Zonal transmission losses - Assessment of proposals to modify the Balancing and Settlement Code

Introduction

We have concerns regarding the basis on which transmission losses are being reviewed. An effective and efficient transmission network which seeks to minimise energy losses is a legitimate objective for the Balancing and Settlement arrangements to consider. However, in order to ensure that proper consideration is given to the issue, the characteristics of the transmission network itself and the incentives on National Grid also need to be addressed.

It is unlikely that if the transmission network were designed now, to accommodate the current pattern of supply and demand, that it would have its present configuration. Thus, there are inherent network inefficiencies due to legacy infrastructure decisions. As a general rule, users should not be penalised for these. It is difficult to determine from the analysis available, where this issue has been addressed.

The charging out of fixed losses needs to be properly scrutinised. With regard to incentivisation, National Grid needs an appropriate incentive placed upon it to manage its own losses. Users of the network supply the energy which is consumed in the "fixed" losses of the system. There is currently little incentive on National Grid to reduce these losses or to take them into consideration in the network planning and reinforcement processes, as users pay for them.

Any proposals for change also need to appropriately reflect the balance between additional investment to reduce Transmission losses [which also increase transmission capacity and reduce constraints] and the additional cost to a generator of a changed siting decision [or decision not to proceed] due to overly onerous loss charging mechanisms.

Ofgem should consider whether the rationale of allocation of losses between generation and demand on a 45:55 basis [G/D] should also form part of the overall review of the losses issue.

Incentives on Generation.

Generation makes a single, long term commitment when reaching a siting decision. Once this decision is made, it is then exposed to the variability of charges which monopoly service providers subsequently levy upon it.

So, generation needs consistent, longer term economic signals. If an additional element of uncertainty is injected into monopoly charges, the market will reflect this uncertainty by requiring an appropriate risk premium. Either the risk premium will ultimately be recovered [from customers] or the generator will be unable to recover its costs, due to the vagaries of monopoly pricing, rather than competition.

This issue is ignored in the discussion on generator behaviour change, which assumes that generators merely accept the financial consequences of variable TLFs and only use this criteria in their operational decision making process.

The ability of generation to respond to rapidly varying signals is a complex issue and simple assumptions may prove to be inadequate. There will be a balance struck between stability and required risk premium. In the extreme, with "real time" dynamic loss allocation, this might result in marginally lower losses but significantly higher electricity prices, due the increased risk of operation.

"3.12. The introduction of locational charging for transmission losses would alter, to some extent, the economics of generating electricity for sale in the GB wholesale market thereby impacting on the terms on which generators compete against each other. It would also introduce an additional factor for participants to take into account when making short and long-term decisions in relation to their use of the transmission network."

This suggests that the introduction of additional complexity will both alter the competitive balance in the market and introduce short and long term uncertainty into the competitive process.

"Table 3.1 highlights three key points. First, that the pattern of locational loss charging echoes the pattern of TNUoS charges. Second, the increase in the 'locational-ness' of the charging regime overall as a result of P198 would be relatively small when compared with the strength of the existing locational signals provided by TNUoS charges. Third, as demonstrated by the magnitude of the change in charges, the signals from locational loss charging would be even smaller for lower load factor generation, such as wind."

This statement suggests that the impact of locational losses is marginal when compared to the signals provided by the [consistent] TNUoS charging regime. If so, and the signal is so marginal as to not make a difference to decisions, the net result is an increase in uncertainty, additional costs for northern generators and a further burden on location constrained generation – i.e. renewables. This does not appear to provide a compelling case for pursuing the initiative.

We also have concerns that the effects of P198 would not be "relatively small" when compared with the TNUoS locational signal. For four of the zones used as examples, the losses charge is some 50% or more of the relevant TNUoS charge for an 85% load factor generator.

Incentives on Demand

There is insufficient consideration of demand impacts and effects. What do the losses proposals envisage the changed incentives on demand will achieve? Will existing demand move North? Will new demand change its siting decision due to this factor alone or in combination? It is likely that the marginal decision will either be demand destruction or an increased burden on customers.

