

Modification proposal:	Balancing and Settlement Code (BSC) P229: Introduction of a seasonal Zonal Transmission Losses scheme (P229)		
Decision:	The Authority ¹ has decided to reject this proposal		
Target audience:	National Grid Electricity Transmission Plc (NGET), Parties to the BSC and other interested parties		
Date of publication:	28 September 2011	Implementation Date:	n/a

Background to the modification proposal

The transmission of electricity results in a proportion of energy being lost as heat. Losses are caused in part by the energisation of equipment (fixed losses) and in part by the distance over which power is transmitted (variable losses). A consequence of transmission losses is that, in order to meet demand, more electricity has to be generated than is consumed. This mismatch is equal to about 2% of annual demand and has a cost of approximately £225 million per annum.

Rules relating to the treatment of transmission losses on Great Britain's National Electricity Transmission System (NETS) are contained in the Balancing and Settlement Code (BSC). Under the existing BSC rules, the costs of transmission losses (both fixed and variable) are recovered from generators and suppliers. This is done by scaling down the metered generation output and scaling up the consumption intake when calculating these parties' energy balance position, such that the transmission losses are counted partly as generation shortfall (45%) and partly as consumption excess (55%). Currently the scaling factors are applied on a uniform basis. Losses have been treated on the same basis since privatisation of the GB electricity supply sector in 1990. However, there has long been debate on the appropriate allocation of transmission losses and, in particular, the use of locational losses. Under a locational approach, losses are allocated to generators and suppliers depending on their geographic location and therefore the extent to which they impact on total transmission losses.

The modification proposal

P229 is a proposal raised by RWE npower on 28 November 2008. It proposes to modify the BSC by introducing a seasonal zonal transmission losses scheme. It seeks to allocate costs of variable losses in a more cost reflective manner, i.e. reflecting the costs imposed on the NETS by individual generators and suppliers.

Two variants of the proposal have been submitted to the Authority:

P229 Proposed would vary the proportion of losses allocated to each generator and supplier according to their location. Under this proposal, the scaling factors applied to the generation output and consumption intake would seek to reflect the level of losses imposed on the system by generators and suppliers, depending on the time of year (i.e. seasonal) and the part of the network they are located at (i.e. zonal). These factors would be derived ahead of real time, based on the previous year's system operation data.

¹ The terms 'the Authority', 'Ofgem' and 'we' are used interchangeably in this document. Ofgem is the Office of the Gas and Electricity Markets Authority.

P229 Alternative is the same as P229 Proposed, except that the locational scaling factors (derived in the same way as under P229 Proposed) would be adjusted such that no user would be allocated negative variable losses.

Both proposals retain the 45% / 55% split between generation and demand.

The proposals would mean that demand customers located further from generation would pay more than under the current arrangements. Conversely generation that is situated further from demand would pay more than under the current arrangements.

BSC Panel² recommendation

On 11 March 2010, the BSC Panel considered the draft Final Modification Report and the results of the Report phase industry consultation. The BSC Panel recommended the rejection of both P229 Proposed and P229 Alternative on the basis that they would not better facilitate the BSC objectives. Amongst other things, the Panel considered that predicted benefits might not be realised and that windfall gains and losses between generators and suppliers in the North and the South may be disproportionate to the overall benefits. The Panel's views can be found in full in the Final Modification Report (FMR)³.

Impact assessment and consultation

Ofgem published an Impact Assessment (IA) on P229 on 23 May 2011 with a deadline for responses of 4 July 2011. The IA assessed, and sought views on, the impacts of modification proposals P229 Proposed and P229 Alternative.

The Authority considered that an IA should look at the effects of a modification proposal against a counterfactual. The consideration of P229 Proposed and P229 Alternative (the P229 proposals) focussed on what would happen if each of the modification proposals (a) was implemented or (b) was not implemented against a counterfactual which holds other factors constant. Please see the IA⁴ for further detail on the Cost Benefit Analysis, the scenarios considered and the work of both Elexon's consultants, LE/Ventyx, and our consultants Redpoint and Brattle.

However, it was acknowledged that in some cases, future developments in the electricity industry that are independent from the modification proposal(s) under consideration may alter the impact of implementing the modification proposal(s). The Authority considered it appropriate to carry out the IA of the P229 proposals against the prevailing status quo, without pre-judging, or speculating unduly about future industry developments. Nonetheless, the Authority recognised that it may also be prudent, in a given case, to consider the sensitivities of such an impact assessment to future industry developments particularly if they may come about within a relatively short time horizon following a decision on, or implementation of, either of the modification proposals.

