

Industry Participants with an
interest in generation TNUoS tariffs

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Dear Industry Participant

Consultation on National Grid's approach to generation re-zoning for 2013/14

This letter seeks views on how National Grid will interpret the charging methodology to review the generation Transmission Network Use of System (TNUoS) charging zone boundaries. The charging methodology requires a consultation to be undertaken as part of any review to introduce any amended zonal boundaries. The boundaries for generation TNUoS tariffs zones are reviewed prior to the start of each new price control period. Since 2013/14 is the start of a new price control (RIIO-T1), new boundaries could be introduced from 1 April 2013. However, National Grid has raised CMP214 "Implementation of TNUoS Charging Parameter Updates following a Price Control Review"¹ which, if approved by the Authority, would result in any boundary changes applying from 1 April 2014 (2014/15) in order to give affected users greater notice of the changes.

The purpose of this consultation is to seek views on how National Grid should apply the existing charging methodology to ensure, as far as possible, any revised generation zones are robust to changes to contracted changes in generation and supply and reduce the need for re-zoning within the price control period. For the avoidance of doubt, National Grid is not proposing a change to the existing zoning criteria, which are described below and in Paragraph 14.15.26 of Section 14 of the Connection and Use of System Code (CUSC).

Background

TNUoS tariffs for generators

National Grid sets TNUoS tariffs for generators and suppliers. These tariffs serve two purposes: to provide information to customers about the transmission cost of connecting in different parts of the country and to recover the total allowed revenue of all transmission owners.

To provide information about the cost of connecting in different parts of the network, National Grid determines a locationally varying component of TNUoS tariffs using a model of power flows on the transmission system. This model considers the impact a marginal increase in

¹ <http://www.nationalgrid.com/uk/Electricity/Codes/systemcode/amendments/currentamendmentproposals/>

generation has on power flows at times of peak demand. Where a change in generation increases power flows, tariffs increase to reflect the need to invest. Similarly, if a change in generation reduces flows on the network, tariffs are reduced to reflect this. The charging methodology assumes the cost due to changes in demand are equal but opposite to changes in generation. In order to calculate flows on the network, information about the generation and demand connected to the network is required in conjunction with the electrical characteristics of the transmission circuits that link these.

The locational components of TNUoS tariffs for generation include local and wider elements (note, there is not such a split for demand tariffs). The local element is related to the cost of the circuits that connect a generator to the main interconnected transmission system (MITS) and are therefore specific to the connection arrangements of individual generators. The wider component reflects the costs of using the MITS. The generation and demand locational tariffs do not recover the full revenue that onshore and offshore transmission owners have been allowed in their price controls. Therefore, to ensure the correct total revenue recovery, separate non-locational “residual” tariff elements are included in the locational generation and demand tariffs. The residuals are set to ensure that 27% of total transmission revenue is recovered from generation customers, and 73% from suppliers of both half hourly (HH) and non half-hourly (NHH) demand.

Zoning and the Zoning Criteria

The charging methodology has a number of features that aim to provide tariff stability. In particular, generation and demand nodes are assigned to zones and the nodal costs are averaged by weighting them by their relevant generation or demand capacity. Demand zone boundaries are fixed and relate to the Grid Supply Point (GSP) groups used for energy market settlement purposes, whilst the following criteria are used to determine the definition of wider TNUoS generation charging zones²:

1. zones should contain relevant nodes whose marginal costs are all within +/-£1.00/kW (nominal prices) across the zone. This means a maximum spread of £2.00/kW in nominal prices across the zone.
2. the nodes within zones should be geographically and electrically proximate.
3. relevant nodes are considered to be those with generation connected to them as these are the only nodes which contribute to the calculation of the zonal generation tariff.

The process to review the boundaries can only commence once all changes to the charging model have been completed that could impact the locational component of a generator’s TNUoS tariff. This includes other parameters that are also updated for the start of each price control, which relate to the cost of investing in the network and the cost of a secure, integrated network. Once the charging model has been prepared, the process followed to apply the criteria entails initially applying the nodal costs associated with the wider network onto the appropriate areas of a substation line diagram and grouping the generation nodes into initial zones using the +/-£1.00/kW range. All nodes within each zone are then checked to ensure that the geographically and electrically proximate criteria have been met using the substation line diagram. The established zones are then inspected to ensure that the least number of zones are used with minimal change from previously established zonal boundaries. The zonal boundaries are finally confirmed using the demand nodal costs for guidance.

² CUSC Section 14 paragraph 14.15.26

The zoning criteria are applied to a reasonable range of scenarios, the inputs to which are determined by National Grid to create appropriate TNUoS generation charging zones. The minimum number of zones which meet the stated criteria are then used. If there is more than one feasible zonal definition of a generation charging zone, National Grid determines and uses that which best reflects the physical transmission system boundaries.

