Stage 03: Assessment Consultation

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

03 Assessment Procedure

04 Report Phase

P270: The Application of Line Loss Factors to GSPs that are not Transmission-interconnected

The BSC does not permit application of a Line Loss Factor to a Grid Supply Point, including Offshore Transmission Connection Points, a GSP type introduced by the OFTO arrangements.

P270 proposes that distinction should be made between GSPs based on how they are interconnected with the Transmission System and LLFs should be applied to GSPs in specific circumstances.

Workgroup initially recommends:
Rejection of P270 Proposed Modification

High Impact:
None

Medium Impact:
LDSOs, Transmission Company, CDCA

Low Impact:
Suppliers and embedded generators (via LLF and GSP Group Correction effects) all Parties (via Transmission Losses), ELEXON

Contents

About this document:

The purpose of this Assessment Consultation is to obtain views from BSC Parties and other interested parties on the matters set out in this document and confirm the impact of P270 on participants. The P270 Workgroup will consider the consultation responses before making its final recommendations for inclusion in the P270 Assessment Report, which will be presented to the Panel on 9 June 2011.

This consultation document details the solution, impacts, and potential implementation activities associated with P270. It also sets out the P270 Workgroup's discussions and initial views on P270. Attachment B is the Assessment Consultation response form, which includes all the questions highlighted throughout the P270 consultation document.

1 Summary

Why Change?

The BSC does not allow a Line Loss Factor (LLF) to be assigned to a Grid Supply Point (GSP). BM Units are assigned LLFs to account for the losses they cause, or relieve, on a Distribution System. P270 contends that LLFs should be assigned to GSPs that connect electrically isolated elements of the Transmission System to a Distribution System.

The impact of the P270 issue is that the output from Offshore Transmission Connection Points will distort the cost reflectivity of losses allocated to other Distribution System users and the losses impact of offshore networks is not visible to the System Operator.

Solution

P270 proposes that the BSC distinguish between GSPs based on the interconnection of the Transmission System to which they are connected and provide for LLFs to be assigned to appropriate GSPs. This would be accomplished by adding and amending BSC definitions. In effect, the cost of losses (or credit where the connection relieves losses) would shift from the other users on the Distribution System into the aggregated Transmission Losses.

Impacts

Code changes would be required, with BSCP changes to clarify the arrangements around assigning LLFs to GSPs. Affected LDSOs would need to determine new LLFs. No central system impact has been identified. There would be some effect on Suppliers on affected Distribution Systems due to the effect on GSP Group take, but no direct impact on any other participants has been identified.

Implementation

It is proposed that Code changes are made promptly following approval by the Authority, with other document changes made in the next available BSC Release.

The Case for Change

P270 contends that remote GSPs differ from GSPs connected to the main, interconnected Transmission System, which flexibly supply electricity to meet the needs of the Distribution System, and are more similar to BM Units on a Distribution System, because such isolated GSPs use the Distribution System as a means of dispersing electricity produced by the remote network to which they are connected.

The key question is whether it is justifiable to shift the effect of Distribution System losses into Transmission Losses where they result from the operation of an electrically isolated Transmission System element. The Proposer argued it would promote cost reflectivity in the allocation of losses, but the majority of the group believed it was not appropriate.

Group's initial views

The group's initial majority view is that P270 does not better facilitate the Applicable BSC Objectives overall, and should therefore be rejected. The majority of the group believed P270 was either neutral or had a negative impact against Objectives (a), (b), (c) and (d).

The group put most weight against Objective (c). The majority believed P270 would have a negative impact against (c) because it is tackling a losses incentives issue, transfers Distribution System losses into Transmission Losses and discriminates between GSPs.

A significant minority believed there was a marginal efficiency benefit against Objective (b) due to an increase in the visibility of Distribution Loss effects to the System Operator.

2 Why Change?

Background

Line Loss Factors

A Line Loss Factor (LLF) is an adjustment factor applied to readings from a Metering System to adjust for electrical losses occurring on a Distribution System. The aim is to calculate an associated amount of energy at the Transmission System Boundary for use in Settlement. LLFs are covered by Section K of the BSC and BSC Procedure (BSCP) 128 'Production, Submission, Audit and Approval of Line Loss Factors'.

Licensed Distribution System Operators (LDSOs) calculate LLFs and submit them to ELEXON annually. LDSOs must calculate the LLFs in accordance with an LLF methodology that complies with the principles set out in BSCP128.

Line Loss Factor

A multiplier applied to data from a Metering System connected to a Boundary Point of a Distribution System to convert it to an equivalent value for the Transmission System Boundary.

Grid Supply Points

Grid Supply Points (GSPs) are also covered in Section K. Section X of the BSC defines a GSP as 'a Systems Connection Point at which the Transmission System is connected to a Distribution System and includes an Offshore Transmission Connection Point'. Each GSP is the responsibility of a Distribution System Operator, who must ensure Metering Equipment is in place and registered, except that the Transmission Company (National Grid) is responsible (as NETSO) for all Offshore Transmission Connection Points. LLFs are not assigned to GSPs.

Grid Supply Point

A point where the Transmission System (including an Offshore Transmission System) is connected to a Distribution System.

Offshore Transmission Connection Points

Under the Offshore Transmission Owner (OFTO) arrangements, offshore networks at 132kV or higher became part of the Transmission System. Where such a network connects to an onshore Distribution System, the connection is known as an Offshore Transmission Connection Point. Offshore Transmission Connection Points are a type of GSP, and as such cannot presently be assigned an LLF.

Offshore Transmission Connection Point

A GSP that connects an Offshore Transmission System to an (onshore) Distribution System.

Prior to the OFTO arrangements, an LLF calculated by the Distribution System Operator would be applied to a connection between an offshore generator and an onshore Distribution System. Under the OFTO arrangements, metering at the Offshore Transmission Connection Point is CVA registered by the Transmission Company and no LLF is applied.

