Stage 03: Attachment A: Detailed Assessment for P269

P269 'Prevention of Base Trading Unit BMUs' Account Status Flipping from Consumption to Production'

What stage is this document in the process?

01 Initial Written Assessment

02 Definition Procedure

▶ 03 Assessment Procedure

04 Report Phase

Contents

About this document:

This is Attachment A to the P269 Assessment Consultation Document. It provides additional details of the Workgroup's analysis and assessment.

1 Background – current rules and operational process

What are the Code's current P/C Status rules?

Rules for non-Exempt Export BM Units

Section K3.5 of the Balancing and Settlement Code ('the Code') states that a BM Unit shall normally be classified as having a Production/Consumption (P/C) Status of "Production" (i.e. it shall be a Production BM Unit) where it belongs to a Trading Unit for which the sum of the Relevant Capacities for all the BM Units in that Trading Unit is positive and greater than zero. The Code states that otherwise a BM Unit shall normally have a P/C Status of "Consumption" (i.e. it shall be a Consumption BM Unit).

This method of determining P/C Status is 'dynamic' in that the BM Unit's P/C Status can change at any time following a change to the composition of its Trading Unit and/or the Relevant Capacity values of any of the BM Units in the Trading Unit.

The two exceptions to this rule are:

- Interconnector BM Units, which are allocated in fixed Production/Consumption pairs whose P/C Status does not change; and
- Exempt Export BM Units, which have the option to choose their P/C Status.

Rules for Exempt Export BM Units

Section K3.5 of the Code allows the Lead Party for an Exempt Export BM Unit to independently elect whether the BM Unit's P/C Status is Production or Consumption, irrespective of the Trading Unit to which the BM Unit belongs.

This is an optional ability. In the absence of any election by the Lead Party, the Exempt Export BM Unit's P/C Status is by default determined dynamically (and may change) according to the sum of the Relevant Capacities of all BM Units in its Trading Unit.

How do the BSC Systems implement the current rules?

CRA systems contain two different P/C parameters for each BM Unit: P/C Flag and P/C Status. The P/C Flag setting dictates how a BM Unit's P/C Status is determined.

There are three possible settings for the P/C Flag:

- Production (P);
- Consumption (C); or
- Null.

Only Exempt Export BM Units (i.e. BM Units which have their Exempt Export Flag set to True within CRA systems) can choose their P/C Flag, and therefore how their P/C Status is determined. With the exception of Interconnector BM Units, the P/C Flag for all other types of BM Units is Null.

A Null flag means that the BM Unit's P/C Status is determined dynamically (and may change) according to the sum of the Relevant Capacities of all BM Units in its Trading Unit. A Null flag is therefore sometimes also referred to as a 'dynamic' flag.

If the Lead Party for an Exempt Export BM Unit has elected either a P or C flag, then its P/C Status is fixed accordingly as Production or Consumption in CRA systems and does not change unless the Lead Party makes another explicit P/C Flag election.

What is...?

The difference between a P/C Flag and a P/C Status?

The P/C Flag is the mechanism by which CRA systems record any P/C Status election by the Lead Party for an Exempt Export BM Unit. Only Exempt Export BM Units can elect their P/C Flag, and thereby their P/C Status.

The Lead Party for an Exempt Export BM Unit can explicitly elect to have a 'Null' flag, so that its P/C Status is determined dynamically at the Trading Unit level. In practice, this has the same effect as not making any election because 'Null' is the default setting for the P/C Flag. In the absence of any election by the Lead Party the P/C Flag for an Exempt Export BM Unit therefore remains Null, and the BM Unit's P/C Status is determined dynamically according to the sum of the Relevant Capacities of all BM Units in its Trading Unit.

Which Code Subsidiary Documents refer to P/C Status?

BSCPs 15 and 31

BSCPs 15 and 31 set out the detailed operational processes which support the Code requirements.

BSCP15 contains the processes for registering Supplier Base BM Units and Additional BM Units, applying for and granting Exempt Export BM Unit status, electing the P/C Flag of an Exempt Export BM Unit, and submitting GC/DC values.

BSCP31 contains the processes for registering Trading Units. It includes an explanation of Base Trading Units and how P/C Status is determined for BM Units in Trading Units.

