

Stage 04: Final Modification Report

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

03 Assessment Procedure

▶ 04 Report Phase

P266: Improving the allocation of Reactive Power flows between Import and Export Metering Systems

P266 seeks to resolve anomalies in the allocation of Reactive Power flows on sites where Import demand (supplied by a Licensed Supplier) and Export from Exemptable Generating Plant (e.g. embedded wind powered generators) share a common connection to the Distribution System.



The Panel recommends **approval** of Modification P266



High Impact:
Suppliers, Licence Exemptable Generators, Licensed Distribution System Operators, Half Hourly Data Collectors and SVA Half Hourly Meter Operator Agents



Medium Impact:
BSC Procedures and Codes of Practice



Low Impact:
MRA Data Transfer Catalogue

181/10

P266
Final Modification Report

14 March 2011

Version 1.0

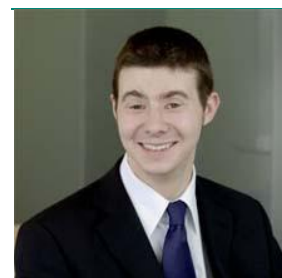
Page 1 of 23

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Any questions?

Contact:
Dean Riddell



dean.riddell
@elexon.co.uk



020 7380 4366

Contents

1	Summary	3
2	Why Change?	5
3	Solution	7
4	Impacts & Costs	11
5	Implementation	12
6	The Case for Change	13
7	Initial Panel Discussions	14
8	Consultation Responses	17
9	Updated Analysis	21
10	Further Panel Discussions	22
11	Recommendations	23
12	Further Information	23
	Attachment A : Detailed Assessment	23
	Attachment B : Legal Text Proposed	23
	Attachment C : P266 Model	23
	Attachment D : Additional Analysis	23

About this document:

This document is the final P266 Modification Report, which was sent to the Authority on 14 March 2011 on behalf of the Panel. The Authority will consider the Panel's recommendations and decide whether or not this change should be made.

181/10

P266
Final Modification Report

14 March 2011

Version 1.0

Page 2 of 23

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Why change?

The BSC currently treats each flow of Reactive Energy as an 'Import' or 'Export' in its own right, independent of the associated flows of Active Energy. These flows are allocated to Parties in accordance with BSC Section K1.2.2. Reactive Power is not always allocated to the same Metering System as the associated Active Power.

This causes anomalous allocation of Reactive Power flows on sites where Import demand (supplied by a Licensed Supplier) and Export from Exemptable Generating Plant (e.g. embedded wind powered generators) share a common connection to the Distribution System. This leads to anomalous DUoS charges; under- or overcharging can occur (compared with charges that should have been incurred based on sites' actual activities).

Solution

Revise the Code to allocate the Reactive Power to the Party responsible for the associated flow of Active Power (either Import or Export). The aim is to resolve anomalies in the allocation of Reactive Power flows, enabling more appropriate DUoS charging. Reactive Power allocation will be improved for sites with shared connections in Settlement Periods when the site Exports or where both Import and Export occur.

P266 would not be retrospective. The P266 solution would be mandatory only for new sites and sites with metering that undergoes a Material Change (as defined by the relevant CoP). However, the P266 solution could be employed voluntarily on existing sites.

Impacts

P266 would have no impact on BSC systems or processes or on BSC Agents. ELEXON's estimated implementation cost is £4,800. We would make changes to BSCPs and CoPs, and would raise a DTC Change Proposal to effect changes to the DTC.

LDSO's DUoS billing processes may be impacted, and there would be impacts on HHDC and MOA processes and systems. Suppliers' Settlement and billing systems may be impacted. There would be a consequential impact on DUoS bills received by Suppliers and Exemptable Generators due to the change in Reactive Power allocation.

Implementation

The Panel recommends that P266 is implemented on:

- 23 February 2012 if an Authority decision is received on or before 29 April 2011; or
- 28 June 2012 if an Authority decision is received after 29 April 2011 but on or before 2 September 2011.

The Case for Change

The Group unanimously agreed P266 Proposed better facilitates Applicable BSC Objectives (b), (c) and (d) and is neutral against (a). In summary, the Group believed P266:

- Allows appropriate cost signals for Reactive Power to be sent to participants, which will ultimately facilitate efficient operation of the Transmission System (Objective (b));
- Rectifies the inappropriate allocation of Reactive Power and associated DUoS charges and thereby removes a barrier to participation in the market (Objective (c)); and
- Ensures consistency between the BSC and the CDCM (Objective (d)).

The Panel unanimously agreed that P266 facilitates achievement of the Applicable BSC Objectives compared with the current baseline. The Panel unanimously supported the Group's views.

All respondents to the Report Phase Consultation supported the Panel's views. All respondents supported the legal text and the majority supported the proposed implementation approach.

Recommendations

The Panel's unanimous recommendation is that P266 Proposed Modification should be approved.

Background

Electrical Power is composed of two components: **Active Power** and **Reactive Power**. Reactive Power decreases the capacity of a circuit to transmit Active Power; therefore an increase in Reactive Power results in a decrease in the efficiency of the transmission of Active Power by a circuit. Because of this, Licensed Distribution System Operators (LDSOs) employ a system of charging Parties for excessive flows of Reactive Power. These charges are intended to discourage production of Reactive Power, and thereby minimise the action needed to maintain efficiency of transmission.

Where a customer has on-site Generating Plant (and Import/Export metering to measure flows of electricity from that Generating Plant onto the Distribution System) their Supplier is required to register separate Metering Systems for **Import** and **Export**. Industry systems and agreements (including in particular the Master Registration Agreement (MRA)) do not allow a single Supplier Volume Allocation (SVA) Metering System to be used for both Import and Export.

The method used to allocate Reactive Power flows to Import or Export Metering Systems can significantly impact the customer's Distribution Use of System (DUoS) charges, because the methodology for calculating DUoS charges specifies charges for each **MPAN**, not for each customer. Allocation of the Reactive Power between Metering Systems can therefore have a significant impact on the appropriateness of the DUoS charges levied on customers with on-site Generating Plant.