What is the Issue?

P270 contends that differences between different types of GSPs exist due to the OFTO arrangements, and the BSC arrangements do not recognise these differences. The Proposer believes that this results in some types of GSP being treated in a manner that does not reflect their physical characteristics.

In particular, P270 focuses on the assignment of LLFs, and argues that the characteristics and situation (geographically and in network terms) of some GSPs, such as Offshore Transmission Connection Points, means that it would be appropriate to apply LLFs to them.

In the case of Offshore Transmission Connection Points this would amount to maintaining the pre-OFTO status quo by continuing to apply LLFs to them. The effect on LLFs assigned to other Metering Systems in the Distribution System is also relevant, since the effect of the now-Offshore Transmission Connection Points on Distribution System losses

would previously have been taken into account in calculating LLFs for other Metering Systems.

Interconnected Transmission System and remote connections

The Proposer argues that there is a fundamental difference between the (onshore) interconnected Transmission System and a remotely connected part of the Transmission System (i.e. not interconnected directly with other parts of the Transmission System). Offshore Transmission Systems that are connected to a Distribution System are an example of the latter, and are used here to illustrate this difference.

P270 contends that a conventional onshore GSP has no LLF because it effectively acts as an infinite energy source/sink to the Distribution System Operator, i.e. required energy flows at the boundary (the GSP) are achieved by the addition or reduction of despatched generation from the interconnected Transmission System. In other words, the Transmission System does not carry out activities that by their nature increase or decrease losses on the Distribution System; it responds to the Distribution System's energy requirements.

However, an Offshore GSP (an Offshore Transmission Connection Point) could be considered to join an offshore Transmission System to the main Transmission System via a Distribution System. P270 argues that such an Offshore GSP effectively drives energy across a Distribution System in one direction only, either causing or reducing losses on the Distribution System (depending on the interaction with the other Distribution System elements).

The Proposer believes that from the perspective of the Distribution System Operator, the behaviour of such an Offshore GSP is more akin to that of a Balancing Mechanism (BM) Unit, which would have an LLF representing an increase or reduction in Distribution System losses, than a 'normal' GSP connected to the interconnected Transmission System. P270 contends that LLFs should also therefore be applied to Offshore GSPs, and similarly remote connection points to the Transmission System.

Impact of the issue

The Proposer believes that it is appropriate in principle to apply LLFs to some GSPs, as discussed above. In terms of material impact, P270 contends that the identified issue unjustifiably distorts LLFs applied on an affected Distribution System.

General Effect

The P270 issue might have a significant effect on sites where site-specific LLFs are calculated on an interactive basis (see below). It has a less pronounced effect on other sites connected to the Distribution System which are allocated generic LLFs, as they share expected residual losses according to the LLF methodology.

If the connection of a site previously assigned an LLF becomes an Offshore Transmission Connection Point the Distribution System losses are the same as before application of the OFTO arrangements, but losses previously covered by the site's LLF are smeared across other sites in the Distribution System. This could affect Generic and Site Specific LLFs within the GSP Group and/or impact the Group Correction Factor.

Under P270, loss adjustments corresponding to losses previously associated with an offshore generator affected by the OFTO arrangements would be allocated to Transmission Losses and shared by all Transmission users, instead of affecting either future generic LLFs or GSP Group Correction for NHH sites.

Interactively Determined LLFs

If multiple offshore sites are connected such that their LLFs are calculated on an interactive basis then the identified issue can have a pronounced and local impact. Prior to the OFTO arrangements all the sites involved in such a situation would be assigned Site Specific LLFs, calculated to share the losses between the sites as determined by the Distribution System Operator.

If multiple sites are connected to an offshore network and one is affected by the OFTO arrangements the LLFs of any sites that remain outside the OFTO arrangements (as SVA) may be affected, although neither the physical network, the characteristics of the sites nor the physical losses arising on the Distribution System are changed. The Proposer believes that this is inappropriate, and also considers that the principle of the issue remains the same whether the LLFs involved are greater than or less than one, though this has a bearing on the practical effect.

Losses Incentive

The Proposer suggests that the impact on LLFs as a result of an LLF not being applied to an Offshore Transmission Connection Point could potentially have a direct financial impact on the Distribution System Operator under the Losses Incentive (Charge Restriction Condition 7 of the DNO Licence). This is outside the scope of P270, but was noted by the group.

3 Proposed Solution

Summary

P270 proposes that the BSC should:

- Recognise that physical differences (specifically with regard to losses) exist between conventional onshore GSPs and types of GSPs that are differently connected to the Transmission System (i.e. whose connection is remote, such as Offshore Transmission Connection Points);
- Distinguish between GSP types based on the nature of the interconnection between the GSP and the Transmission System; and
- Make provision for the assignment of LLFs to particular types of GSP.

Applicability of P270

The particular issue identified by P270 relates to Offshore Transmission Connection Points, but the P270 solution would apply on the basis of the nature of the interconnection of the Transmission System to which the GSP is connected. This is intended to restrict P270 only to GSPs whose characteristics are considered to justify the use of LLFs.

This approach would allow future network developments to be treated appropriately by the P270 solution. For instance, if in future an offshore transmission interconnected grid is developed it would appear inappropriate for the GSPs involved to be treated differently to onshore GSPs since the offshore grid would act as a flexible energy source/sink in a similar way to an onshore GSP connected to the interconnected onshore Transmission System.

Retain the status quo

This Modification aims to retain the existing application of LLFs for existing connections that become Offshore Transmission Connection Points under the OFTO arrangements, reflecting the fact that there is no change to the physical losses arising on a Distribution System. The Proposer suggested that it may be appropriate for the Modification, if approved, to apply from the effective date of the first Offshore Transmission Connection Point.