CRA Service Description

The Service Description describes the CRA's responsibilities and obligations regarding BM Unit registration data, including P/C Status.

The current Service Description wording is inconsistent with the Code regarding the P/C Status rules for Exempt Export BM Units. You can find further details in the separate P268 Assessment Consultation Document.

2 P269 operational solution

P269 will amend the CRA systems' P/C Status calculation for a BM Unit as follows:

- If the BM Unit's Base Trading Unit Flag is 'False' and its P/C Flag is 'Null', then the normal rules shall continue to apply (i.e. the BM Unit's P/C Status will be calculated dynamically according to the sum of the Relevant Capacities for all the BM Units in its Trading Unit);
- If the BM Unit's P/C Flag is not 'Null', but is specified as either P or C, then the normal rules shall continue to apply (i.e. regardless of its Trading Unit, the BM Unit's P/C Status will be either Production or Consumption as determined by the flag setting);
- **If the BM Unit's Base Trading Unit Flag is 'True' and its P/C Flag is 'Null', then its P/C Status shall be Consumption.**

P269 does not impact any reporting flows. For example, the CRA-I014 will still report each BM Unit's P/C Flag, P/C Status and GC/DC values in the same way as currently.

Interaction with P268

P268 seeks to remove the ability for Exempt Export BM Units to have a Null P/C Flag by choice or default, so that each Exempt Export BM Unit must elect a P/C Flag (and thereby a fixed P/C Status) which is either Production or Consumption.

P269 does not change the rules by which Exempt Export BM Units elect their P/C Flag/ Status. The above systems solution ensures that P269 only allocates a Consumption P/C Status to those BM Units which are in Base Trading Units and have a 'Null' P/C Flag. This solution will therefore work whether:

- P268 is approved (and all Exempt Export BM Units have P/C Flags which are either P or C); or
- P268 is rejected (and Exempt Export BM Units can continue to have P/C Flags which are either P, C or Null).

Impact on Code Subsidiary Documents

Minor amendments to BSCP31 will be needed to clarify the new P/C Status rules for BM Units in Base Trading Units. To avoid any possible confusion, clarifications will also be added to the sections of BSCP15 which deal with Supplier BM Units, Exempt Export BM Units and P/C Status.

The CRA Service Description will be updated to reflect the new P269 rules.

The Panel will consult on the redlined changes to these documents during July 2011. You can find a copy of the draft redlined Code changes in Attachment B.

3 Worked examples of P269 issue

What could cause a Base Trading Unit to 'flip'?

In this simplified hypothetical example there are three Supplier BM Units (BM Units 1-3) in a Base Trading Unit.[1] Each of these BM Units has a different Lead Party. Each Lead Party will supply estimates of their BM Unit's GC and DC for the BSC Season.

BM Unit	GC	DC	Relevant Capacity	Sum of Relevant Capacities means:
BMU1	0 MWh	-100 MWh	-100	**P/C Status is C**
BMU2	0 MWh	-50 MWh	-50	
BMU3	100 MWh	-50 MWh	100	
			-50	

Here, the sum of the BM Units' Relevant Capacities is less than zero (-50 MWh), meaning that the Base Trading Unit (and all three Supplier BM Units in that Trading Unit) will have a P/C Status of Consumption.

[1] In reality, each licensed Supplier will have at least one BM Unit (its Base BM Unit, plus any Additional BM Units it has chosen to register) in every Base Trading Unit/GSP Group.

In this example, Supplier BM Unit 3 already has a GC (100 MWh) which is bigger than its DC (-50 MWh).

Let's assume that an increase in the level of embedded generation within the GSP Group means that BM Unit 3 re-declares an even bigger GC value (160 MWh) part-way through the BSC Season.

BM Unit	GC	DC	Relevant Capacity	Sum of Relevant Capacities means:
BMU1	0 MWh	-100 MWh	-100	**P/C Status is P**
BMU2	0 MWh	-50 MWh	-50	
BMU3	160 MWh	-50 MWh	160	
			10	

The sum of the three Supplier BM Units' Relevant Capacities is now positive and greater than zero, which will flip the Base Trading Unit (and the P/C Status of all three Supplier BM Units in that Trading Unit) to Production.