Issue

The BSC currently treats each flow of Reactive Energy as an 'Import' or 'Export' in its own right, independent of the associated flows of Active Energy. These flows are then allocated to Parties (and hence the Metering Systems registered by those Parties) in accordance with the rules in K1.2.2, which do not always allow the Reactive Power to be allocated to the same Metering System as the associated Active Power. In particular, K1.2.2 states that responsibility for Reactive Import lies with 'the person who supplies electricity to those premises' (i.e. the Import Supplier). This applies irrespective of whether the Reactive Import arises from electricity supplied by the Supplier (i.e. demand with lagging **power factor**), or from electricity produced by a generator (i.e. Exemptable Generation with leading power factor).

In the Proposer's experience, this approach leads to disproportionately large flows of Reactive Power being allocated to some Import Metering Systems (e.g. those at wind farms where the installed generating capacity is large in comparison to the on-site demand). This leads to spurious charges for 'excess' Reactive Power and 'excess' Capacity being levied on those customers, even though their operation should have enabled them to stay within their agreed capacities and power factors. These charges do not reflect the customer's actual behaviour, and arise purely because the Reactive Power flows have been allocated to a different Metering System to the associated Active Power flows.

Anomalous allocation of Reactive Power can lead to either DUoS under- or overcharging (compared with the charges that should have been incurred to reflect customers' actual behaviour).



Electrical Power

Active Power is what is generally referred to when talking about 'electricity', and can be used to power electrical equipment.

Reactive Power is a phenomenon associated with the flow of electrical energy around a circuit (such as the Distribution System).



Metering Point Administration Number (MPAN)

A unique number relating to a Metering Point under the MRA (Supplier Volume Allocation equivalent of Metering System Identifier).



Power factor

Is the ratio of energy transported (kW) to network capacity used (kVA).

181/10

P266

Final Modification Report

14 March 2011

Version 1.0

Page 5 of 23

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Related changes

Modification Proposal P224 was raised by E.ON UK plc and followed consideration of the same issue as [Standing Modification Group Issue 24](#) 'Impact of BSC on Reactive Power

Charging'. P224 was rejected by the Authority, because the evidence presented to the Authority was insufficient for it to establish whether the proposal would, as a whole, better facilitate the Applicable Objectives compared to the existing arrangements.

The P266 Proposer has delayed raising this Modification Proposal to see if the new rules for **Reactive Power charges** and Capacity Charges in the [Common Distribution Charging Methodology](#) (CDCM), introduced in April 2010, satisfactorily mitigate the impact of this BSC defect. However, the Proposer has stated that he continues to receive invoices for what he considers to be spurious DUoS charges.

The P266 Proposer believes that this new method for allocating Reactive Power flows to Metering Systems will, on the whole, lead to more cost-reflective DUoS charges for sites with **Licence Exempt Generating Plant**. However, given Ofgem's stated concern that the P224 analysis did not demonstrate this adequately, the Proposer expected the Modification Group to take into account the impact on charges under the CDCM for a variety of different types of generator, in order to verify that spurious allocation and charges arise under the current arrangements and that P266 would improve the situation.



Reactive Power Charges

LDSO charge for Party operation (i.e. Supply or Generation) that results in associated Reactive Power in excess of an agreed value (billed in units of kVA_{rh}).



Exemptable Generating Plant

Generating plant that are exempt from the requirement to hold an electricity licence to operate because their export capability is below a threshold (100MW in England and Wales).

181/10

P266
Final Modification Report

14 March 2011

Version 1.0

Page 6 of 23

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Modification P224

The [P224 Modification Report](#) for contains details of the proposed solution and the P224 Group's considerations.

The P266 Modification Group unanimously agreed that the P266 Proposed solution should be the same as the P224 Proposed solution, that is:

- Amend paragraph **K1.1.4** of the BSC to clarify that an 'Import' or 'Export' of electricity includes both the flow at that Boundary Point at that instant. This ensures that Reactive Power flows are not separated (for purposes of reporting and billing) from the associated flows of Active Power;
- New **Section K** requirement to meter Reactive Power at times of Active Import ('Active Import Related Reactive Energy') separately from that at times of Active Export ('Active Export Related Reactive Energy'). This requirement may need to be subject to appropriate exceptions (e.g. existing sites that do not have the appropriate Metering Equipment, Non Half Hourly Metering Systems);
- New paragraph **K1.2.7** to specify where the Active Export Related Reactive Energy and Active Import Related Reactive Energy do not need to be measured separately:
 - (a) All NHH sites;
 - (b) All CVA-only sites;
 - (c) Non-mandatory HH sites where the relevant CoP specifies a different approach in relation to Reactive Energy. In particular, the Group agreed that Metering Systems with whole current metering (as opposed to measurement transformers) should be not be required to comply with the P266 metering requirements (and this would be identified as an exception in the relevant CoPs); and
 - (d) Sites where the version of the relevant CoP (or Metering Dispensation) pre-dates the implementation of P266

The decision to exclude whole current metering was intended to prevent any impact on the rollout of smart metering to Profile Classes 1-4, and to ensure consistency with Change Proposal [CP1298](#). This change was implemented in February 2010 and through BSCP514 2.3.2(f) placed a requirement on the MOA, "When installing or reconfiguring Half Hourly Metering Equipment that is operated by measurement transformers, the MOA shall configure the Metering Equipment to record Half Hourly demand values for both Reactive Import and Reactive Export (except where the Metering Equipment does not have this capability, and is not required to do so by the relevant Code of Practice)";

- The solution will be applied prospectively. P266 impacts Metering requirements, but compliance with the new requirements will not be retrospective with respect to the CoPs, and P266 will only be mandatory for existing sites when a Material Change is made to the metering on that site;
- In order to minimise impact on industry systems, no changes would be required to the Measurement Quantity Ids used to report Reactive Power. Lagging Reactive Power associated with Active Import and Leading Reactive Power associated with Active Export will continue to be reported as Measurement Quantity 'RI' (Reactive Import); while Leading Reactive Power associated with Active Import and Lagging Reactive Power associated with Active Export will continue to be reported as Measurement Quantity 'RE' (Reactive Export); and
- ELEXON would implement changes to **metering Codes of Practice** (CoPs) and BSCPs for P266 as part of a BSC Release and would raise a DTC CP to effect the changes to the DTC.