In the IA, we looked at a quantitative and qualitative assessment of the costs and benefits wherever possible. We also gave detailed consideration to wider impacts in accordance with our statutory duties. We note that the Impact Assessment showed that the Cost Benefit Analysis showed a small positive net present value (NPV) benefit over 10 years for both P229 Proposed and P229 Alternative. The NPV benefit was shown to be positive with and without the benefit of emissions savings: Nitrogen Oxides (NOx) and

² The BSC Panel is established and constituted pursuant and in accordance with Section B of the BSC.

³ BSC modification proposals, modification reports and representations can be viewed on the Elexon website at www.elexon.com

⁴ <http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=100&refer=Licensing/ElecCodes/BSCode/Ias>

Sulphur Oxides (SOx). Most scenarios (excepting the high gas price scenario) showed additional benefit including NOx and SOx.

The Authority's decision

The Authority has considered the issues raised by the modification proposal and the FMR dated 12 March 2011. The Authority has considered the BSC Panel's decision to reject and taken into account the responses to Elexon's⁵ consultation on the modification proposal which are attached to the FMR and responses to the impact assessment carried out by Ofgem.

The Authority has concluded that:

1. On balance, the implementation of either of the P229 modification proposals would better facilitate the achievement of the applicable objectives of the BSC although we consider that P229 Proposed better facilitates relative to P229 Alternative; but that on balance
2. directing that either of the modifications be made would not be consistent with the Authority's principal objective and statutory duties⁶.

Reasons for the Authority's decision

Applicable BSC Objectives

The Authority's assessment of P229 Proposed and P229 Alternative against the Applicable BSC Objectives is set out below:

(a) 'efficient discharge by the licensee of the obligations imposed on it by the Act and by its licence'

We note that some of the respondents believed that the P229 proposals would introduce new cross subsidies and so considered that the P229 proposals would be discriminatory⁷. The Authority does not agree. It considers that the P229 proposals would increase cost reflectivity and therefore allocate costs more appropriately. A number of respondents also considered that the P229 proposals were more cost reflective than the status quo.

We consider that P229 Alternative is less cost reflective than P229 Proposed since removing negative losses dampens the effect, although is still more cost reflective than the status quo.

(b) the efficient, economic and co-ordinated operation of the GB transmission system

In the Authority's view, greater cost reflectivity is generally likely to lead to more efficient, economic and co-ordinated system operation. The increased cost reflectivity of the P229 proposals should result in more efficient despatch due to cost signals allowing variable losses to be taken into account leading to production cost savings, reduced losses and reduced emissions.

The Authority does not agree with those parties who considered that the simplifications⁸ included in both P229 proposals make them too inaccurate and introduce additional cross subsidies. The Authority believes that the simplifications aid practicality, certainty

⁵ The role and powers, functions and responsibilities of Elexon are set out in Section C of the BSC.

⁶ The Authority's statutory duties are wider than matters which the Panel must take into consideration and are detailed mainly in the Electricity Act 1989.

⁷ Under standard condition C7 of its transmission licence, in the provision of use of system or in the carrying out of works for the purpose of connection to the national electricity transmission system, NGET must not discriminate as between any persons or class or classes of persons.

⁸ The loss factor is seasonal, zonal and based on previous years data whilst the calculation uses a DC rather than an AC model and uses Sample Settlement Periods.

and stability, for example by providing an ex ante signal. Therefore on balance, even if the simplifications detract from full cost reflectivity, they remain appropriate.

The Authority also disagrees with those respondents who believed that the negative losses introduced by P229 Proposed are not cost reflective, and that they should be removed along the lines of P229 Alternative. We consider that P229 Proposed more accurately reflects the actual impact of individual parties on transmission losses. By contrast, P229 Alternative dampens the cost signal by removing negative losses.

(c) promoting effective competition in the generation and supply of electricity, and (so far as consistent therewith) promoting such competition in the sale and purchase of electricity

Most respondents did not consider that the P229 proposals better facilitated Applicable BSC Objective (c). Reasons given included:

- There is a large distributional transfer between market participants. This transfer is disproportionate to any benefit of P229.
- Negative variable losses (P229 Proposed only) and simplification of the loss factor create a new cross subsidy that is detrimental to competition and may give inappropriate market entry and exit signals.
- There is a disproportionate impact on classes of participants who cannot respond to signals, e.g. demand, renewables, combined heat and power (CHP) plant and nuclear generators. The proposals also discriminate between new and existing generators.
- It would impact the ability of generators and end users to compete across the EU and internationally since transmission loss charges will increase for some parties.
- Competition between generators is national but zonal losses distort the ability to compete nationally since loss charges will be zonal.
- It would delay inefficient plant closure since plant in the South may stay open longer as a result of P229.
- Negative impact on investment due to introducing uncertainty and unpredictability and increased cost of investment in unfavourable zones.
- Additional complexity creates a barrier to market entry.
- A hedging mechanism is needed to limit the negative effect on competition.