Impact of P270

P270 would assign LLFs to remotely connected GSPs, such as Offshore Transmission Connection Points. This would effectively mean that the losses on the Distribution System caused by the Offshore Transmission System connection would be moved out of GSP Group Take and instead included in Transmission Losses. This would mean that such losses would be shared among all users of the Transmission System as with all other Transmission Losses.

Before the OFTO arrangements affected sites may have been registered in SVA, with their generation affecting GSP Group Take only indirectly by its effect on GSPs. Depending on the particular circumstances, this could reduce GSP Group Take by an amount equivalent to the site's generation. Under OFTO the flow from the offshore network is measured in CVA and therefore contributes directly to GSP Group Take as an Import to the Distribution System. GSP Group Take will therefore increase correspondingly.

Note that P270 aims to assign an LLF to the Offshore Transmission Connection Point, not to Offshore Generators themselves.

Illustrative Example

In order to illustrate the effect of the P270 solution and how it would work at a high level, this section sets out an example of a simple arrangement of an offshore generator connected to the Transmission System via a Distribution System, and compares the outcomes under different circumstances. The example is considered under:

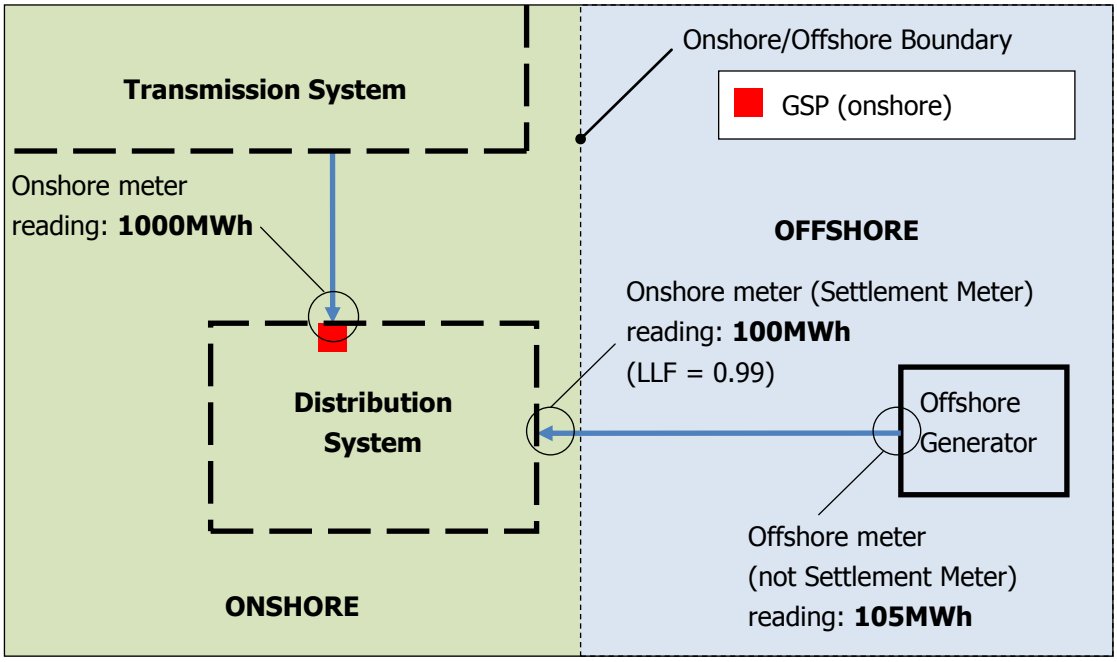
- The situation prior to introduction of the OFTO arrangements;
- The current baseline arrangements; and
- The P270 arrangements.

Note that this is a simplified example and the volumes of energy and other quantities are not intended to be realistic or representative of the actual materiality of the issue. The example shows the situation with an LLF of less than one applied, whereas application of LLFs greater than one is possible and would affect the practical implications for the relevant participants.

This example is therefore intended only to demonstrate the effect that the assignment, or not, of LLFs to GSPs whose connection to the Transmission is relatively remote (e.g. an Offshore Transmission Connection Point) can have on overall Transmission Losses, GSP Group take and other sites' LLFs.

Pre-OFTO Arrangements

Prior to the introduction of the OFTO arrangements, the offshore/onshore connection in the example is the responsibility of the offshore generator, and the Settlement Metering was located onshore. For Settlement purposes, the generators output was its net output (output at the offshore platform minus losses over the offshore/onshore connection) multiplied by the LLF determined by the Distribution System Operator. In this example the LLF is less than one, meaning the generator is considered to cause losses on the Distribution System, so its output is scaled down to take this into account.



