have resultant security of supply issues. The impact of such an outcome has been briefly considered by National Grid rather than fully investigated.

We further note Ofgem's view that it is discriminatory to charge generators differently depending on their time of connection, and yet Ofgem argues that a generator's location behind a derogated boundary is an objective ground for discrimination. We believe Ofgem's view is discriminatory and note that the current derogation is a result of a historic decision by the Regulator to allow the overselling of the Scotland-England boundary.

EDF Energy is aware that there are high cost constraints areas forecast in GB and that these are of a similar magnitude to the derogated Cheviot boundary; e.g. the Thames Estuary has forecast constraint costs of £100m in 2010/11. These locations are not subject to derogation, merely subject to transmission line outages, and are therefore being treated differently. This is further discriminatory treatment.

Locational BSUoS exposes generators to unmanageable risks

Generators which are located behind a derogated boundary have no control over the level of the boundary derogation and it is the level of non-compliance which is a major driver on the volume of constraints. Locational BSUoS attempts to calculate the costs of this non-compliance and then seeks to targets the costs to the generators behind the boundary. This does not represent fair and equitable treatment, as generators cannot relocate to a less congested part of the network or hedge against the current or future level of the

boundary derogation. Furthermore, it is quite clear that the level of derogation on the transmission system (and not only the Cheviot boundary) can only be expected to increase under the Interim Connect and Manage (C&M) regime for transmission access.

DECC's minded to decision to progress with a C&M Socialised regime for access has been chosen as it will provide the best investment climate to facilitate the achievement of the UK's legally binding carbon and renewables target. The delivery of these targets is for the benefit of existing and future UK customers as a whole; however under Locational BSUoS the costs of this regime will be funded by a small subset of GB transmission connected generators (i.e. those in Scotland). This is clearly inappropriate.

Any proposal to mitigate the effects of the derogation would have benefited from wider debate and industry engagement, but, due to the urgency of this charging modification, that discussion has not taken place. Ofgem's analysis of this proposal demonstrates that Locational BSUoS creates more extreme winners and losers than those created by other modification proposals such as zonal losses. And yet the degree of engagement and discussion with industry has been limited and the analysis less detailed and holistic. EDF Energy believes the risks and potential unforeseen consequences to be too great to allow this proposal to be implemented.

Effectiveness of the proposal

In National Grid's Addendum report, two requirements were identified as being necessary for the proposal to be successful. Firstly, generators must be able to forecast the timing and level of Locational BSUoS. Secondly, they must reflect Locational BSUoS in their price in the wholesale market. It is therefore useful to examine each of these issues in turn.

Generators' ability to forecast Locational BSUoS

The market does not provide an efficient signal of the level of Locational BSUoS, as out-turn values will be published two days after delivery. It is therefore vital that generators are able to forecast Locational BSUoS if they are to reflect it in their pricing decisions.
The calculation of Locational BSUoS for a single half-hour is far from straightforward. Indeed, it is our belief that it is impossible to calculate it sufficiently accurately on a routine basis for it to be used in pricing decisions. We are not aware of any analysis that has been carried out as part of this process on the feasibility of forecasting Locational BSUoS. As a result we have had to rely on our experience of forecasting wholesale power prices when developing our thoughts.

We routinely use fundamental models of electricity supply and demand to provide a view of wholesale electricity prices. These models are complex, have been developed in-house and have been refined over a number of years. Back-testing has shown that if the input data is known then these models are accurate. However the uncertainty around supply and demand for a single half-hour can be large, particularly in high demand periods when peaking units may run and demand may reduce in response to high prices. In these periods the uncertainty around price can exceed 25% of the wholesale energy price.

