

P441 Digital Meeting Etiquette

- Welcome to the P441 Workgroup meeting 5 – we'll start shortly
- No video please to conserve bandwidth
- Please stay on mute unless you need to talk – use IM if you can't break through
- Talk – pause – talk
- Lots of us are working remotely – be mindful of background noise and connection speeds

ELEXION

P441 'Creation of Complex Site Classes'

Meeting 5

21 March 2023

Meeting Agenda

Objectives for this meeting:

- Determine the impacts of P441 on DUoS Charges
- Identify the impacts of P441 on BSC Documents, Processes and Systems
- Determine whether P441 will be subject to the EBGL process
- Provide an update on P441 interactions with the MHHS Programme
- Consider any potential solution(s) which may require further development for discussion at future meetings
- Confirm the next steps

Agenda Item	Lead
1. Welcome and meeting objectives	Keren Kelly (Elexon) – Chair
2. Workgroup meeting 4 summary and actions	Stanley Dikeocha (Elexon) – Lead Analyst
3. P441 Impacts (Documents, Processes, Systems)	Christopher Day (Elexon) – Design Authority
4. Impact of Class 5 Complex Site on DUoS Charges	John Lucas (Elexon) - SME
5. Line Loss Factors and Group Correction Factors	John Lucas
6. Will P441 impact the EBGL Provisions?	Stanley Dikeocha
7. Recap on Terms of Reference	Stanley Dikeocha
8. Next steps	Stanley Dikeocha
9. Meeting close	Keren Kelly



WORKGROUP MEETING 4 SUMMARY

Workgroup meeting 4 summary

- The third P441 Workgroup meeting took place on 21 February 2023 where the Workgroup:
 - Continued the discussion on DUoS Charges;
 - Discussed what should be considered as “Local” and “primary substations” under P441; and
 - Explored if the site arrangements under P441 should be forward looking only and not retrospective
- In regards to the DUoS charging arrangements, Elexon proposed that DUoS charges are calculated from gross consumption data (not the net data entering Settlement). While this could work for MC C and E, it could be problematic for MC F and G given that the LDSO receive consumption data from Settlement (which is not gross metered data). There were a few issues highlighted with the proposed approach:
 - Capacity of Boundary MPANs and impact on residual banding arrangements;
 - How generators who are currently classed as non-Final demand would be treated under this arrangement; and
 - Transparency of the proposed arrangement in line with the DCUSA Charging statements
- In regards to the “Local” and “primary substation” area, Elexon highlighted three options (with a preference for option 2) and welcomed feedback from the Workgroup. Some members felt that option 2 was more beneficial but felt that some work needed to be done to clearly outline the benefits and drawbacks of each option
- Elexon presented its initial view on whether the site arrangement should be forward looking only and not retrospective. Recognising that some aspect of the P441 solution could require retrospective updates, Elexon proposed a timeline of 12 months following the implementation of P441 for making the required retrospective updates. A member wanted clarity on what will happen if an existing Complex Site did not fall under a Complex Site Class as defined under P441

What should be considered “Local” and “Primary substation” – Benefits and Drawbacks

Options (Class 5 Complex Sites)	Benefits	Drawbacks
Option 1 – All MSIDs to be located within a specific geographical area	<ul style="list-style-type: none">Fairly easy to identify for Registrants and SVA MOAs.Could use postcode as identifier.Is in keeping with the intent of ensuring that Class 5 Complex Sites are kept at a "local" level and so does not undermine the quoted benefits of the Modification.	<ul style="list-style-type: none">Hard to define a consistent geographical limit that would be appropriate nationwide.Could create large disparities with the number of customers that could be in a scheme geographically (X square miles in the highlands of Scotland vs X square miles in central London)
Option 2 – All MSIDs to be located under the same primary substation	<ul style="list-style-type: none">Is in keeping with the intent of ensuring that Class 5 Complex Sites are kept at a "local" level and so does not undermine the quoted benefits of the Modification.Whilst still bringing some challenges with consistency; can deliver a more consistent approach re population density that option 1.Recommendation of Issue 88 working group and proposer's preferred option.	<ul style="list-style-type: none">No current known Data Item records primary substation name.Would need more significant process/data changes to facilitate use of primary substation name as an identifier.Likely that SVA MOA would not be able to identify this and so would be dependent on Registrant of the Complex Site.
Option 3 – All MSIDs to be located under the same GSP Group	<ul style="list-style-type: none">Extremely easy to identify.GSP Group is a known data item within industry message flows and so could be used as an identifier with no changes to Market Messages or Data items and limited process changes.	<ul style="list-style-type: none">Would be challenging to define as "local" which undermines the quoted benefits of this Modification.Would likely cause greater impact to other charges considered under the current ToRs.

Will be site arrangements be forward looking only and not retrospective?