What happens if the Supplier BM Units' GC/DC values don't change, but we introduce a new Exempt Export BM Unit?

Let's go back to the original GC and DC values for Supplier BM Units 1-3.

This time, rather than increasing BM Unit 3's GC value, we'll assume that a new embedded Exempt Export BM Unit (BMU4) joins the Base Trading Unit.

BM Unit 4's GC is bigger than its DC, so its Relevant Capacity is 180 MWh.

The sum of the four BM Units' Relevant Capacities is now positive and greater than zero, which will flip the Base Trading Unit (and the P/C Status of the three Supplier BM Units in that Trading Unit) to Production.

BM Unit	GC	DC	Relevant Capacity	Sum of Relevant Capacities means:
BMU1	0 MWh	-100 MWh	-100	**P/C Status is P**
BMU2	0 MWh	-50 MWh	-50	
BMU3	100 MWh	-50 MWh	100	
BMU4	180 MWh	-20 MWh	180	
			130	

If the Lead Party for the Exempt Export BM Unit has chosen a fixed P/C Status of Production or Consumption, it will be unaffected. If not, its P/C Status will also change from Consumption to Production in line with the Trading Unit.

How big would a change in a single Supplier BM Unit's GC/DC values need to be for a Base Trading Unit to 'flip'?

This depends on both the previous values of that BM Unit and the Relevant Capacity values of the other Supplier and Exempt Export BM Units in the Base Trading Unit.

However, a marginal change could potentially have a big effect as shown below.

In this example, Supplier BM Unit 3 has GC and DC values which are equally balanced. But because the sum of its GC and DC values is zero, its Relevant Capacity is its DC value.

BM Unit	GC	DC	Relevant Capacity	Sum of Relevant Capacities means:
BMU1	0 MWh	-40 MWh	-40	
BMU2	0 MWh	-40 MWh	-40	**P/C Status is C**
BMU3	100 MWh	-100 MWh	-100	
			-180	

However, if BMU3 increases its GC value to 110 MWh, this will flip its Relevant Capacity to its GC value (from -100 MWh to 110 MWh). A 10 MWh increase in the Supplier's GC value therefore results in a 210 MWh increase in its Relevant Capacity value. Because the combined Relevant Capacity values for BMUs 1 and 2 are now smaller than BMU3's new Relevant Capacity, this flips the Base Trading Unit (and the P/C Status of all three Supplier BM Units) to Production.

BM Unit	GC	DC	Relevant Capacity	Sum of Relevant Capacities means:
BMU1	0 MWh	-40 MWh	-40	
BMU2	0 MWh	-40 MWh	-40	**P/C Status is P**
BMU3	110 MWh	-100 MWh	110	
			30	