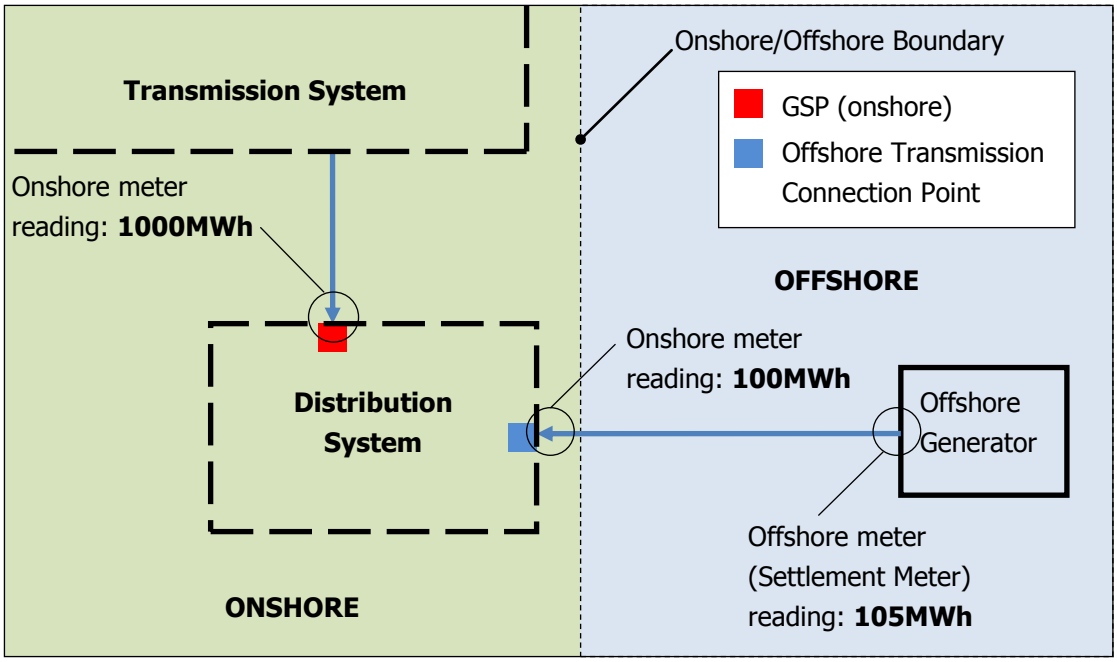
No losses are contributed to Transmission Losses. In physical energy terms, the Distribution System receives 1100 MWh, made up of 1000 MWh from the Transmission system via a normal onshore GSP and 100 MWh from the offshore generator. However, the generator's energy is subject to its assigned LLF, in this case 0.99. In this example the

generator is registered in CVA, therefore the GSP Group take is 1099 MWh (if it is SVA registered the GSP Group take would be 1000 MWh).

Current Arrangements

The current baseline includes the OFTO arrangements (though they are not yet applied in all relevant situations) which means that the connection between the offshore generator and the onshore Distribution System is part of the Offshore Transmission System and as such is the responsibility of National Grid (as NETSO). The point where the Offshore Transmission System connects to the Distribution System is an Offshore Transmission Connection Point, which is a GSP and therefore not given an LLF.

The Settlement Meter for the offshore generator is located at the offshore platform (unless a dispensation is in place enabling it to be located elsewhere) and the generator's full output at that point is assigned to it for the purposes of Settlement.



The energy lost between the offshore generator and the onshore meter at the Offshore Transmission Connection Point contributes to the national total Transmission Losses (as with losses on any other part of the Transmission System). The onshore reading at the Offshore Transmission Connection Point is not adjusted by the application of an LLF.

Physically, the Distribution System still receives 1100 MWh, made up of 1000 MWh from the Transmission system via a normal onshore GSP and 100 MWh from the Offshore Transmission Connection Point. Neither is subject to loss adjustment by an LLF, but the Offshore Transmission Connection Point is registered in CVA, so the GSP Group take is 1100 MWh.

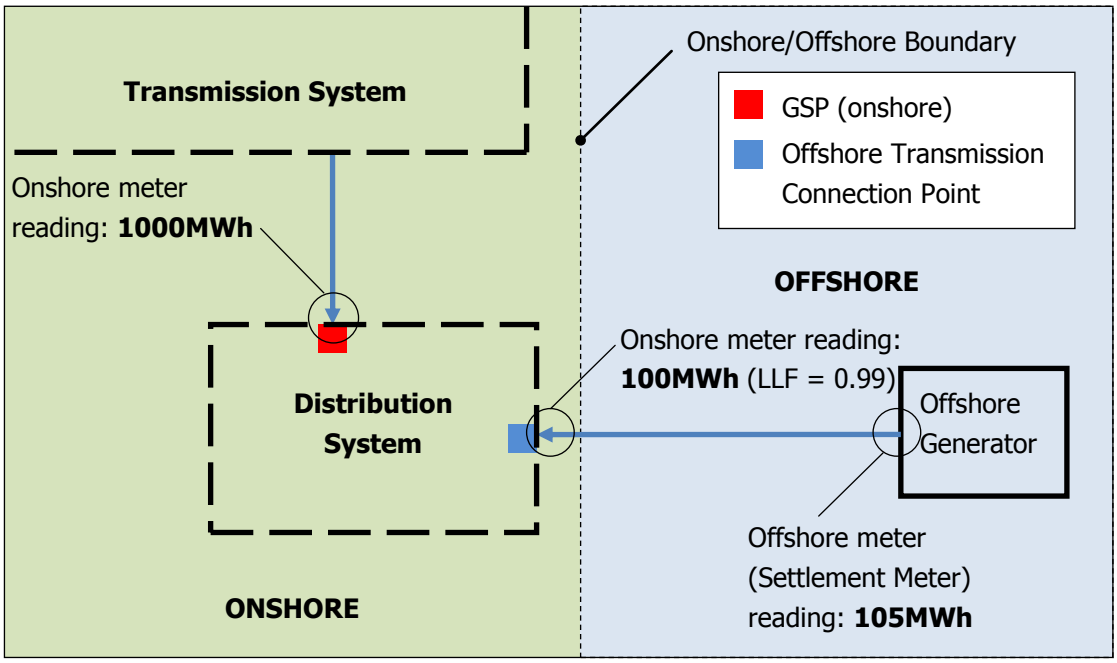
P270 Solution

Under P270 an LLF would be assigned to the Offshore Transmission Connection Point. Since it is based on the same network characteristic and losses it would be the same as that applied to the offshore generator's delivered volumes under the pre-OFTO arrangements, i.e. 0.99.