The uncertainty when calculating Locational BSUoS is much larger than for wholesale prices. The Locational BSUoS function is non-smooth, because a value only exists when the boundary is constrained. This makes the calculation more complex than for wholesale prices. In addition to national supply and demand, market participants must estimate the potential for constraints at the derogated boundary, which requires more detailed knowledge of regional demand and plant availability. National Grid proposes to provide a forecast of some information, but the reliability of these forecasts is currently unknown and

we are not aware of any analysis having been carried out to study the potential forecasting accuracy. The level of Locational BSUoS is also strongly influenced by the behaviour of the generators behind the boundary, which in turn is driven by their ability to forecast BSUoS and their response to the forecast value. To include these considerations in a model, particularly the first of these, is extremely difficult, if not impossible, and some form of dynamic modelling technique such as game theory is required. We estimate that the lead time to develop such a model for a single derogated boundary would be more than a year and there is no guarantee of success at the end of the development process. The complexity of the problem will only increase if more boundaries become derogated.

It is our view that Locational BSUoS should only be introduced if it has been demonstrated that it is possible to forecast with reasonable accuracy and market participants are provided with sufficient lead time to procure or develop a suitable system. Otherwise the first criteria laid out by National Grid will not be satisfied. This will certainly not be the case in April 2010.

Reflection of Locational BSUoS in wholesale prices

There are two major classes of generators behind the Cheviot boundary: inflexible generation such as wind and nuclear together with flexible generation such as thermal and pumped storage plant. The inflexible generation cannot respond to Locational BSUoS. Flexible generation has the ability to respond but it is not clear that it will do so, even if the level of Locational BSUoS can be predicted. The analysis by National Grid suggests that market power exists behind the boundary and that this is currently reflected in the bid prices of the flexible plant. There is therefore no incentive on flexible generation to reduce its output, as this would negatively impact on earnings. This is particularly the case given the difficulty of forecasting the locational signal. A more likely outcome is that these generators will simply modify their BM pricing to offset their proportion of targeted costs. If this occurs then constraint costs will not be significantly impacted and the outcome will be a significant increase in costs for the inflexible transmission connection generation behind the boundary. A solution where the market power issue is resolved at a later date is not acceptable, as the costs to some market participants in the interim are extremely high.

Potential impact on market prices

The modelling by National Grid suggests that market prices are relatively unaffected by this proposal. However, the analysis assumes that market participants have perfect information and this is certainly not the case with Locational BSUoS.

The introduction of Locational BSUoS will increase uncertainty in the market owing to the difficulty with forecasting its value and the lack of a timely market signal. This uncertainty is particularly likely to occur in peak periods, when constraints are more probable. Uncertainty in markets reduces efficiency and may lead to a risk premium in the market. Risk premia have been observed in the wholesale electricity market, particularly in peak periods when uncertainty is greatest. This was certainly the case in the first half of Winter 09; in October, Nov 09 Block 5 traded at a substantial premium to both the fundamental models and out-turn prices because of the high uncertainty over supply and demand in the market.

We are concerned that no modelling has been undertaken that considers the impact of uncertainty on market efficiency and potential risk premia. We believe that this analysis needs to be undertaken before considering the introduction of Locational BSUoS.

Impact assessment

We are impressed with the effort that National Grid has put into its analysis on potential impact, particularly as new models had to be created to obtain the results. However we are concerned that much of the modelling has assumed constraint costs on the Cheviot Boundary of £58m as against forecast costs of £180m, and we believe that it is important to understand why the numbers differ by a factor of three. We are not aware of work to explain these differences but we are keen for this analysis to be carried out.

Given the discrepancy between the constraint costs in the modelling and those forecast for next year, we do not believe that the analysis can be used to assess the impact of the proposal on individual market participants.

Methodology concerns

The methodology for calculating Locational BSUoS is complex and relies on an ex-post process carried out by National Grid. The documentation to date provides very few example calculations and there has been almost no interaction with industry to explain the assumptions and process.

We are engaging with National Grid to understand the calculations better but we still have significant concerns in two areas.