- What will happen to an existing Complex Site that doesn't not fall under a Complex Site as defined by P441?
 - Any existing Complex Site which does not obviously fall under one of the five clearly defined classes should automatically be assigned to Class 6 at implementation.
 - Committee approval will not be required for existing Class 6 Complex Sites.
 - It is expected that there will be extremely low numbers (if any) of current Complex Sites that fall outside of the definitions of Class 1-5.
 - Similarly to Class 5 Complex Sites, any Registrant that identifies a current Complex Site that is assigned to Class 6 should make BSCCo aware (by notification via the Complex Site Supplementary Information Form)



CLASS 5 COMPLEX SITES: PROVISION OF METERED DATA TO DISTRIBUTORS

What problem are we trying to solve?

Problem Statement: For Measurement Class F and G customers in a Class 5 Complex Site, how can the HHDC provide DNOs and IDNOs with metered data in a way that:

- Allows DUoS charges to be invoiced consistently with the Charging Methodology i.e. DUoS charges paid on all Imports and Exports recorded on meters, not just the net Imports and Exports for the Complex Site;
- Minimises any difference in DUoS charges between customers in the Complex Site and those outside; and
- Minimises impacts for DNOs, IDNOs and HHDCs?

Context to the problem:

The issue only arises for Measurement Class F and G because:

- For Measurement Class 'C' and 'E', the data reported to the DNO (or IDNO) doesn't change when the customer enters the Class 5 Complex Site
- Other Measurement Classes ('A', 'B', 'D') cannot be included in a Class 5 Complex Site

Overview of charging issues

Fixed Charge:

The MPAN Counts are unaffected by customers entering a Class 5 Complex Site, so the DNO/IDNO can still charge each Customer a fixed charge

There is a potential issue with consumption bands. How will the DNO/IDNO put Non-Domestic (Measurement Class 'G') in the correct consumption band (when they have zero meter advances)?

Unit Charges:

The problem with Measurement Class 'F' and 'G' is that:

- The DNO/IDNO expects to bill these Measurement Classes based on D0030 data flows produced by BSC Central Systems
- The D0030 data flows produced by BSC Central Systems will reflect the consumption entering Settlement for Measurement Classes 'F' and 'G' (which will be zero, assuming the net Import or Export is entering Settlement on a Measurement Class 'C' or 'E' Metering System)

We've explored a number of options for addressing this, as explained in subsequent slides.

Option 1 – Report the customers' Import against a Generator MPAN

Option summary: HHDC aggregates Import for all the Measurement Class 'F' and 'G' customers in the Class 5 Complex Site, and adds it to the Import data for the Generator (assumed to be Measurement Class 'C' or 'E') when producing the D0036/D0275.

Potential issues:

- Customers are paying the standing charge for an aggregated tariff, but the unit charge for a site-specific tariff
- The Generator's Metering System may be exposed to Excess Capacity charges (if the additional kWh reported against their Metering System brings the Import above the Import Capacity)
- The Generator may have declared their Import Metering System Non-Final Demand

Option 2 – Change the Customers to Measurement Class ‘C’ or ‘E’

Option summary: Supplier does a Change of Measurement Class to ‘C’ or ‘E’ for customers in the Class 5 Complex Site (so there are no Measurement Class ‘F’ or ‘G’ customers to worry about)

Potential issues:

- Customers are paying site-specific standing charge and unit charge. But is this appropriate for such small customers?
- Will putting the Customer on a site-specific Measurement Class impair their access to Change of Supplier?
- The site-specific D0036/D0275 data flows report consumption to 1 d.p. which may not be appropriate for small Customers? Could DNO/IDNOs accept a smart-specific D0380 data flow (with consumption to 3 d.p.) instead?

Option 3 – Pseudo MPAN

Option summary: similar to option 1, but the aggregated Import (for customers in Measurement Classes 'F' and 'G') is reported against a pseudo MPAN rather than a Generator MPAN. The pseudo MPAN would be created using the existing BSCP550 process for Shared SVA Metering Systems.

Pseudo MPAN would need to be Measurement Class 'C' or 'E' (to allow site-specific billing).

Solves some but not all of the issues with Option 1:

- Customers are paying aggregated standing charge and site-specific unit charge. **NOT SOLVED**.
- Excess Capacity Charges. **SOLVED** (provided pseudo MPAN has appropriate Import Capacity).
- Non-Final Demand. **SOLVED** (provided pseudo MPAN is treated as Final Demand).

Option 4 – Distributor invoices Aggregated HH tariff using D0036 data

Option summary: similar to option 3, but DNO/IDNO applies aggregated HH unit rates (not site-specific unit rates) to the data received on the D0036

Potential issues:

Are there any system issues with the DNO/IDNO setting up an tariff in their site-specific billing system with the same unit rates as aggregated tariffs (solely for the purpose of Class 5 Complex Sites)?

Does this approach require changes to the Charging Methodology?

An aerial photograph of a rural landscape. In the center, a white wind turbine stands in a green field. To the left, a large herd of black and white cows grazes in a field. In the bottom left, a small, light-colored farm building with a grey roof is visible. The landscape is divided into several green fields by dark, hedged boundaries. The right side of the image is overlaid with a solid teal color, which contains the title text.