Once the rezoning exercise is complete, the zone boundaries are fixed for the duration of the price control period unless an exceptional circumstance occurs, which would necessitate a minimal rezoning exercise to maintain appropriate, cost reflective, locational cost signals.

Use of tariff forecasts to inform zoning decisions

The charging methodology allows National Grid to consider a range of scenarios to determine “appropriate” zones. National Grid prepares a number of tariff forecasts based on contracted information to help inform customers of the future path of transmission tariffs, which could be used to as the basis for the scenarios considered. These forecasts tend to be most accurate where:

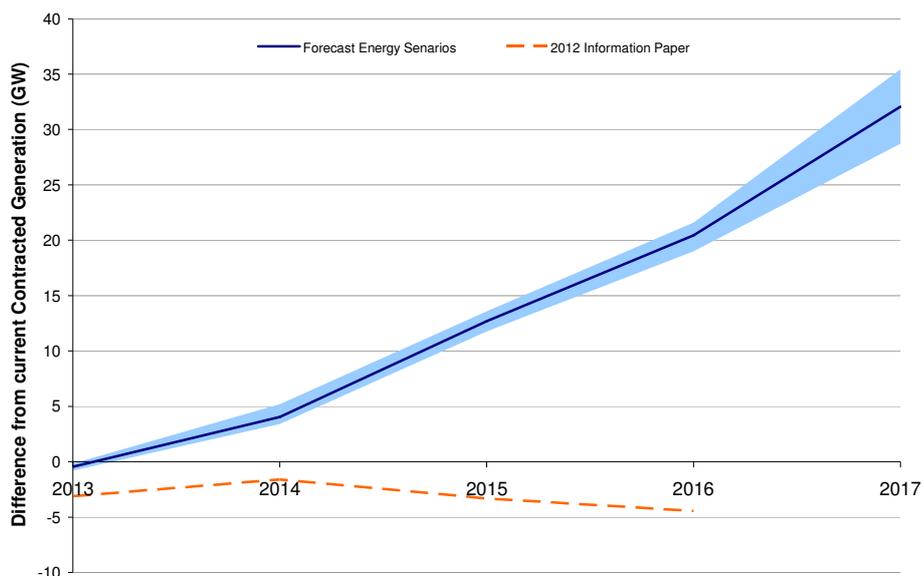
- ❑ the charging methodology is stable;
- ❑ changes in generation are small compared to existing connected capacity;
- ❑ the timing of generation connections / disconnections are certain; and
- ❑ the timing of significant transmission investments are certain.

National Grid believes the level of uncertainty in the generation / demand background and the underlying charging arrangements is likely to undermine the use of forecast tariffs to significantly inform the rezoning process. Putting aside possible future methodology changes that are being considered by the industry³, to illustrate the possible extent of this uncertainty and the ongoing activity in both delivering and managing new connections, the following chart shows the difference between the contracted generation background (the basis upon which tariffs and therefore zones will be calculated) and the total transmission connected generation under the 2012 Future Energy Scenarios⁴. The shaded area represents the difference between the three future energy scenarios (Slow Progression, Gone Green, Accelerated Growth). The chart also shows the difference between the contracted background and the generation background used within the 2012 Information Paper⁵ (see dashed line), published in April 2012, that provided forecast tariffs under a range of options being considered at that time under Project TransmiT.

³ CMP213 is considering changes associated with shared use of capacity on the transmission system; use of high-voltage direct current (HVDC) circuits; and island connections.

⁴ <http://www.nationalgrid.com/uk/Gas/OperationalInfo/TBE/Future+Energy+Scenarios/>

⁵ <http://www.nationalgrid.com/uk/Electricity/Charges/gbchargingapprovalconditions/5/>



Whilst it is recognised the chart does not show the locations where contracts may be expected to change at some point in the future (to closer match what might be more reasonably forecast), it does indicate the potential for significant difference in generation capacities that would feed into any zonal boundaries that would be pre-empted should the contracted background be used. Alternatively, were National Grid to pick generators to remove from the contracted background to more closely match one of the future scenarios, this could lead to subjective and possibly arbitrary zonal boundaries being pre-empted; and transparency would be reduced.

Against this background, National Grid is concerned that use of the existing tariff forecasts to pre-empt parts of the transmission system that may in the future require addition or revised generation zone boundaries may not be appropriate. For example, a new zone might be created to accommodate a number of existing power stations and a forecast future generator. If subsequently one of the existing power stations closed, a new zone may not have been necessary but the decision to pre-emptively rezone would have impacted that locational charge paid by all the existing generators.

This view was shared by industry participants when National Grid previously consulted⁶ on whether greater consideration should be given to the use of tariff forecasts. At that time, the vast majority of respondents did not believe a forward-looking approach should be used to determine generation TNUoS zones because:

- ❑ there was concern over the reliability of generation connection dates;
- ❑ applying weightings to tariffs in future years to adjust for future uncertainties could be arbitrary and subjective and would require a change to the charging methodology; and
- ❑ there was concern that the need to rezone within a price control may not be any less likely (as outlined in the illustration above), which would defeat the intention using more forecast information.