The charging zones for generation and demand are the same – this is inconsistent with TNUoS. We have already noted the much stronger locational signals provided through the TNUoS charging framework. Inconsistencies between TNUoS and losses charging will produce differential and potentially inequitable results.

Consultation Questions

CHAPTER: Two

Question 1: Do respondents consider we have appropriately summarised the direct impacts of the proposed and alternative modifications?

The analysis is incomplete with regard to the relative impacts on different classes of market participant. The issue of technology specific impact has also been insufficiently explored.

The market is a contracts led market, not based on a "merit order". Participants thus schedule their generation portfolio to meet the needs of their contract portfolio, not a notional cost-based national merit order. As such the change in behaviour assumed in the report is likely to be overstated and thus the consequential assumed savings will be also. Any assumptions on changes in generation scheduling and thus reduced total system losses are primarily dependent on some simple merit order assumptions, which are unlikely to be robust. If these savings do not arise, the net result is an increase in risk, cost and complexity for market participants.

Question 2: Do respondents consider there are additional direct impacts that have not been fully addressed?

As noted above, there will be "winners and losers" as a result of the proposed changes. This will affect the competitive dynamic in the market. The RIA acknowledges this but is largely silent on any quantitative analysis. As such, without a proper consideration of participant impacts on both a locational and technological basis, the analysis is incomplete. There is likely to be a disproportionate impact on participants who do not hold diverse or geographically dispersed portfolios and also on renewable technologies, given their locational constraints.

CHAPTER: Three

Question 1: Do respondents consider we have appropriately summarised the indirect impacts of the proposed and alternative modifications?

The document states that various simplification techniques have been used in assessing the different proposals. This necessarily limits the accuracy of the assessment. In particular, the use of ex-ante zonal factors, in a system which exhibits substantial changes in network flows year on year means that there is a high probability that the incentives provided by these factors will be erroneous and in the extreme, potentially counter efficient.

As noted above, a key element in the entire analysis is the siting decision process for new plant. Existing plant is unlikely to "move" due to these proposals; it will face an arbitrary change in its cost base.

The document does not properly address the marginal effects of these proposals over and above the "already significant locational signals, which are likely to site new plant in advantageous transmission zones during the study period". Given this and the fact that Oxera did not identify any "additional medium or longer-term benefits arising from locational losses on siting", together with a "negligible impact on transmission network operation and development", it is difficult to see how this analysis can be used to justify any decisions.

Question 2: Do respondents consider that there are any indirect impacts of the proposed and alternative modifications that have not been fully assessed?

The assessment is silent on the effects the proposals will have on distributed generation. The use of zones will inevitably result in "averaging". The calculation of TNUoS zones has a trigger to determine when individual zones are created. The use of losses zones superimposed on TNUoS zones is arbitrary. Nodal losses within the zones could vary widely, leading to cross subsidy within zone.

CHAPTER: Four

Question 1: Do respondents consider that we have appropriately outlined the key environmental impacts of the different proposals?

Oxera suggested that there would be "a marginal impact on the profitability of renewables projects connected to transmission networks and large distributed generation". Renewable projects are location constrained. They MUST be sited where the resource is located. This resource tends to be in relatively remote locations and largely in the North. As such these proposals would represent an additional burden on renewable projects.

Oxera also notes that there would be a "negligible impact on transmission network operation and development".

Question 2: Do respondents consider that there are other environmental impacts that should be assessed?

The effect on Distributed generation is omitted from the analysis. This is a key area.

CHAPTER: Five

Question 1: Do respondents have any views on both the process and timetable that are proposed for taking forward this assessment of the proposed and alternative modifications?

Given the contentious nature of the subject, and the fact that the proposals have not been widely supported, it is essential that the process allows for the fullest consultation once the Authority has considered responses to this document and formed a provisional view on the way forward.