Attachment A documents the more detailed views of the Group with respect to the impacts of P266 and considerations relating to Distributors' current solutions (referred to as workarounds in the P266 documentation) for applying the CDCM.

181/10

P266
Final Modification Report

14 March 2011

Version 1.0

Page 7 of 23

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Configuration of Meter Registers

Currently four Measurement Quantity IDs are used for Meter Registers: Active Export (AE), Active Import (AI), Reactive Export (RE) and Reactive Import (RI). For shared Import/Export sites, the BSC prescribes that AE volumes are allocated to the Party associated with the Export of the site ('the Export Party') and AI volumes are allocated to the Party associated with the site's Import ('the Import Party').

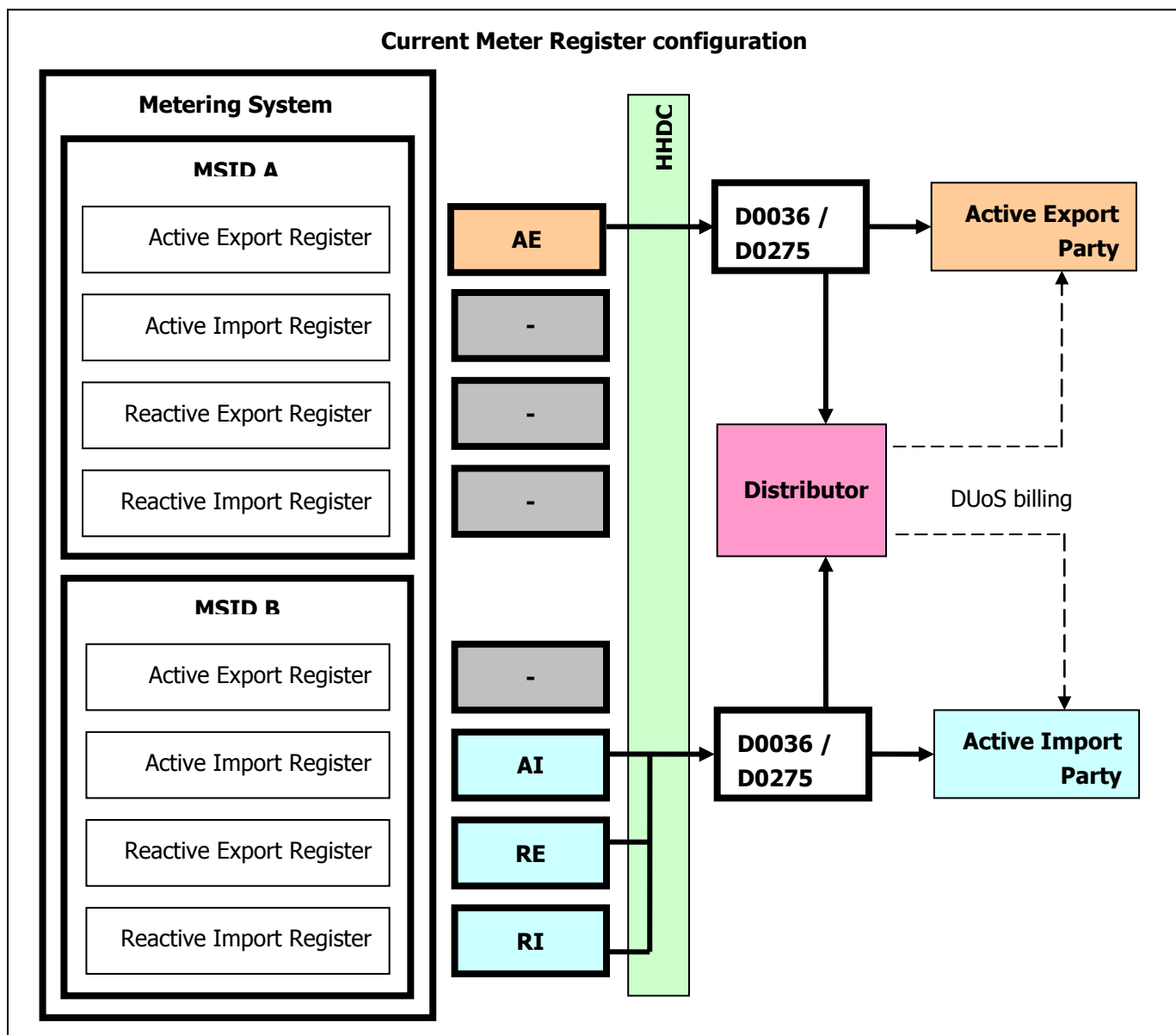


Figure 1: Current Meter Register configuration

The current BSC baseline obliges the Import Party to be allocated the RI volumes for shared Import/Export sites, and permits either the Import Party or the Export Party to be allocated the RE volumes for such sites. In practice both the RE and RI volumes are normally allocated to the Import Party (irrespective of whether those Reactive Power flows are associated with Active Import or Active Export). These configurations of the Meter Registers are translated into the structure of the data flows from HHDCs (or as the case may be the CDCA) which report RE and RI volumes to the Party and the relevant Licensed Distribution System Operator (LDSO), as shown in figure 1.

Under the P266 Proposed solution (same as P224 Proposed solution), the Meter Register Measurement Quantity IDs would not be changed.