4 Workgroup's analysis results

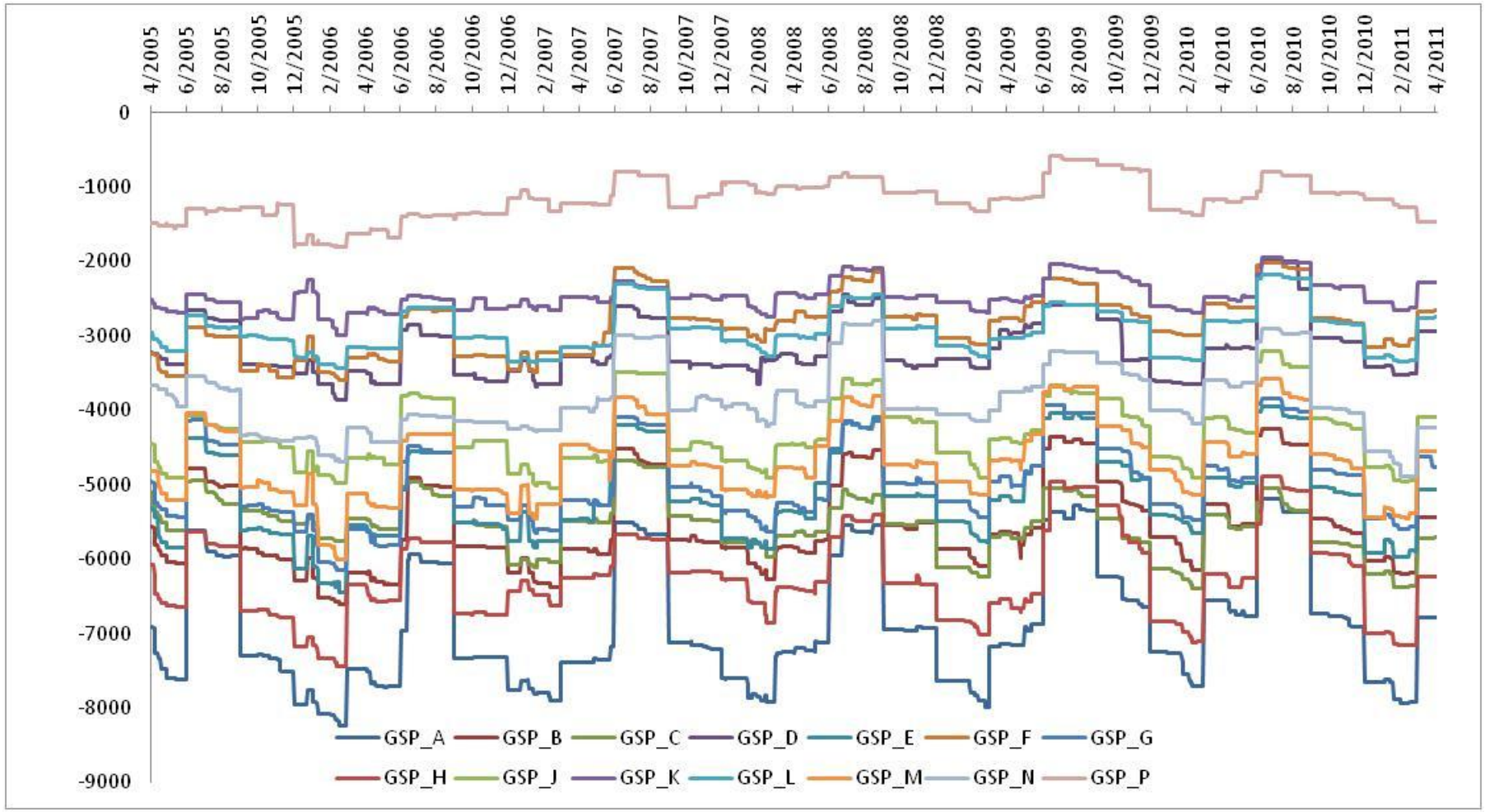
The graph on the following page shows the total Relevant Capacity values for each Base Trading Unit from April 2005 to April 2011. To flip to Production, a Base Trading Unit's total Relevant Capacity would need to become positive and greater than zero.

Based on the current Spring values, the North Scotland Base Trading Unit appears to be no closer to 'flipping' than it was in 2009 or 2010. However, there remains the possibility that its BM Units' GC/DC submissions for the Summer 2011 Season (which starts on 1 June) could cause its total Relevant Capacity to become positive and greater than zero.

As shown in Section 3's worked examples, marginal changes in GC/DC values can potentially have significant impacts on the Base Trading Unit's total Relevant Capacity. It is therefore possible that a 'flip' to Production status could occur suddenly rather than appearing on the graph as a gradual trend.

The Group will repeat the analysis as soon as the Summer values are in CRA systems. It has also agreed that ELEXON should include this graph in its monthly Trading Operations Report to the Panel from July 2011, showing Base Trading Units' total Relevant Capacities over a rolling 24-month period.

Total Relevant Capacity of each Base Trading Unit from BSC Spring 2005 to BSC Spring 2011



GSP Group ID	GSP Group Name	GSP Group ID	GSP Group Name
A	Eastern	H	Southern
B	East Midlands	J	South Eastern
C	LE Distribution	K	South Wales
D	Merseyside & North Wales	L	South Western
E	Midlands	M	Yorkshire Electricity
F	Northern	N	South of Scotland
G	North Western	P	North of Scotland

5 P269 interaction with Credit Cover calculation

How is P/C Status used in the Credit Cover calculation?