P270 would include in the total Transmission Losses the increase (in this example) of Distribution Losses caused by the energy flowing onto the Distribution System from the OFTO network. Because the energy metered onshore is adjusted down by the LLF of 0.99

the calculated Transmission Losses across the onshore/offshore connection is increased compared with that under the baseline (from 105 – 100 = 5MWh to 105 – 99 = 6MWh).

The status of the offshore generator is not affected at all (other than through its share of the effect on Transmission Losses). Its metered volume remains the same as under the current baseline, and it would not be allocated any distribution losses. Its treatment remains equivalent to that of other directly connected generators.



The only effect which would in any way impact the generator is that (like all BM Units) their TLM values would change slightly due to the very small difference in the national total of Transmission Losses (in this example the additional 1MWh).

Comparison

The effects described above are tabulated below. It can be seen that across the three scenarios the energy physically delivered to the Distribution System does not change.

Example parameters under various arrangements

	Pre-OFTO	**Baseline**[1]	**P270**
Import from Transmission System	1000 MWh	1000 MWh	1000 MWh
Import from offshore generator	100 MWh	100 MWh	100 MWh
Total energy delivered to Distribution System	1100 MWh	1100 MWh	1100 MWh
LLF applied to offshore/onshore connection	0.99	None (i.e. 1.00)	0.99
OFTO system contribution to Transmission Losses	Zero	5 MWh	6 MWh
Generator's Settlement Meter reading	99 MWh	105 MWh	105 MWh
GSP Group Take	1099 MWh[2]	1100 MWh	1099 MWh

[1] Baseline is post-OFTO and pre-P270.
[2] Assuming (for the purposes of this example) that the Generator is CVA-registered.

Under the baseline (i.e. with the OFTO arrangements) the generator is not directly responsible for losses over the onshore/offshore connection because they are now considered Transmission Losses. The generator's metered volume for Settlement does not therefore include the losses on the connection, and increases accordingly.

However, it is also apparent that the introduction of the OFTO arrangements into the baseline affects the GSP Group Take. In this example this would have a diluted effect on all sites in the Distribution System, but in different circumstances could also have an impact on a few particular sites, via their assigned LLFs.

Under the P270 Proposed solution the offshore generator's metered volume remains the same as under the baseline but the GSP Group Take is restored to its previous value by the application of an LLF to the onshore/offshore connection. The contribution of the OFTO system to Transmission Losses is conversely affected, in this example increasing.

The Proposer believes that these effects are justified by the characteristics of the network arrangements and reflect a cost reflective allocation of energy volumes to the participants involved.

Explanation of legal text

P270 concerns the application of Line Loss Factors (LLFs) to particular types of GSP, and will not affect the application of LLFs relating to Boundary Points. The two main aspects of the P270 solution are:

- Introduce a distinction between GSP types based on how they are connected to the Transmission System; and
- Enable LLFs to be assigned to appropriate GSP types.

Changes to BSC Sections K and X are proposed to support this approach. The changes are detailed in Attachment A. This section explains the intent of the changes and how they are intended to deliver the P270 Proposed Solution.

Note that the group considered using the term 'Interconnected' in the text (e.g. Interconnected Transmission System, etc) but felt that this might be potentially confusing given the provisions in the BSC relating to Interconnectors and the use of the term 'Main Interconnected Transmission System' (MITS) in the Transmission Charging Methodology (which has a similar intent, but is not equivalent to, the P270 term). The group therefore agreed to use the term 'contiguous' to describe a network being interconnected in the sense intended by P270 on the basis that they believed this would be clearer and less ambiguous.

Section K, Classification and Registration of Metering Systems and BM Units

Remove the words 'at a Boundary Point' from K1.7.3 in order to avoid limiting the application of this provision to Boundary Point LLFs, i.e. excluding Remote Grid Supply Point LLFs.

Section X, Definitions and Interpretation

- **Annex X-1, General Glossary**

  Add definitions of:

  1. **Contiguous Transmission System:** to specify a subset of the overall Transmission System which is the 'main' Transmission System by reference to the number of GSP Groups to which a network is connected by unbroken Transmission

Assets. The intent is that isolated parts of the Transmission System which are subject to the P270 provisions are not captured by this definition;

2. **Contiguous Transmission System Boundary:** to define where a boundary is part of the 'main' system by building on the first new definition, above. The wording reflects the existing Transmission System Boundary definition (which remains in the BSC); and
3. **Remote Grid Supply Point:** this is the type of GSP that will fall under the P270 provisions, i.e. will be able to have a LLF applied to them.

- **Annex X-2, Technical Glossary**

  Amend the definition of CVA Line Loss Factor to extend it to cover Remote Grid Supply Points. The new provision applying to Remote Grid Supply Points will reflect the wording for the existing provision relating to Boundary Points on a Distribution System, which is not impacted by P270.

Question 2
Are there alternative solutions that the Modification Group has not identified, that they should consider?

Question 3
Would the P270 Proposed legal text deliver the Proposed solution?

Question 4
Do you believe that the P270 Proposed solution, or the legal text drafted to deliver that solution, would have any consequences not intended by the P270 Workgroup? For instance, would any GSPs fall under the P270 solution beside those intended to be captured?

4 Impacts

ELEXON believes that besides the Code changes as set out in the attached legal text, the only impact of the P270 solution on BSC documentation would be to update BSCP128 to reflect the Code changes. We believe central systems can support the allocation of LLFs to GSPs without change and do not believe any other BSCPs are affected by the P270 solution – we will seek to confirm this in parallel with this consultation.

The group did not identify any direct impact of P270 implementation on participants besides the impact on LLF calculations for LDSOs that have Remote GSPs (as defined by P270) on their Distribution Systems.

There would be some effect on users of affected Distribution Systems (Suppliers and CVA registered generators) due to impact on other LLFs in the Distribution System, Suppliers through impact on GSP Group Correction in affected GSP Groups, and on all Transmission users through the impact on Transmission Losses. Possible Distribution/Transmission Loss incentive impacts are outside the scope of the BSC and have not been assessed in detail.