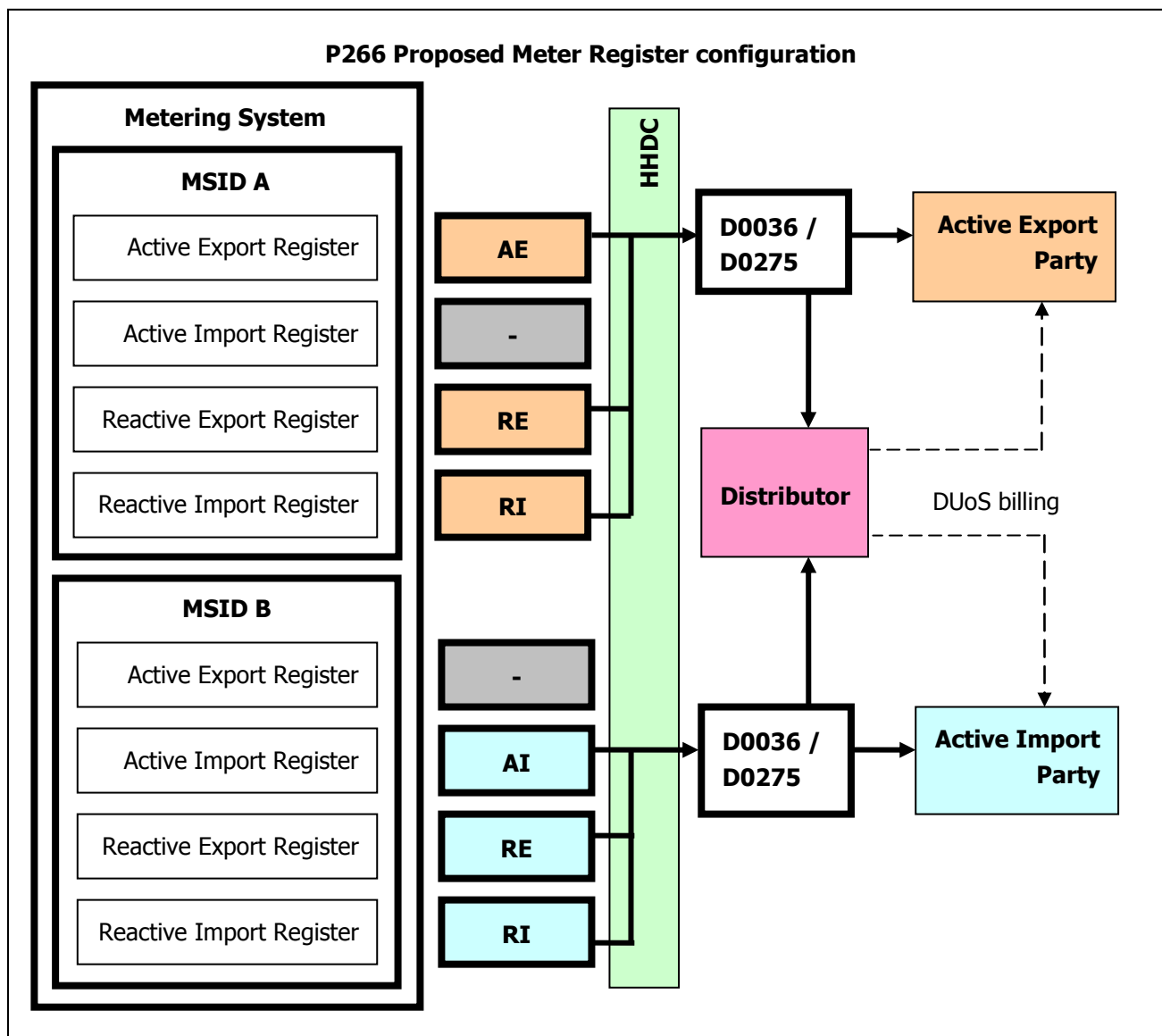


Figure 2 P266 Proposed Meter Register configuration

For the avoidance of doubt: if a site is exporting Active Energy, only the meter registers on MSID A (in the configuration illustrated in Fig. 2) will record Active Export flows and associated Reactive Power, and *no quantity will be measured by MSID B at that instant*. Conversely, if a site is importing Active Energy, only Active Import flows and associated Reactive Power flows will be recorded on MSID B, and *no quantity will be recorded on the MSID A meter registers at that instant*.

The proposed configuration of Meter Registers under P266 is illustrated in figure 2. Note that under P266 the existing Measurement Quantities will be used as follows:

- Measurement Quantity '**RI**' (Reactive Import) on the Export MSID for leading power flows associated with Active Export;
- Measurement Quantity '**RE**' (Reactive Export) on the Export MSID for lagging power flows associated with Active Export;
- Measurement Quantity '**RI**' (Reactive Import) on the Import MSID for lagging power flows associated with Active Import; and
- Measurement Quantity '**RE**' (Reactive Export) on the Import MSID for leading power flows associated with Active Import.

If registers are configured as intended and Meter software is appropriately amended then the Metering Systems of shared Import/Export sites can allocate Reactive Power to the appropriate MSID as determined by the allocation methodology of the P266 solution.

Provision for alternative approaches to Reactive Power within CoPs within specific limits

The provisions of the P266 solution apply to shared Import/Export sites that are settled on a Half Hourly basis unless such a site meets both of the following criteria:

- Its use of Half Hourly metering is not mandatory (i.e. its Import is below the threshold for mandatory Half Hourly metering, currently 100kW, and its Export is below the microgeneration limit, currently set at 30kW); **and**
- There is specific provision for exception from the P266 provisions in the applicable metering CoP.

The Group agreed that P266 should not be applied to Metering Systems that use whole current metering. This will be achieved by including an appropriate provision in all of the CoPs relevant to elective Half Hourly metering.

The Group were primarily concerned with ensuring the solution did not create a potential barrier to competition by preventing the utilisation of future technology that may provide for small scale generation and Import, but not have any material issue relating to Reactive power allocation. The criteria detailed above are believed to accomplish this, as they allow the CoPs to be revised through the BSC Change Proposal process to accommodate any such technology, while maintaining an obligation on mandatory Half Hourly metered sites which cannot be changed by a CP.

Legal text

Following a comment in a consultation response, the Group made a minor amendment to the P266 Proposed Legal Text. After considering the drafting and seeking advice from ELEXON the Group agreed the Legal Text should be amended to ensure it captures the range of sites intended by the P266 solution. The updated legal text more correctly delivers the intent of the P266 solution, which has not changed from that which was issued for consultation. Attachment A details the Group's considerations and ELEXON's advice and sets out the amended text.

4 Impacts & Costs

The ELEXON effort to implement P266 would be approximately 20 Man Days, equating to about £4,800.

Some Distributors would (or may be) significantly impacted by system changes required (or possibly required) to implement P266, but evaluation of the general impact on Distributors was not possible given the information provided. Other Distributors identified zero or minimal impact.

One HHDC identified substantial impact to upgrade their Half-Hourly data management system. Other HHDCs identified only minor system changes and minimal impact.

MOAs would be impacted by meter replacement activities. One identified costs arising from the processing of MTDs associated with measurement quantities.