A small part of the Credit Cover calculation for a BM Unit is based on:

- Its Final Physical Notification (FPN) value, if the BM Unit is a Credit Qualifying BM Unit or an Interconnector BM Unit; or
- Its GC or DC value multiplied by its CALF value, if the BM Unit is not a Credit Qualifying BM Unit or an Interconnector BM Unit.

The calculation only uses these values for a short period immediately after the Settlement Day (2 Working Days for FPNs or 5 Working Days for GC/DC). You can find more details on ELEXON's website here. P253, which will be implemented in November 2011, does not impact these rules.[2]

A BM Unit is a Credit Qualifying BM Unit if is not an Interconnector BM Units, submits FPNs and meets one of the following additional criteria:

- It is a Production BM Unit (i.e. its P/C Status is Production);
- It is an Exempt Export BM Unit (regardless of whether its P/C Status is Production or Consumption); or
- The Panel has granted it Credit Qualifying status on the grounds that the BM Unit was a net exporter of electricity over the previous 6 months.

P215 introduced the concept of a Credit Qualifying BM Unit in 2009.[3] The P215 Workgroup's intention was to capture all 'generation' BM Units through this definition. You can find the full definition in BSC Section K3.7.

For BM Units which are not Credit Qualifying, and which are not Interconnector BM Units, it is normally the BM Unit's P/C Status (not its individual Relevant Capacity) which determines whether its GC or its DC value is used in its credit assessment.

P/C Status is determined at the Trading Unit level according to the sum of all BM Unit Relevant Capacities in the Trading Unit. As a result, any BM Unit in a Trading Unit with other BM Units may have a Production P/C Status even if its individual Relevant Capacity is DC (i.e. <=0), and a Consumption P/C Status even if its individual Relevant Capacity is GC (>0).

For BM Units which are not Credit Qualifying BM Units or Interconnector BM Units, the credit calculation normally uses:

- GC * CALF, if the BM Unit's P/C Status is Production; or
- DC * CALF, if the BM Unit's P/C Status is Consumption.

However, there are two exceptions to this rule:

1) BSC Section M1.2.3 states that if a BM Unit is not Credit Qualifying or an Interconnector BM Unit, and is a Production BM Unit with an individual Relevant Capacity which is <=0, then its credit assessment is based on its DC. P215 introduced this exception, which is implemented in CRA systems through a 'Demand in Production' flag.

Which BM Units submit FPNs?

The Grid Code sets out which BM Units are required to submit FPNs to the Transmission Company.

Currently, any generator or Supplier which is >50MW must submit FPNs. However, the Transmission Company does not actively monitor/ use Supplier FPNs.

BM Units can also choose to participate in the Balancing Mechanism and submit FPNs even if they are not required to do so.

[2] Approved Modification P253 'Improving the accuracy of the credit calculation for SVA participants'.
[3] Approved Modification P215 'Revised Credit Cover Methodology for Generating BM Units'.

2) There is no mirror exception rule in BSC Section M or CRA systems for any Consumption BM Units whose individual Relevant Capacity is GC (i.e. >0). DC values will therefore normally be used for all BM Units with a Consumption P/C Status even if their individual GC>DC. However, Section 5 of the CALF Guidance Document maintained by the ISG allows any Supplier BM Unit which contains SVA embedded generation to apply for a special negative CALF value. This negative CALF is based on a combination of the BM Unit's GC and DC for both the relevant BSC Season and a reference BSC Season, and it therefore takes the BM Unit's embedded generation into account.

How does this interact with P269?

However, P269 does have credit implications for Non-Credit Qualifying Exempt Export BM Units and all Supplier BM Units as explained below.