Question 5

Would implementation of the P270 Proposed solution impact your organisation? Please detail any impacts, quantifying approximate costs and timescales.

Impacts

Impact on BSC Agent	
CDCA	Possible impact due to need to include LLFs in Aggregation Rules for Offshore Transmission Connection Points

Impact on BSC Parties and Party Agents
LDSOs: LLF calculation and calculated Distribution System losses (and GSP Group Take)
Suppliers: no implementation impact (but effects from impact on GSP Group Take and/or Line Loss Factors for other connections in the GSP Group)

Impact on Transmission Company
Responsible (as NETSO) for Offshore Transmission Connection Points assigned LLFs

Impact on ELEXON	
LLF validation	ELEXON audits and approves LLFs calculated by Distributors, and under P270 would do so for LLFs calculated for remotely connected GSPs

Impact on Code	
Section K Classification and Registration of Metering Systems and BM Units	Amend to allow LLFs for Remote Grid Supply Points
Sections X Definitions and Interpretation	Add and amend definitions to support the P270 solution

Impacted Code Subsidiary Documents
BSCP128 Production, Submission, Audit and Approval of Line Loss Factors

5 Implementation

The group noted that, subject to confirmation from participants and service providers, the only central impact of P270 is the Code change required to support the P270 solution. ELEXON believes that changes are required only to BSCP128 to support the P270 Code changes, and these can be made after the Code changes, to avoid delaying implementation of P270. We do not believe the BSCP changes are required to enable LDSOs to calculate LLFs for Remote GSPS in existence at the time P270 is implemented, though they will be useful to clarify the arrangements going forward.

ELEXON will confirm the BSCP impacts of P270 and assess the effort required to update them, and this information will be included in the Modification Report and taken into account in the group's final recommended implementation approach.

LDSOs affected by the P270 issue (i.e. with a Remote GSP on their Distribution System) would need to calculate the necessary LLFs, amending their LLF methodologies as necessary to do so. However, the only currently existing Offshore Transmission Network, was in operation prior to the OFTO regime and therefore has historical operational data and previously had an LLF. Only a limited number of other Distribution-connected Offshore Transmission Networks will be created (six are planned, with no more expected) and the impact of the P270 issue is not as material for these prospective networks. The impact on P270 on LDSO is therefore believed to be manageable.

The driver to implement P270 is that until it is in place any LDSOs that are impacted by the P270 issue will experience material impact (in the Proposer's view distortion) to the allocation of losses on their Distribution System.

Implementation Approach

It is proposed that the Code changes to implement P270 should be made five days after approval is received from the Authority, and this will be the Implementation Date of P270. The supporting changes to BSCP128 can then be made in the next BSC Release to minimise impact on Parties and maximise the efficiency of document changes.

The group therefore initially recommended that the Implementation Date of P270 should be five days after approval is received from the Authority, with supporting document changes being made in the next available BSC Release.

Question 6
Do you agree with the proposed P270 implementation approach?

Workgroup discussions

The Group believed that the key question underlying P270 is whether it is justifiable, in the particular circumstances identified by P270, to effectively shift the cost of losses occurring on a Distribution System into the overall Transmission Losses allocated on a uniform basis between all generation and demand customers on the Transmission System.

The Proposer believed that the P270 approach would be appropriate because it would make the losses consequences of transmission connection and operation decisions visible to the Transmission Company. The Proposer believed the equality of treatment of onshore and offshore Transmission connected generation would be maintained under P270.

The view of some group members was that the P270 approach was not appropriate. A member noted that there are currently no circumstances where Transmission Losses include Distribution losses, and commented that whereas prior to the OFTO arrangements the embedded BM Unit received an LLF and picked up the cost of Distribution System losses, under P270 the cost would be socialised via the Transmission Losses arrangements.

A member that did not support P270 suggested that it would be discriminatory to identify a particular part of the Transmission System and apply an LLF to it. This member believed that the P270 issues could be handled under the LLF methodologies without change to the BSC.

The Proposer argued that accommodating Distribution Losses associated with embedded transmission would inevitably result in distortion of the losses costs for other connectees to the Distribution System, whether by affecting the site specific LLFs of a limited number of users or by socialising across all Distribution System users.

A member considered this issue part of a wider issue of flows between GSPs, both from and to Transmission across Distribution Systems (as in this case) and from and to Distribution Systems across Transmission, due to embedded generation. Output of embedded generators could significantly affect flows from individual GSPs on a Distribution System, affecting Distribution (and Transmission) losses in a manner that could be significant and difficult to predict.

This member did not believe it was obvious that the type of GSP identified by the P270 solution was different to other GSPs; some, most or all of the flow entering a Distribution System might be used within that Distribution System, even if an Offshore Transmission System is isolated from the rest of the transmission system. The member felt this situation would not be significantly different from that of conventional GSPs, and therefore to focus on the particular situation identified by P270 could be viewed as discriminatory.

Some of the group felt that, in practice, it was unlikely that P270 would have any effect on future connection decisions for offshore networks. Since embedded benefits are not applicable to embedded transmission connections it is unlikely that new offshore networks will consider connection via Distribution System.

A member noted that while they were by no means satisfied with the OFTO arrangements overall they were also keen not to introduce small exceptions/discriminations into the arrangements.

Materiality of P270 issue

The group assessed the materiality of the instance of the P270 issue that was the driver for the raising of P270, the Robin Rigg site whose connection was the first to be designated under the OFTO regime, at the beginning of March 2011. As such an LLF cannot be applied to either the Robin Rigg generator itself or the point of its connection to the Distribution System.