Most Suppliers would be impacted by possible changes to Settlement systems, costs passed on by Party Agents and possible costs to develop their billing systems, but no estimate of costs or lead times has been provided.

Implementation Approach

The Group recommended that the Implementation Date of P266 should be **23 February 2012 (February 2012 Release)** if Approval is received from the Authority on or before 29 April 2011, or **28 June 2012 (June 2012 Release)** if Approval is received from the Authority after 29 April 2011 but on or before 2 September 2011.

We will deliver the changes to Code Subsidiary Documents as part of the same Release as the changes to the BSC. The DTC change will be aligned with the BSC Release.

Implementation of P266 will be prospective only. P266 Proposed would apply only to shared Import/Export sites which are newly registered or whose Metering Equipment undergoes a Material Change (as defined by the relevant CoP) following approval of P266. The Group believed that 'retrospective' implementation (i.e. requiring sites on existing sites, with metering registered under a previous version of the relevant CoP, to be subject to P266 where the site meets the P266 criteria) would be unduly onerous on participants and would be inconsistent with the usual approach to Metering CoP changes and requirements.

The Group believes business drivers exist that will encourage Parties and Exemptable Generating Plant associated with existing shared Import/Export sites that are impacted by the P266 issue to voluntarily ensure that such sites are compliant with the P266 provisions.

The Group's initial views aligned with their final views, as set out below. The Group confirmed their initial recommended implementation approach and their initial views against the Applicable BSC Objectives after taking into consideration the responses to the P266 Assessment Procedure Consultation and their further considerations. The Group's initial and final discussions are detailed in Attachment A.

Group's final views against the Applicable BSC Objectives

The **UNANIMOUS** view of the Modification Group was that Proposed Modification P266 **WOULD** better facilitate the achievement of Applicable BSC Objectives (b), (c) and (d) when compared to the current Code baseline, for the following reasons:

Applicable BSC Objective (b)

- Levying accurate and correctly targeted charges relating to Reactive Power tends to have a positive impact on the operation of the Transmission System, as appropriate cost signals are sent to Parties which encourages them to consider the most economic manner of operation; and
- If it is in Parties' economic interest to reduce the amount of Reactive Power they cause, this will tend to reduce the amount of Reactive Power on the Transmission System, which will reduce the actions National Grid is required to take to compensate for Reactive Power.

Applicable BSC Objective (c)

- Reactive Power would be allocated more appropriately and accurately to the Party actually responsible for them (or the MSID they should logically be assigned to), and therefore DUoS charges relating to Reactive Power will be more accurate and targeted correctly;
- More accurate DUoS charges relating to Reactive Power, and more correct targeting of charges to Parties actually responsible for Reactive Power flows, will facilitate competition;
- More appropriate allocation and metering of Reactive Power would facilitate potential creation of a competitive market in trading Reactive Power volumes;
- More appropriate allocation and metering of Reactive Power would facilitate a market for ancillary services for Exemptable Generating Plant, removing a potential barrier to the creation of new plant if Suppliers were reluctant to provide services due to inflated DUoS bills caused by inappropriate allocation of Reactive Power;
- The additional, more accurate data available would allow LDSOs not currently charging for Reactive Power to do so, and would facilitate competition in Distribution System operation to the benefit of Generators and Suppliers, thereby promoting competition among these participants and encouraging entry into the market; and
- Facilitate competition between Import Suppliers to Exemptable Generating Plant, as currently these plant are potentially restricted in their ability to switch Import Supplier due to reluctance by Suppliers to risk exposure to inflated DUoS bills.

Applicable BSC Objective (d)

- Provide consistency between the BSC and the CDCM.

The Group agreed that the Proposed Modification would have a neutral impact on Applicable BSC Objective (a).

Panel's consideration of Assessment Report

The Panel considered the P266 Assessment Report, noting the unanimous support of the Modification Group and the support of all but one of the respondents to the P266 Assessment Procedure Consultation. The Panel noted the benefits against the Applicable BSC Objectives identified by the Modification Group.

The Panel noted that an amendment had been made to the P266 legal text following the P266 Assessment Procedure Consultation to ensure it more correctly represents the agreed P266 solution, but the P266 solution had not changed from that issued for consultation.

A Panel member noted that Modification P224 (the predecessor to P266) was rejected by the Authority because the sample of sites used in the P224 analysis was not large or varied enough. The member would therefore have expected extensive analysis to have been produced to support assessment of P266. The Panel noted that the Group had concluded that analysis similar to that conducted for P224 was not necessary to support P266 because the CDCM is now in place. This is because the CDCM was developed to set out methodologies to facilitate optimal Distribution charging. The Group therefore believed that it was only necessary to demonstrate that P266 would facilitate delivery of the CDCM. Such demonstration would also show that P266 would promote more accurate and cost-reflective Reactive Power allocation and distribution charges.

The Panel noted that Ofgem had actively participated in P266 and had offered constructive input on what they believed was necessary to enable them to make an informed decision on whether to approve P266. The Group had sought to address all areas raised by Ofgem and to supply specific requested analysis where possible.

The Panel noted that the Group had agreed to a request from Ofgem at the final Group meeting for some further analysis relating to the effect of P266 on Extra High Voltage (EHV) sites that will fall under the EHV Distribution Charging Methodology (EDCM). It was intended that ELEXON would carry out this analysis and it would be appended to the Draft Modification Report. However, though the Group recognised the Authority may find this information useful when considering P266 (and the EDCM), the Group had not placed any weight on the outcome of this analysis in reaching its final views on P266.

The Ofgem Representative agreed that the Group had considered Ofgem's input into P266 and Ofgem currently believed that (with the addition of the further analysis) they had all the information required for the Authority to make a decision on the approval of P266 (NB it has not been possible to append EDCM analysis to this report; see section 'Post-Panel meeting note: EDCM consideration and analysis', below, for details of developments following the Panel's discussions).

The Panel noted that a consultation respondent had suggested implementing P266 by employing the currently proposed implementation date of 23 February 2012 as a 'backstop' for mandatory P266 implementation, allowing use of the P266 solution voluntarily from an earlier date (provided all those concerned for a given metering system agree its use). The aim of this would be to deliver the benefits of P266 earlier than the Group's proposed implementation approach would permit. A Panel member questioned whether, given that the issues underlying P266 were having a material impact on some participants, it would not be possible to employ this approach to enable P266 benefits to be realised sooner.