Firstly we have concerns regarding the complexity of the approach when more than one derogated boundary exists. There has only been one example published on the approach and there have been no presentations to explain the calculations in detail to the wider industry. We are concerned that the approach has not been stress-tested sufficiently for different combinations of derogated boundaries or system conditions. We would therefore like to see further analysis in this area.

Our second concern is with the use of the Energy Reference Price (ERP) to calculate the costs due to the derogated boundary. The intention of the charging proposal is to charge the extra system costs due to the derogation to the transmission connected generators behind the derogated boundary.

The costs of the actual system are known but the costs without the derogation must be calculated. National Grid proposes using the ERP to estimate the costs of the derogation. The ERP is an ideal price that can be achieved assuming that there are no constraints on the system. In reality, constraints occur owing to, for example, transmission system constraints or generator dynamics. The replacement price of energy in the real system without derogation will be higher than the ERP on occasions as a result of the existence of these constraints. We believe that by adopting this simplified approach some of the constraint costs south of the Cheviot Boundary will be calculated as being due to the derogation and charged to the Scottish generators. Essentially this approach compares the costs of the derogated, constrained system (the real system) with a non-derogated, unconstrained system, whereas it should be compared with a non-derogated, constrained system.

The size of the impact due to this approximation is not at present known and we have been working with National Grid to understand this issue. Our major concern is that, if the system becomes more constrained in England, as it is currently forecast to do, then there may be a significant over allocation of costs to Locational BSUoS in Scotland.

We believe that further analysis needs to be carried out to understand the impact of this approximation and we would welcome the opportunity to discuss this issue and help develop the modelling approach.

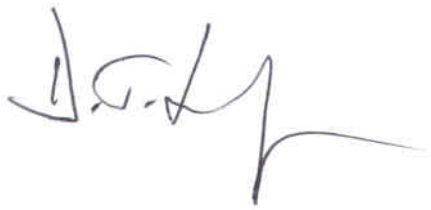
Summary

In view of the numerous and relevant concerns we have with this proposal, we feel strongly that Ofgem should use its power of veto to prevent the implementation of Locational BSUoS.

You will find answers to the questions raised in this consultation in the attachment to this letter.

If you have any queries on this response or would like to arrange a meeting to discuss it further, please do not hesitate to contact Rob Rome on 01452 653170, or myself.

Yours Sincerely



Denis Linford
Corporate Policy and Regulation Director

Attachment

Locational BSUoS charging methodology – GB ECM 18

EDF Energy's answers to questions raised

Chapter 3
Question 1: Do respondents have any comments on NGET's analysis?

As we have already commented, the analysis undertaken by National Grid shows a constraint cost of £58m on the Cheviot boundary and this cost is used to assess the impact of the proposal on different parties. This cost does not compare in any way with the National Grid forecast of constraint costs for 2010-11 SO Incentives which includes a cost of Cheviot constraints of £180m.

Question 2: Do respondents wish to present any additional quantitative analysis that they consider to be relevant to assessing the proposal?

No. We view this ex post methodology for the allocation of charges as extremely complex and unpredictable, and we therefore have been unable to complete any additional robust quantitative analysis on the proposal.

Question 3: Do respondents consider that there are any aspects of the proposal that have not been fully assessed?

Yes. There are a number of aspects of this proposal which would benefit from further analysis and testing. We have discussed these in our main comments on this proposal and summarise our comments here for clarity.

- There has not been any analysis undertaken to demonstrate that it is possible for generators to forecast Locational BSUoS with reasonable accuracy.
- There has been no modelling of the uncertainty that this proposal may introduce to market efficiency and potential risk premia, and without this there has been no true assessment of the potential impact on market prices.
- National Grid's methodology has not been sufficiently stress-tested against different system conditions and combinations of boundary derogations.
- Finally the use of the ERP to estimate costs of the derogation is an approximation and the impact of this has not been assessed.

Question 4: Do respondents consider that the key features of the proposal strike an appropriate balance between cost reflectivity, transparency, complexity and stability?