Several parties considered that to the extent that P229 Proposed, and to a lesser extent P229 Alternative, introduces more cost reflective charging arrangements it would be expected to promote further competition that will facilitate lower prices.

In general our view is that competition is likely to be more effective if the costs which parties impose are reflected in their charges and therefore their decision making process. All parties should face the costs of losses alongside the costs of carbon, fuel, land, labour, and in the long term this should promote competition overall. We note that this may result in delay or acceleration of closure, which should be a more efficient decision overall when all relevant costs are taken into account.

We acknowledge that non-portfolio generators cannot use other plant to limit exposure to loss charges. We also recognise the impact of this volatility and risk has on smaller parties. However, the impact of the P229 proposals on these small and non-portfolio generators is not disproportionate to their impact on total losses hence we do not consider this to be discriminatory. Costs will vary according to despatch, location and season and could increase or decrease.

Whilst we recognise that the ability or willingness to respond to network cost signals varies according to users' specific circumstances, our view is that, on balance, the improvements in cost reflectivity in the P229 proposals would help create a more level

playing field for generators. We also note that not all generators need to be able and willing to respond to achieve the benefits of the proposal.

There has been consideration as to whether the P229 proposals would affect investment. The Authority agrees with the view of the consultants⁹, that this is unlikely to be the case except at the margin.

The issue of hedging has been considered and assessed in previous modification proposals and hedging is not put forward in the P229 proposals. However, this is something that the industry may develop if it saw fit. We recognise that competition works less well and leads to a less efficient outcome if there are large changes in costs at short notice. Proposals for more cost reflective transmission losses have been around for many years hence there has been warning that this may occur.

We note, however, to the detriment of the achievement of objective (c), that the redistributive impacts of both P229 proposals are relatively high and certain and the NPV is relatively low and subject to a degree of uncertainty, at least in the shorter term. This issue is considered further in the context of the Authority's statutory duties below.

On consideration of the issues raised, the Authority considers that on balance both P229 proposals better facilitate the achievement of Applicable BSC Objective (c).

(d) promoting efficiency in the implementation and administration of the balancing and settlement arrangements

The Authority agreed with the view of a majority of parties, that the P229 proposals would not better facilitate Objective (d) because of the additional complexity to the BSC arrangements, but noted that:

1. Changes generally add complexity and/or cost
2. This must be measured against the benefits a particular change could be expected to bring
3. In the case of P229 Proposed the added complexity would not be very significant.

Overall

We have to consider whether P229 Proposed and P229 Alternative *better* facilitate the Applicable BSC Objectives overall relative to the status quo.

P229 Proposed and P229 Alternative add some additional complexity to the balancing and settlement arrangements (BSC Objective (d)). We must weigh any increased complexity of the charging structure against the overall benefit that the proposal might be expected to bring. Additionally implementation costs are low relative to the prospective benefits expected over ten years. Overall we consider that on balance P229 Proposed better facilitates the Applicable BSC Objectives since prospective benefits under Objectives (b) and (c) and to a lesser extent (a) outweigh additional complexity. P229 Alternative has lower net benefits and is slightly more complex than P229 Proposed. Whilst we consider that P229 Alternative better facilitates the Applicable BSC Objectives compared to the baseline, P229 Proposed better facilitates the BSC objectives overall (i.e. compared to the baseline and P229 Alternative).

Authority's statutory duties and the principal objective

The Authority has considered the P229 proposals in the context of its statutory duties and principal objective. Notwithstanding our analysis against the BSC objectives, on balance, it has decided that it could not satisfy itself that these proposals were consistent with these objectives. In particular, the Authority could not satisfy itself that the P229

⁹ Both ELEXON's consultants, LE/Ventyx and Ofgem's consultants, Brattle, agree with this view

proposals would operate in the interest of existing and future consumers and was not convinced that approval would be in line with best regulatory practice.

These proposals have a large distributional impact, both between individual generators and between suppliers/ consumers. This consequential impact must be considered in the context of the relatively modest scale and uncertainty of the expected efficiency benefits. This does not necessarily inhibit the ability of the Authority to approve either proposal. However, it does require the Authority to consider very carefully in the round whether such a decision would be consistent with its statutory duties, having regard to the principle of better regulation. This in turn has highlighted additional aspects of the proposals.