However, the Panel noted that the Group had supported in principle the idea of allowing earlier, voluntary implementation, but ultimately agreed not to develop or progress this approach. The Group had concluded that such an approach would cause confusion among participants and result in problems due to interactions between different participants at different stages of implementing P266. The overall effect of this would be to reduce the efficiency of P266 implementation.

The Panel also noted that the Group had not agreed to extend the implementation timescales in light of one consultation response which had identified an 18 month lead time to implement P266. This was partly due to reluctance to delay realisation of the benefits of P266 and partly because the Group believed that, based on the impacts identified, the respondent should be able to implement within the proposed timescales without material detriment. Overall, the Group believed that the proposed implementation approach is a balanced way to manage implementation of P266 without delaying its benefits unnecessarily or having an unduly onerous impact on participants.

A Panel member suggested that the scope for voluntary use of P266 might introduce a risk of discrimination between participants that take advantage of P266 and those who would stand to benefit from P266 but, because they do not fall under the criteria for mandatory implementation and are not aware that they can opt to use the P266 solution, do not. The Panel agreed that this was a risk, especially for small Parties, though one member believed that any Party materially affected by the Reactive Power charging issues underlying P266 would be alert to any avenue of relief and keen to employ it, and would therefore be unlikely to overlook P266. The Panel urged ELEXON, if P266 is approved, to publicise as widely as possible both its implementation and the ability to voluntarily adopt the P266 solution (i.e. after the P266 Implementation Date). The Panel believed it was particularly important that smaller participants be made aware of introduction of P266.

The Panel considered the benefits against the Applicable BSC Objectives identified by the Group. The Distribution System Operator Representative noted that P266 has benefits related to Distribution charging and facilitation of the CDCM, and they believed that these would also result in benefits under the BSC, against Objective (c), as identified by the Group.

The Transmission Company Representative commented that similar benefits to those identified for the operation of the Transmission System would exist for Distribution System, but the benefits would probably be of greater magnitude since P266 would have a direct effect on Distribution charging. A Panel member noted they placed particular weight on the benefit of increased cost reflectivity of Reactive Power allocation, and the effect this would have on Distribution charging.

Post-Panel meeting note: EDCM consideration and analysis

As detailed above, the Panel noted the intent to append analysis relating to the EDCM to the Draft Modification Report. The Group's consideration of the EDCM, and the further analysis requested by Ofgem and agreed by the Group, are described in the P266 Detailed Assessment (Attachment A), in the section 'Interaction with the EDCM' (pages 24 to 26). A participant in the Group's discussions, who was involved in development of the EDCM, also provided a description of the currently proposed EDCM methodology and an explanation of the prospective interaction between P266 and the EDCM, which was included as an appendix to the Detailed Assessment (Section 7).

Subsequent to the Panel meeting, ELEXON attempted to carry out analysis to investigate the interaction between P266 and the potential EDCM methodology. As part of this, we further considered the information provided in the Detailed Assessment appendix. We

have concluded that it is not possible for us to conduct meaningful analysis of P266/EDCM interaction based on the information available, largely because a finalised and confirmed EDCM methodology is not yet available.

Furthermore, the EDCM appendix to the Detailed Assessment should be treated with caution because it is an opinion provided to the Group, based on a view of the EDCM methodology proposed at that time, which the Group was not able to verify with other industry sources. The Group therefore placed little weight on this information in its consideration of potential P266/EDCM interaction. We suggest the Authority should not place a great deal of weight on the Group's considerations in this particular area when considering the interaction of P266 and the EDCM.

It is unfortunate that it is not possible to provide analysis of P266/EDCM interaction as part of P266, but it was made clear to the Panel and in the Detailed Assessment that the Group placed little weight on potential P266/EDCM interaction in their consideration of P266 and its benefits (beyond the fact they were satisfied there would be no detrimental effect) and placed no weight on the prospective results of the anticipated P266/EDCM analysis.

The Group's conclusions regarding P266 are therefore not affected by the lack of this analysis. The EDCM is outside the scope of the BSC, is not part of the current governance baseline and the proposed EDCM methodology is not yet finalised. We therefore believe it would be appropriate for any considerations relating to the EDCM or its interactions with P266 to be carried out under the Authority's wider statutory remit, possibly as part of a Regulatory Impact Assessment.

We will liaise with Ofgem on this and will apprise the Panel of the situation when presenting the Draft Modification Report in March. We welcome any views on the EDCM, P266/EDCM interaction and the Group's considerations and conclusions in this area as part of the P266 Report Phase Consultation.

Panel's initial views

The unanimous initial view of the Panel was that P266 Proposed would better facilitate the Applicable BSC Objectives overall compared with the current baseline.

All Panel members supported the views of the P266 Modification Group. Based on these views and the considerations detailed above the Panel unanimously believed that P266 Proposed would better facilitate the Applicable BSC Objectives overall and that (compared with the existing baseline) P266 Proposed:

- Would have a neutral impact on Applicable BSC Objective (a);
- Would better facilitate Applicable BSC Objective (b);
- Would better facilitate Applicable BSC Objective (c); and
- Would better facilitate Applicable BSC Objective (d).

Summary

The full responses to the P266 Report Phase Consultation are available on the [P266 page](#) of the ELEXON website. We received nine responses. The results are summarised below.

Summary of P266 Report Phase Consultation responses

Question	Response
1. Do you agree with the Panel's view that the Proposed Modification should be approved?	Yes: 9 No: 0
2. Do you agree that the legal text delivers the intention of P266?	Yes: 9 No: 0
3. Do you agree with the Panel's suggested Implementation Date and implementation approach?	Yes: 7 No: 2

Support for P266

Respondents unanimously supported the Panel's view that P266 should be approved and unanimously agreed the legal text. One respondent noted that without P266 it is impracticable to differentiate effectively between generation from and supply to premises using data from the relevant Supplier, and to appropriately charge that relevant supplier.