⁶ <http://www.nationalgrid.com/NR/rdonlyres/16BAAE54-5B07-422F-A419-6A60880C839A/11660/GenerationZoningFINAL.pdf>

Consideration of future connection scenarios

When the generation zone boundaries are prepared for the next price control period, National Grid does however propose to take account of existing substations where generation may be connected in the future. We intend to do this by considering, where possible, nodal demand tariffs and the electrical characteristics of the network. We believe this will help ensure that boundaries are described in a manner that is robust for some future changes that may occur and add greater transparency to the zone boundaries.

National Grid also believes it is appropriate to consider scenarios related to contractual changes that have occurred between the contract freeze date for determining the generation used to model power flows (31 October 2012) and the publication of final tariffs for 2013/14 (31 January 2013). These contractual changes are not subjective and are transparent. For example, were a new zone being created for a generator that has since terminated, such a zone would not be created. In this instance, the overall impact on other zoning decisions would be minimal. Such an approach would ensure the boundaries are more likely to be robust over the price control period.

Frequency of rezoning and use of exceptional circumstances

As noted above, the charging methodology includes provisions that allow National Grid to undertake a rezoning exercise within a price control period in exceptional circumstances. Additionally National Grid will use the annual five-year tariff forecast to indicate whether the zoning criteria may be breached in the future and consult on whether it might be appropriate to consider rezoning. National Grid believes this approach is preferable to pre-empting possible future zones that may, or may not, be needed in the future.

Against this background, National Grid believes that further industry discussion and clarification within the charging methodology is required to determine the circumstances under which a mid-price control re-zoning would be required. National Grid intends to discuss this with the industry and whether a more frequent period re-zoning might be justified given the increased duration of the RIIO price control compared to previous price controls i.e. an increase from 4 / 5 years to 8 years. There may be other aspects of the zoning criteria that industry participants believe should also be reviewed.

Least number of zones and minimal change

The stated purpose of grouping nodes into zones is to provide stability between years that would otherwise not be the case if charges were based on nodal tariffs and these were free to vary each year. In creating zones the methodology seeks to trade-off between stability, which could be expected to promote competition, and cost-reflectivity (which arguably would be greatest if nodal prices were used).

The charging methodology states that zones should be inspected to ensure that the least number of zones are used with minimal change from previously established zonal boundaries. In most circumstances, given that previous re-zoning exercises have consistently sought to minimise both the number of zones and the changes to these, these supplementary provisions are not likely to conflict, particularly where forecast tariffs in future years are not considered which would drive National Grid towards pre-emptively creating zones. However, there may be some limited cases where geographically and electrically proximate generators may currently be in separate zones but could now be in the same zone. This may be because of changes in the generation and demand background; but it may also be because since the introduction of

local circuit tariffs for generation in 2009/10⁷, zonal generation tariffs have been based on the cost of “wider” circuits, whereas the boundaries determined in 2007/08 would have been based on the combined cost of local and wider circuits. Where this is the case, National Grid proposes to amalgamate zones to minimise the total number of zones even where this may not minimise change for specific power stations. This would ensure that the boundaries for zones have been established on a consistent basis for all generators and ensure that one generator is not receiving a more (or less) cost reflective change relative to other generators.

An indication of regions where new zones might be required and where existing zones could be combined was included in National Grid’s updated view of tariffs in 2013/14⁸ and is reproduced for clarity in Appendix A.

Proposal

It is proposed that National Grid will base its rezoning on:

- power flows associated with the contracted generation position for 2013/14 as at 31 October 2012;
- not pre-empting zone changes that might be needed as a result changes in contracted generation in future years but taking account of contract changes for 2013/14 that occurred after 31 October 2012; and
- minimising changes to zone boundaries to promote stability, subject to amalgamating zones where electrically proximate generators are in different zones following the introduction of local generation charges.

As noted above, National Grid would ordinarily expect to update the boundaries of generation charging zones at the start of a new price control period i.e. from 1 April 2013. However, should CMP214 be approved, National Grid intends to publish the revised zonal boundaries that would apply from 2014/15 at the same time that it publishes final tariffs for 2013/14.

Consultation views

National Grid is seeking views and comments on this proposal on or before **21 December 2012**; however, if any respondent has any significant concerns or issues with the proposals described in this letter, we would appreciate if these could be raised with National Grid on or before 14 December 2012.

Please send these to adam.brown@uk.ngrid.com or in writing to:

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⁷ See GB ECM11 at <http://www.nationalgrid.com/uk/Electricity/Charges/modifications/uscmc/>

⁸ <http://www.nationalgrid.com/uk/Electricity/Charges/usefulinfo/>

Appendix A

Based on National Grid's updated view of tariffs for 2013/14, the map below shows the current zone boundaries with regions identified where additional zones might be required and where existing zones might be combined.