Until now, all Supplier BM Units have always had a P/C Status of Consumption because all Base Trading Units have been Consumption. In theory, any Supplier BM Unit which has been a consistent net exporter of electricity for 6 months could apply to the Panel to become Credit Qualifying – although none have in practice.[4]

If a Base Trading Unit flips to Production then each Supplier BM Unit in that Base Trading Unit, and each Exempt Export BM Unit in that Base Trading Unit which has not elected a specific P/C Status of Production or Consumption, will become a Production BM Unit. For each of these BM Units, this means that:

- If it is a Supplier BM Unit which already submits Final Physical Notifications (FPNs), it will automatically become Credit Qualifying. Part of its credit assessment will therefore be based on its FPN rather than its GC or DC as currently. This situation does not appear to have been the intention of P215.
- If it is an Exempt Export BM Unit which already submits FPNs, then it will already be Credit Qualifying and its credit assessment will be unaffected by its change in P/C Status.
- If it is a Supplier BM Unit or an Exempt Export BM Unit which does not submit FPNs, and the sum of its GC and DC values is <=0, then it will not become Credit Qualifying and part of its credit assessment will continue to be based on its DC as currently using the P215 'Demand in Production' rule. Any Supplier BM Unit which contains SVA embedded generation and has applied for a special negative CALF value will continue to have this applied to its DC value as currently. However there may be implications of using the 'Demand in Production' flag in a way which P215 did not intend, and further investigation of these would be needed.
- If it is a Supplier BM Unit or an Exempt Export BM Unit which does not submit FPNs, and the sum of its GC and DC values is >0, then it will not become Credit Qualifying. However, its change in P/C Status will mean that part of its credit assessment becomes based on its GC rather than its DC as currently. If it is a Supplier BM Unit which has previously applied for a negative CALF value, this may have unintended consequences when applied to a positive GC value rather than the negative DC value it was designed for.

What is...?

A CALF value?

With the exception of Interconnector BM Units, each BM Unit has a Credit Assessment Load Factor (CALF) value. This CALF value is a measure of the BM Unit's average generation/demand as a ratio of its maximum for the current BSC Season.

CALF values are calculated for each BM Unit in each BSC Season. They are normally based on the BM Unit's Metered Volumes from the equivalent BSC Season in the previous year.

The Lead Party for a BM Unit can appeal its assigned CALF value to the ISG if it believes it is inaccurate.

You can find more information on ELEXON's website here.

[4] Note that this is different to having a GC>DC. GC and DC values are maximum estimates for a BSC Season, whereas any application for Credit Qualifying status would relate to the BM Unit's actual net Metered Volume over 6 months (which may span more than one season).

P269 will fix the P/C Status of all Base Trading Units (and therefore all Supplier BM Units) as Consumption regardless of the Relevant Capacities of BM Units in the Trading Unit.

This means that, even if the Base Trading Unit has a total Relevant Capacity >0, no Supplier BM Units will become Credit Qualifying. All Supplier BM Units will continue to have their credit assessment based on their DC values. Any Supplier BM Units which have applied for negative CALF values to reflect their embedded generation will continue to have these applied to their DCs rather than their GCs. In that sense, it preserves the status quo.

However, the P269 solution does interact with the arrangements for Supplier BM Units whose GC>DC as follows.

The vast majority of Supplier BM Units currently have zero GC values. However, the growth of embedded generation increases the possibility that over time more Supplier BM Units have GC values >0, and which may even exceed their DC values. There are already a small number of Supplier BM Units whose GC>DC, and more with GC>0. Not all of these Suppliers have applied for special CALF values; the rest continue to have their credit calculation based on DC because they are currently in Consumption Base Trading Units.

The issue therefore already exists where a Supplier BM Unit may have a positive Relevant Capacity but a P/C Status of Consumption and a credit calculation based on DC. This issue is largely independent of P269. However, there is an indirect link in that P269 will fix all Base Trading Units as Consumption.

The Group considers that this issue is largely independent of P269, and that in the short-term P269 does not make it any better or worse. There would only be an interaction if, over time:

- Increased embedded generation means that many more Supplier BM Units have GCs which exceed their DCs; and
- One or more Base Trading Units regularly has a total Relevant Capacity which is positive and greater than zero; and
- P269 fixes these Base Trading Units as Consumption where they would otherwise be Production.

This would mean that either that the credit assessment for these Supplier BM Units would still be based on their DC values multiplied by a normal CALF value, unless they had voluntarily applied for negative CALF values to take their non-zero GCs into account.