This respondent believed that P266 would address a flaw in the current rules of metrology in relation to premises with both Export and Import, and urged approval of P266 now, since the Distribution sector still contains relatively few exporting premises. There is a small window of opportunity to make significant improvement prior to an anticipated increase in Import premises with Export capability; if P266 is not implemented a change would still be required to resolve the P266 issues but it would be more difficult to implement such a change (i.e. from the current flawed arrangements to more correct rules, as proposed by P266) at a later date.

Legal Text

Scottish Power, which made the original query in their response to the P266 Assessment Procedure Consultation, is happy to accept the legal text with the suggested amendments. Another respondent commented that the legal text delivers the intention of P266 and includes appropriate exception criteria to ensure types of site are not unduly captured.

A respondent commented that the proposed legal text is self evidently better at making the key division between flows of electricity during two modes of use, i.e. generation (Export) and Supply (Import) than the current text of the BSC, does not achieve this. The proposed legal text is clear that:

- An Export flow of electricity can be Active Export with accompanying consumption or production of Reactive Power (i.e. Export with a leading or lagging power factor); and
- An Import flow of electricity can be Active Import with accompanying consumption or production of Reactive Power (i.e. Import with lagging or leading power factor).

Another respondent, Electricity North West Limited (ENWL), agreed with the legal text but believe it is acceptable only 'up to a point', and have reservations about P266 not being retrospective. However, ENWL's comments indicate that they agree that the legal text represents the P266 solution, but they believe issues exist with the P266 solution and the implementation approach; therefore their comments are detailed and considered together in 'Implementation of P266', below.

181/10

P266

Final Modification Report

14 March 2011

Version 1.0

Page 17 of 23

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Implementation of P266

Seven respondents agreed with the suggested Implementation Date and implementation approach. Two respondents did not agree.

UK Power Networks, who supported P266, reiterated that they would prefer participants (customer, Supplier and Supplier Agents), if able and willing, to be permitted to elect to adopt P266 metrology earlier than the Implementation Date, as suggested and discussed previously. They did not suggest any arguments supporting this approach further to those already put forward, and noted that they accept the proposed dates if earlier voluntary implementation is not considered viable.

RWEnpower reiterated that they do not believe the implementation approach to be appropriate because their Party Agent identified an 18 month lead time for P266 implementation. They noted that working to a tighter timeframe may incur additional costs and would impact existing system/process development work. This was taken into consideration by the Group in its assessment of P266 and by the Panel in its initial discussions, and no further information or arguments are put forward in this latest response.

RWEnpower did agree that implementation of P266 should be prospective, and apply to Import/Export sites which are newly registered or whose Metering Equipment undergoes a Material Change; retrospective implementation would be onerous and compliance with P266 will be driven by the appropriate commercial incentive.

Scottish Power, supported the implementation approach, and believed that as P266 will only (initially) affect new registrations the approach gives sufficient time for all affected Parties to prepare. This may be considered significant because ENWL, who disagree with the implementation approach (see below), believe SP's Distribution billing approach is the same as theirs.

ENWL's response raised two concerns on the proposed implementation approach:

- They believed that P266 should be applied 'retrospectively' (i.e. it should apply to Metering Systems registered under a version of the relevant CoP that predates the P266 Implementation Date); and
- They believed that a P266 Implementation Date of June 2012 date should be considered in order to allow additional time for Distributors to update their systems.

One of the key factors underlying both issues was ENWL's belief that the P266 solution does not provide an adequate mechanism to enable them to identify when P266-compliant metering is installed at a given site. Delaying the Implementation Date until June 2012 would give them additional time to resolve this issue, and applying the change 'retrospectively' would provide a cut-off date after which they would have certainty on the metering arrangements at each site. Their response also suggested that changes to industry data flows might be needed to notify Distributors of when P266-compliant metering is installed.

We have discussed these issues with ENWL, and identified a method for them to determine when P266-compliant metering is installed at each site using the Measurement Quantity details on the existing Half Hourly Meter Technical Details data flow. They have confirmed that this would be a better approach, and avoids the need to change industry data flows. We believe that this significantly mitigates the issues identified in the ENWL response.

ENWL also suggested that clarification is required with respect to the population of data where RE and RI is relevant to one MPAN and not the other of a Metering System. They consider that placing a 'zero' value in the flow would not make it clear whether this was actual data or reflects missing data.

We have discussed this with them and clarified the circumstances in which zero and null data would be used under P266.

ENWL also noted that they raised an issue concerning estimation by HHDCs in their Assessment Procedure Consultation response, which received no response; they had commented that it was necessary 'to understand if this Working Group will discuss the circumstances surrounding missing data or whether it is more for the DCUSA to investigate default values i.e. If we are separating Import/Export data should we have common rules on how estimates are calculated, potentially by the DC.'

CP1303 'Requirement on Half Hourly Data Collectors to Estimate Missing Reactive Power Demand Values' (implemented in the February 2010 Release) specified a common approach to estimation of missing Reactive data by HHDCs. This solution will continue to apply post-P266, and appears to address this concern.

Further Comments

ENWL's further comments were pertinent to their views on the implementation of P266 and are therefore set out and considered above.

Baywind Energy Co-operative Ltd noted that if the P266 solution is taken up voluntarily on existing sites they hope the cost of changing the Metering System is not too high.

ScottishPower suggested that since P266 is not retrospective (i.e. not mandatory for existing sites) consideration should be given to a follow up report in the future to examine the uptake of the P266 solution by pre-P266 sites. They suggested as an example that a date such as April 2014 for such a report might be considered.

UK Power Networks further comments were a substantial discussion of the principles of metrology and the debate under P266 around shared premises. They stated that whilst premises may be *shared* through commercial invitation by the owner/occupier, it would be fundamentally incorrect to presume that two independent persons, as constituted under the Electricity Act, can 'share' a connection. They therefore concluded that:

- Neither the application for independent connections nor the establishment of licence exempt networks is a more viable or sensible solution to the P266 issue;
- In most cases where a premises' Export and Import is not currently described correctly, customers will not wish to resort to such extreme solutions as these, and such approaches fail to fully address the underlying metrology problems; and
- For the majority of cases the solution proposed by P266 the only viable solution.

Conclusions

The consultation responses indicate unanimous support for P266 and the legal text. The majority of respondents also support the implementation approach.