The group estimated the approximate annual output of Robin Rigg as 473,040MWh per year. This was determined by multiplying the calculated annual output of the generator (based on its stated capacity of 180MW) by an approximate load factor of 0.3.

The group estimated the materiality of the P270 issue as **14191MWh per year** using the LLF of .97 that was applied to Robin Rigg prior to the OFTO regime. This is the approximate volume of energy that would need to be smeared across users of the Distribution System each year or, under P270, would be shifted into Transmission Losses.

The group estimated the monetary value of this as approximately **£850,000 per year** by applying a value of £60 per MWh.

The Robin Rigg connection is the only significant example of the P270 issue identified (either currently extant or potentially occurring in the future). The materiality of other prospective Distribution System-connected Offshore Transmission connections will be calculated when approximate LLF values for the connections have been determined, though the materiality is anticipated to be significantly less than Robin Rigg as the LLFs involved are closer to one. The overall impact of the aggregated materiality of P270 will be used to estimate the impact on Transmission Losses of the transfer of the loss effects. This information will be included in the P270 Report Phase Consultation.

Question 7

Do you agree with the group's assessment of the materiality of P270 and the identified analysis? If not, please specify why and identify any additional analysis you believe should be undertaken.

Consideration of P270 and P242

Though not directly related to P270, rejected Modification P242, 'Treatment of Exemptable Generation Connected to Embedded Offshore Transmission Networks,' proposed changes to preserve the status quo for some participants impacted by the Offshore Transmission Arrangements.

P242 sought to allow Offshore Exemptable Generators that connect onshore to a Distribution System the option of being treated in the same way as onshore Exemptable Embedded Generators. Under the Offshore Transmission Arrangements such generators must be treated the same as directly-connected Generators.

The Authority rejected P242 because it considered that it would be inappropriate to introduce different treatment within the category of transmission connected generation, that seeking to amend the arrangements would arguably decrease regulatory certainty and hinder effective competition, and that P242 would not promote cost reflective charging and in any case the issues identified do not fall under the BSC.

There are similarities in the areas concerned by P242 and P270 (i.e. both were raised in response to changes resulting from introduction of the offshore regime and both aim to retain the status quo in particular areas in some circumstances). The group considered the issues identified by the P242 decision to try to give a view on whether they have any

relevance to P270. Further information on P242 can be found on the P242 webpage on the ELEXON website.

ELEXON analysis

To try to understand and compare how P242 and P270 relate to the intent of offshore transmission policy ELEXON reviewed the work of the Offshore Transmission Embedded Transmission Working Group (OTETWG). The OTETWG met three times in January 2008, and produced a report (which can be found on Ofgem's website).

Section 4 of the report appears to recognise that the Generator should be treated as directly connected, not embedded. Paragraph 4.1 states that 'The power station would be transmission connected but the transmission connection would be connected via a distribution system'.

Section 5 appears to conclude that the LDSO should treat an OFTO connection in the same way as other users of the Distribution System. Paragraph 5.7.5 reads:

> OTETWG noted that under the DCUSA, users of the distribution system are responsible for installing settlement metering. **OTETWG recommends** that current BSC and/or DCUSA arrangements should be developed to ensure that a distribution licensee is able to treat offshore transmission connections consistently to other types of customer connections to the distribution system.

The OTETWG conclusions were reflected the June 2008 Ofgem/BERR Regulatory Policy Update (available from Ofgem's website). This Update included explicit discussion of transitional arrangements for existing schemes, and stated that it was not appropriate to give them TNUoS benefits. ELEXON's interpretation is that:

- It was perceived that approval of P242 would have nullified a policy intent explicitly stated by Ofgem/BERR; but
- The P270 solution appears to be consistent with the OTETWG views and therefore Ofgem/BERR policy intent.

Group discussions

The views of the group were split on the nature of the relationship, if any, between P242 and P270.

The Proposer believed that P270 should be assessed on its merits against the Applicable BSC Objectives, but that the P270 solution does not conflict with any of the reasons given for the rejection of P242. P270 is specifically aimed at the connectee to the Distribution System, i.e. the NETSO, and is not attempting to change the arrangements between the NETSO and the Offshore Generator.

Furthermore, the Proposer noted that P270 specifically seeks to identify all Transmission/ Distribution connection points whose characteristics meet the P270 criteria, and not restrict the P270 provisions to Offshore Transmission Connection Points. The intention is to link the P270 solution to the physical characteristics that drive the need for an LLF, i.e. not designate the issues identified by P270 as solely relating to the OFTO arrangements.

One member did not believe P242 had any relevance to the assessment of P270, noting that the assessment of Modifications under the BSC should be based on whether or not the Applicable BSC Objectives would be better facilitated by the proposed change.

Further to this overall view that considerations relating to P242 were irrelevant and inappropriate for assessment of P270, the member also disagreed with ELEXON's analysis

in a number of areas. In relation to the OTETWG's views, they felt that the OFTO arrangements contain inconsistencies because they were also a product of Use of System Charging Methodology Modification Proposal GBECM-08, 'Introduction of charging arrangements associated with Offshore Transmission Networks'. The member also felt that approval of P270 would contradict the rejection of P242 by designating the Offshore Transmission Network connecting the generator to the Distribution System as not part of the 'main' Transmission System

Another member disagreed with ELEXON's analysis because they believed that, although it appears that it is intended that 'embedded transmission' be subject to DUoS charges in the same manner as any other Distribution System user, this does not explicitly apply to LLFs.

This was based on feedback from Ofgem in relation to another BSC change (CP1343) that 'Our understanding is that change proposal 1343 regarding line loss factors for customers metered at primary substations does not interact with the calculation and billing of use of system charges to HVS customers. If that is the case we have no reservations with the proposals at this point in time', which the member interpreted to mean there is no association between DUoS charges under the DCUSA and LLF allocation under the BSC.