No. It is clear to us that transparency, complexity and stability have all been sacrificed in favour of a charge which is viewed by Ofgem and National Grid as cost reflective. EDF Energy however has doubts over whether the detailed Locational BSUoS methodology proposed by National Grid is correct and can therefore be described as truly cost reflective (see response to Q7).

Question 5: Do respondents consider that this modification promotes more effective competition? Conversely, do respondents wish to provide further detail of any discrimination concerns?

We do not consider that this proposal will promote more effective competition. The application of charges to a subset of generators will distort the market and the wider

implications of this have not been subject to sufficient analysis. We have already provided comment on the discriminatory aspects of this proposal; we completely disagree with Ofgem's belief that the location of a generator behind a derogated boundary provides reasonable grounds for discrimination.

Question 6: Do respondents consider that the proposal complements the changing nature of the transmission network and assists the development of an economic and efficient transmission system?

No. The Cheviot boundary has been subject to a derogation since the BETTA implementation and until 2009 a proposal for Locational BSUoS on that boundary had not been made by National Grid. We do not believe that there has been any fundamental change to the nature of the derogated network boundary that would warrant this proposal. Furthermore, there is not evidence that targeting of system operation costs in this way will assist in the development of an economical system. EDF Energy believes that such efficiencies might be better demonstrated by the completion of the Fundamental Review of the SQSS.

Question 7: Do respondents consider that the different methodologies used in the proposal are appropriate?

No. We have discussed our main concerns in our above response. In particular we are concerned about the use of an ideal price to allocate costs of constraints to Scottish generators. As we have commented, these issues would benefit from further analysis and stress-testing.

Chapter 4
Question 1: Do respondents wish to present any additional quantitative or qualitative analysis that they consider would be relevant to assessing this proposal?

The complexity of this proposal means that we have been unable to undertake any robust quantitative analysis. Our qualitative assessment with respect to discrimination is discussed in our main response.

Question 2: Do respondents consider that there are any aspects of the proposal that have not been fully assessed against the factors set out in this chapter?

Yes. We are disappointed to note that in the implementation timescales assumed by Ofgem and National Grid there has been no consideration of the impact this proposal has on industry parties' information systems. We note that one respondent to National Grid's charging consultation estimated 6-9 months would be required to implement the necessary changes. It is not at all clear that the industry will be ready by 1 April 2010.

Question 3: Do respondents consider that there is discrimination between transmission system users as a result of this proposal?

Yes. As is discussed in response to Chapter 3 Q5 we completely disagree with Ofgem's view that the location of a generator behind a derogated boundary provides reasonable grounds for discrimination.

Question 4: We welcome further views on whether the proposal could have an adverse impact on security of supply.

As we have stated, EDF Energy believes the impact on Security of Supply has been only briefly considered by National Grid and not in our view fully investigated. Any scheme which places an additional charge on a subset of generators in a particular location will carry risks of plant closure, with subsequent security of supply concerns.

Question 5: We welcome further views on whether the proposal could have an adverse impact on sustainability in particular the transition to a low carbon economy.

This proposal clearly cuts across the Government's preferred model of C&M Socialised for an enduring access regime. C&M Socialised is viewed by DECC as the best model to meet Government targets for 2020 and this proposal will severely undermine these goals. A secure regulatory and investment climate is required to ensure that industry can contribute to delivering these targets. This proposal is unpredictable, complex and consists of a discriminatory charge, which will deter that necessary investment.

Question 6: Do respondents wish to present any further analysis on the wider implications of the benefit that may ultimately be expected to be passed through to consumers?

No. However, as we have discussed, the likely impact on wholesale prices and risk premia has not been properly assessed and therefore we view Ofgem's belief that there may be a reduction to customers' bills as unsubstantiated.

Question 7: Do respondents have any views on the interaction of NGET's charging proposal with TAR as set out in this chapter?

Yes, please see our response to Q5.

EDF Energy
January 2010