It is also possible for a non-Credit Qualifying Exempt Export BM Unit to have a Consumption P/C Status (and a credit assessment based on its DC) but an individual GC>DC. Again, this is a known issue described in the existing CALF Guidance Document. However, because Exempt Export BM Units can choose their P/C Status regardless of the sum of BM Unit Relevant Capacities in their Trading Unit, and because their individual Relevant Capacity is always likely to >0, they always have the option to choose whether their GC or DC is used for credit purposes by making a specific P/C Status election. P269 will not change this existing ability (and P268 will indirectly make the credit rules for Exempt Export BM Units slightly clearer by ensuring that all Exempt Export BM Units elect a specific P/C Status of either Production or Consumption).

What is the best way to progress this issue?

If a Supplier BM Unit has a GC>DC, this does not necessarily mean that the BM Unit is a net producer of electricity. This is because GC and DC are maximum, not average, values. On average, a Supplier BM Unit with GC>DC may therefore still be a net consumer of electricity. Amending the Credit Cover calculation to use GC for any Supplier BM Units whose GC>DC, or to base Supplier BM Units' credit calculation on their individual Relevant Capacity (i.e. either GC or DC, whichever is greater), would therefore not necessarily be a more accurate or appropriate way of determining Suppliers' required Credit Cover.

Supplier BM Units with GC>DC would still be able to voluntarily request special negative CALF values under P269. However, new BM Unit registrations are assigned initial (generic) CALF values because the BM Units have no historic (reference) GC/DC values.

Because of this:

- Any potential solution which makes negative CALF values mandatory for all Suppliers with GC>DC or GC>0 could experience difficulties in assigning such CALF values to new Supplier BM Units; and
- Because the generic CALF values used for new BM Unit registrations are based in part on the CALF values of other BM Units in the Trading Unit, if more and more Suppliers apply for negative CALF values this may have unintended consequences on other BM Units' generic CALF values.

The long-term solution to either the credit implications of 'flipping' or the interaction of the P269 solution with this known issue is therefore not obvious, and could require significant further analysis. The Group agrees with ELEXON's recommendation that this should be progressed separately through the ISG (as the owner of the CALF Guidance Document) once a decision has been made to approve or reject P269.

6 Workgroup's membership and Terms of Reference

Workgroup's membership and attendance

Member	Organisation	24/03/11	04/05/11
Adam Lattimore	ELEXON (Chair)	X (Kathryn Coffin stood in as Chair)	X (Steve Francis stood in as Chair)
Kathryn Coffin	ELEXON (Lead Analyst)	✓	✓
Colin Prestwich	Proposer's Representative	✓	✓
Bill Reed	RWE	✓	✓
Gary Henderson	Scottish Power	✓	✓
Andrew Colley	SSE	✓	X
Esther Sutton	E.ON	X	X
Martin Mate	EDF	✓	☎ (Part)

Attendee	Organisation	24/03/11	04/05/11
Diane Mailer	ELEXON (Lawyer)	X	X
Steve Francis	ELEXON (Design Authority)	X	✓
Paul Jones	E.ON	X	✓

Assessment Procedure timetable

Assessment activity	Date
Panel submits P269 to Assessment Procedure	10/03/11
P269 Workgroup meeting 1	24/03/11
BSC Agent/ELEXON impact assessment undertaken	01/04/11 – 18/04/11
P269 Workgroup meeting 2	04/05/11
Assessment Procedure consultation undertaken	20/05/11 – 10/06/11
P269 Workgroup meeting 3	16/06/11
Assessment Report submitted to Panel	08/07/11
Panel considers Workgroup's Assessment Report	14/07/11

Workgroup's Terms of Reference

Specific areas set by the Panel in the P269 Terms of Reference
What changes to BSC documentation, systems & processes are needed for P269?
To what extent can Suppliers mitigate the effects of the P269 issue under the current arrangements?
What is the best way to address the defect? • Should there be a process to notify Lead Parties in advance of changes in other BM Units' GC/DC values? • Should the P/C Status of Base Trading Units be fixed for the duration of a BSC Season?
How does P269 interact with P268? • Do the two solutions work independently and in combination with each other? • Are there any benefits in aligning the implementation of P269 with P268?
What are the impacts on, and benefits to, Lead Parties for BM Units in Base Trading Units?
Does P269 meet the criteria for progression as a Self-Governance Modification Proposal?