The rest of the group considered ELEXON's analysis and did not have any strong views on the matter. Overall, the group did not identify any issues relating to P242 that they felt would affect their assessment of P270 against the Applicable BSC Objectives or that they believed should be brought particularly to the attention of the Authority.

Potential interaction between P270 and P229

The group noted that P270 would effectively shift the cost (or saving) resulting from the effect of a Remote GSP on the losses on a Distribution System from others users of the Distribution System to the Transmission Loss costs of participants that are connected to the Transmission System. P229, 'Introduction of a seasonal Zonal Transmission Losses scheme', which is currently awaiting an Authority decision, would change how Transmission Losses are allocated from a uniform national approach to zonal allocation.

While acknowledging that P270 must be assessed against the existing Code baseline, the group therefore believed it would be prudent to consider how P229 and P270 would interact if both were approved. Under P229 there are two separate mechanisms for apportioning transmission losses:

- **A locational mechanism** (implemented using TLFs)

  Each BM Unit is given a TLF, which is calculated using a Load Flow Model of Nodes on the Transmission System and reflects variable losses on the Transmission System. The TLF values do not reflect any losses on the distribution system caused by OFTO networks (page 8 of the P229 Modification Report: "Because losses over Distribution Systems are not Transmission Losses they would be excluded from TLF calculation").

- **A non-locational mechanism** (using TLMOs as currently)

  This mechanism allocates all the Transmission Losses that aren't included in the TLF value, socialising them across users, while maintaining the current 45/55 overall split between generation and demand.

If both P229 and P270 are implemented losses on a Distribution System resulting from an OFTO connection would not be reflected in the TLF calculation, but would be smeared across all users via the TLMO, just as they would be under P270 without P229. The group therefore agreed that P229 does not have any significant interaction with P270.

LLF definition and LLF Methodologies

In developing the P270 solution the group noted that the BSC definition of an LLF is that it converts data into an equivalent value at the Transmission System Boundary. However, the group questioned whether this relatively straightforward description was fully reflective of the determination of LLFs, which it noted is complex and must accommodate the variable (non-linear) element of losses on the distribution system.

The group did not reach a view on whether there are inconsistencies between the BSC definition of LLF and how LDSOs calculate LLFs, but agreed any such issues around the relationship of the BSC LLF definition and LDSOs' LLF methodologies are outside the scope of P270.

Retrospection

The P270 Modification Proposal suggested that the P270 solution should be applied retrospectively, though only back to the first OFTO appointment at the beginning of March.

The group considered the guideline criteria that Ofgem has previously noted in relation to the retrospective application of changes. The group agreed that retrospection does not appear to be justified for P270. The Proposer agreed not to include retrospective application as part of the solution for industry consultation, but noted that they would further consider this and would like to know the views of industry participants.

Question 8
The P270 Proposed solution as presently drafted is **not** retrospective. Do you agree with this approach, i.e. that the P270 provisions if approved should apply prospectively?

Group's initial views against the BSC Objectives

The initial majority view of the group was that overall P270 Proposed **would not** better facilitate the Applicable BSC Objectives compared with the existing Code baseline. The majority of the group (five) believed P270 would not improve on the baseline. Two group members believed P270 would be better overall than the current baseline.

Question 1
Would Proposed Modification P270 help to achieve the Applicable BSC Objectives?

The views of the group are summarised below. Not all members whose views aligned on the overall effect on a particular Objective necessarily agreed with all the arguments put forward in relation to it.

Applicable BSC Objectives - pros and cons

	Benefits	**Disadvantages**
(a)	**One member -** positive impact: Losses arise in a GSP Group become visible to the Transmission Company, potentially promoting efficient network design because losses can be taken into account when considering Distribution System or Transmission-only connection approach	**Majority -** neutral impact **One member -** negative impact: Although overall actual losses would be the same, losses attributed to Transmission would increase, which in relation to Transmission System efficiency is not beneficial

(b)	**Three members** - positive impact: Minor/marginal efficiency benefit due to increased visibility of losses caused by non-interconnected Transmission	**Three members** - neutral impact **One member -** negative impact: Although overall actual losses would be the same, losses attributed to Transmission would increase
(c)	**One member** - positive impact: Remove loss allocation distortions, resulting in appropriate and cost reflective signals, meaning: • Appropriate losses are used in calculating LLFs for other sites on a Distribution System • Losses impact of connection via Distribution System instead of direct connection to the Transmission System (via new transmission lines) is visible to the Transmission Company	**Majority** - negative impact: • Tries to solve a losses incentive problem under BSC • Effectively transfers cost of Distribution System losses to Transmission connectees, which penalises GB Transmission System users • Cost reflectivity might be increased but singling out some GSPs and not others is not justified, and therefore ultimately not good for competition **Two members** - neutral impact
(d)	**One member** - positive impact: Promotes efficiency and clarity in the administration of audit and approval of LLFs under the BSC	**Majority** - neutral impact **One member** - negative impact: Increases complexity of BSC by treating types of GSP differently

The group noted that as well as the considerations against the Objective set out above, P270 may have impacts outside the BSC, such as upon LDSOs' losses incentives schemes. While the group must assess P270 against the Applicable BSC Objectives, they recognised that the Authority's decision will be made with regard to its wider statutory duties, and therefore agreed to invite views from Parties on any benefits or disadvantages outside the BSC that they believe are associated with P270.

Question 9
Do you believe P270 has any benefits or disadvantages that are outside the scope of the BSC (for example an impact on losses incentives)? If so, please specify.

7 Further Information

More information is available in:

Attachment **A**: Draft Legal Text Proposed

Attachment **B**: Assessment Consultation response form

Additionally, all consultation and impact assessment responses received, and all other P270 documentation, will be available on the P270 page of the ELEXON website.