It is not obvious that these proposals are in consumers' immediate interests. Wholesale electricity prices, which are generally assumed to pass through to consumers, are driven by the marginal cost of price-setting plant rather than the generality of costs. Given the large distributional impact, the impact of the proposals on wholesale electricity prices is uncertain and scenario specific. Analysis by our economic consultants, Redpoint¹⁰, suggests that wholesale prices might rise, although the analysis is highly sensitive to assumptions. We note that higher wholesale prices could result in a more efficient market outcome if they more accurately reflect all the relevant costs. Whilst a suppressed wholesale price is better for consumers in the short run, it is inefficient and may ultimately damage consumer interest in the long run. However, if either of the P229 proposals were only implemented for a short time, it is not clear that the resultant redistribution of wealth from consumers to generators is in customers' interests, even if there is an overall NPV benefit because the long-term market efficiencies would not have taken place.

The potential adverse consequence of the high distributional impact might be justified by the longer-term benefit from a more efficient, cost reflective market. However, the P229 proposals are being decided in the context of a changing external environment, in which an approved transmission losses proposal may be superseded before the full benefits have been realised. In particular, at a European level, there is an active debate for greater integration of electricity markets focused on market splitting approaches that create multiple price areas within a national system and implies "locational" energy prices. This could be implemented as early as 2015. In the UK, the Government is considering widespread changes to the incentives for the construction of new generating capacity. The Authority considers that there is a likelihood that these may result in some change to the existing GB market arrangements in the medium term that would undo the benefits of the P229 proposals before any long-term market efficiencies have been realised. There is also the possibility that changes to the GB market arrangements may confer the benefits of the P229 proposals in the medium term.

The prospect of the current initiatives at EU and domestic level resulting in changes in market arrangements in the medium term means that the impact of the P229 proposals could be overtaken relatively quickly by some other scheme. This has consequences for our consideration of the P229 proposals.

It means that when considering the benefits P229 proposals, the Authority is concerned not to place undue weight on its long-term potential benefits since they may be overtaken in the medium term by other developments which appear to be in prospect. In our IA, we did identify some net positive benefits for the proposals after two years of implementation. However, these are modest and uncertain, and have to be balanced against our concerns on the relatively high redistribution impacts coupled with the changing external environment.

¹⁰ <http://www.ofgem.gov.uk/Licensing/ElecCodes/BSCCode/BSC/Documents1/Lot%20Report%202.pdf>

Given the uncertainty and limited scale of benefit in the shorter term and the possible changes in arrangements which may occur in the medium term, considered in the round, we are not on balance satisfied that approving either proposal at this stage would be consistent with best regulatory practice. We also note that the BSC Panel also had concerns as to whether the predicted benefits would be realised.

The potential issues relating to the changing external environment are expected to be clarified in the medium term. However, at present we believe that the prospects of impact on the P229 regime are sufficient to give rise to our concerns about the introduction of either of the P229 proposals.

We would note that the Authority's ability to make a decision on the P229 proposals lapses after 30 September 2011¹¹, in accordance with the BSC Modification Procedures as applicable to these proposals. However, we note that for proposals raised from 3 June 2010 onwards, we have the ability to extend the time for making a decision if so necessary in accordance with the BSC Modification Procedures¹². We would emphasise that we recognise that the issue of cost reflectivity of the treatment of transmission losses remains. Likewise we continue to be of the view that cost reflectivity in general enhances competition and leads to consumer benefits. However, as explained above, the Authority addressed these issues in the context of a relatively high redistribution and a relatively low NPV and against the background of expectations of change in regulatory schemes in the medium term. On balance it is considered that approving either of the P229 proposals is not consistent with our statutory duties and the principal objective. It is in relation to our primary duty (customers' interests) and the issue of best regulatory practice that the Authority considered that on balance it could not recommend that the P229 proposals be made.

As such, the Authority has decided that neither of the P229 proposals be approved.

**Hannah Nixon, Acting Senior Partner, Smarter Grids and Governance:
Transmission**

Signed on behalf of the Authority and authorised for that purpose.

¹¹ We are cognisant of the judgment of Kenneth Parker QC in relation to the P198 proposals.

¹² For modification proposals raised after 3 June 2010, the Authority may instruct the BSC Panel to provide revised implementation date(s) once the Authority receives the proposal for decision but before the Authority makes a decision to approve or reject (sections 2.11.18 to 2.11.23 of the BSC).