Two respondents did not support the implementation approach. Of these two, one did not supply any information or argument not already considered by the P266 Group and the Panel. The other disagreed with the Implementation Date and supplied a substantial response which effectively raised concerns around their ability to implement the P266 solution as agreed in the proposed lead time.

The respondent (ENWL) still supported P266 but suggested a P266 Implementation Date of June 2012 should be considered (a four month increase over the proposed lead time). However, we do not believe it is necessary or appropriate to change the proposed Implementation Date based on these comments because:

- The respondent agrees that our suggested P266 trigger mechanism is a more reliable and straightforward approach, and this aspect was a significant part of their concern;
- These potential issues relate to implementation activities rather than the P266 solution itself, the respondent supports the P266 solution and indicates that they can implement P266 within an additional four months;
- The other participant (SP) which the respondent states uses the same Distribution billing arrangements as them, which is the source of many of the identified potential issues, has not raised any concerns over the implementation approach or impact; and
- The principle of permitting voluntary adoption of the P266 solution earlier than the proposed Implementation Date (which would become a 'mandatory back stop' date) has support among industry respondents, the P266 Group and the Panel, but this is not being pursued in order to promote an orderly and efficient implementation approach for P226. In light of this support for the earliest possible implementation in order to relieve the impact of the issue identified by P266 it appears inappropriate to delay implementation to accommodate potential issues with implementation activities identified by a minority of respondents.

The Panel should consider whether they wish ELEXON to conduct follow up analysis to determine uptake of the P266 solution, as suggested by a respondent, and if so when this should be done. We recommend that if the Panel considers that such analysis should be conducted it should ask ELEXON to carry out analysis and report the results a reasonable period after the P266 Implementation Date. ELEXON considers that a reasonable period would be at least two years after the P266 Implementation Date.

Materiality of P266 Anomalies as a Percentage of Total DUoS Charges

In our previous analysis (see Attachment A, Detailed Assessment) we calculated (for each of the 19 customers¹) the monetary value of the P266-related anomalies in Excess Reactive Power and Import Capacity charges. Ofgem asked us to establish the size of these monetary values compared with the total DUoS charges paid by each customer.

Because the unit charges and the red/amber/green time bands vary significantly between LDSOs, we calculated the total charges three times for each customer (using the 2010/11 charging statements for three different companies), and averaged the results. In each case we calculated charges using the Low Voltage (LV) tariffs, as we do not have data on the actual connection voltage for each customer.

To calculate the percentage materiality figures for each customer we netted off DUoS income they receive (i.e. Export unit charges) from DUoS charges they pay (i.e. Import unit charges, excess Reactive Power charges, fixed charges and Import Capacity charges). We then compared the absolute value of the net total to the various P266-related anomalies identified in the previous analysis. The results are:

- The under-charging of Reactive Power in Export periods (under workaround 2) ranged from 0% of the customer's total DUoS charges to 21% of the customer's total DUoS charges.

The average under-charging (across all 19 customers) was 4% of the customer's total DUoS charges.

- The excess Reactive Power charges in crossover periods (which are charged for under workaround 2, not charged for under workaround 1, and partially charged for under P266) ranged from 0% of the customer's total DUoS charges to 37% of the customer's total DUoS charges.

The average excess Reactive Power charge in crossover periods (across all 19 customers) was 4% of the customer's total DUoS charges.

- The additional Import Capacity charges in crossover periods (which are charged for under workaround 2, not charged for under workaround 1, and partially charged for under P266) ranged from 0% of the customer's total DUoS charges to 6% of the customer's total DUoS charges.

The average additional Import Capacity charge in crossover periods (across all 19 customers) was 1.7% of the customer's total DUoS charges.

The underlying analysis can be found in Attachment D.

Impact of P266 on Crossover Periods

We reviewed the earlier work we carried out on behalf of the Group to model hypothetical scenarios and attempted to construct a viable methodology to use to estimate the impact of P266 on charges during crossover periods. However, we are unable to construct a satisfactory methodology, and have concluded that any such approach we might use would amount to little more than guesswork, and would carry the risk of producing meaningless and potentially misleading results.

We can only reiterate our conclusion that the P266 solution would remove elements of the charges that are not cost-reflective, but the data available from the current metering configurations does not enable quantification of this effect (i.e. the percentage of charges).

¹ Attachment A erroneously referred to 14 customers.

10 Further Panel Discussions

The Panel considered the responses to the P266 Report Phase consultation and the updated analysis. They noted the unanimous support for P266 and the legal text and the majority support for the implementation approach.

Two respondents disagreed with the P266 implementation approach. However, having considered all the responses the Panel concluded that there was no reason to alter their initially suggested approach.

The Panel noted the explanation that it was not possible to refine the analysis for crossover periods because there is no satisfactory way to estimate the impact of P266 on charges during such periods. The Ofgem Representative confirmed that their current view was that the assessment of P266, including the analysis carried out, was adequate to enable the Authority to make a decision on whether to approve P266.

Panel's final views

Based on the views of these considerations the Panel unanimously agreed a final view that P266 Proposed would better facilitate the Applicable BSC Objectives overall compared with the current baseline.

The Panel unanimously believed that P266 Proposed would better facilitate the Applicable BSC Objectives overall and that (compared with the existing baseline) P266 Proposed:

- Would have a neutral impact on Applicable BSC Objective (a);
- Would better facilitate Applicable BSC Objective (b);
- Would better facilitate Applicable BSC Objective (c); and
- Would better facilitate Applicable BSC Objective (d).

11 Recommendations

Having considered the P266 Draft Modification Report, the BSC Panel recommends:

- That Proposed Modification P266 should be made;
- An Implementation Date for Proposed Modification P266 of:
 - 23 February 2012 if an Authority decision is received on or before 29 April 2011; or
 - 28 June 2012 if an Authority decision is received after 29 April 2011 but on or before 2 September 2011; and
- The proposed text for modifying the Code, as set out in the Modification Report.

12 Further Information

More information is available in:

Attachment A: Detailed Assessment

This information includes:

- Costs and impacts;
- Modification Group discussions; and
- Modification Group membership.

Attachment B: Legal Text Proposed

Attachment C: P266 Model

Attachment D: Additional Analysis

The P266 Report Phase consultation responses, Assessment Report and other related documents are available on the [P266 page](#) of the ELEXON website.