CLASS 5 COMPLEX SITES: DISTRIBUTION LOSSES

Background: Allocation of Distribution System Losses

The BSC has a two-stage process for allocating technical and non-technical losses on the Distribution System.

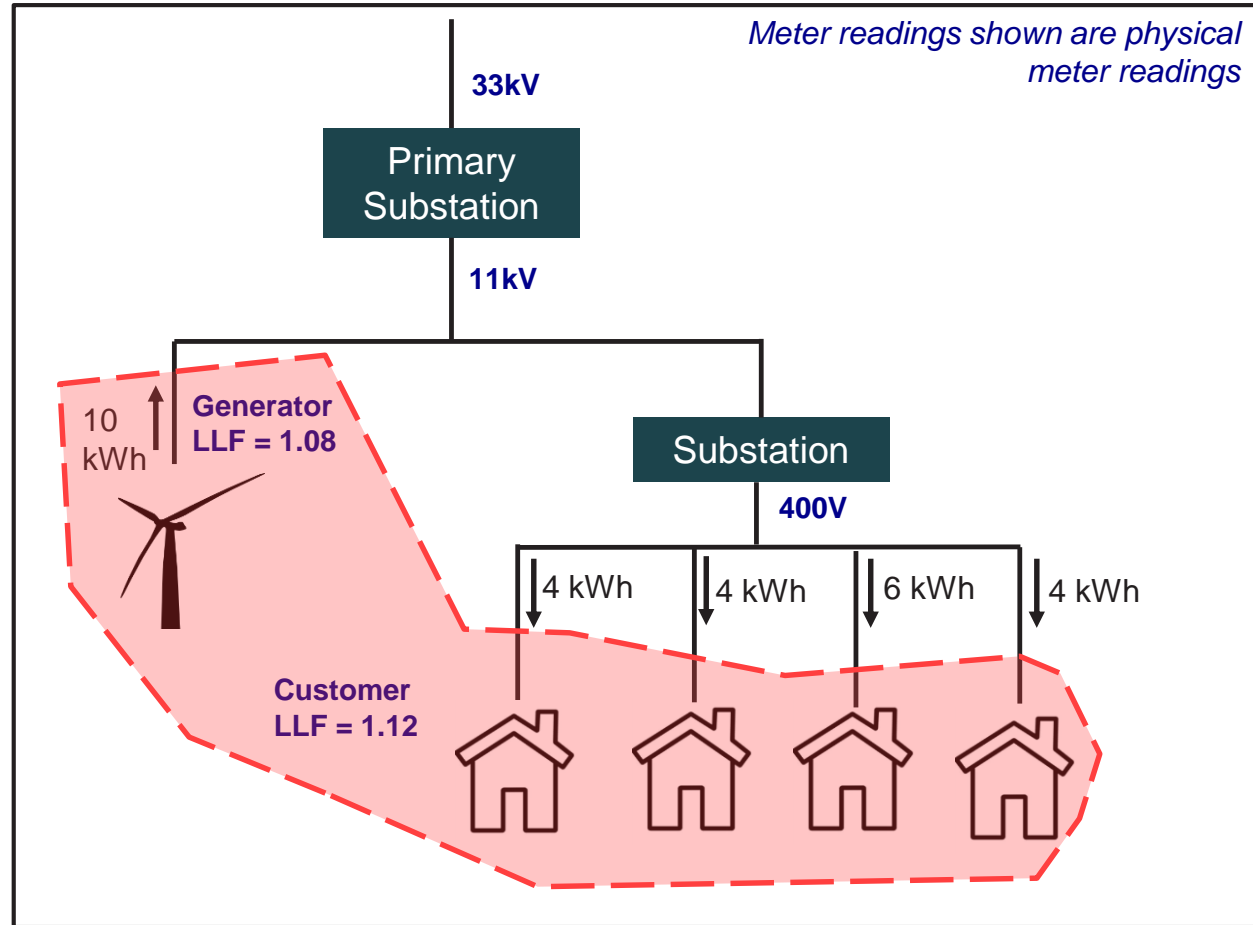
Line Loss Factors (LLFs) are applied to meter readings for all distribution-connected customers and Generators:

- Set by each Distributor in advance (a year at a time)
- Apart from EHV, they are mostly generic (applying to all customers and generation at a given voltage in a given GSP Group)
- For example, an LLF of 1.08 means that 8% is added to meter readings for both demand and generation (at that voltage level), to reflect losses between Grid Supply Point and meter
- The amount of energy allocated through LLFs closely matches out-turn losses **on average**, but not in any individual Settlement Period

The unallocated losses in each Settlement Period are allocated through **GSP Group Correction Factors** (GSPGCFs):

- Mostly applied to Non Half Hourly meter readings
- Meter readings are increased in some Settlement Periods ($\text{GSPGCF} > 1$) and decreased in others ($\text{GSPGCF} < 1$)
- On average $\text{GSPGCF} \approx 1.0$, but values vary significantly between Settlement Periods
- Market Wide Half Hourly Settlement introduces different GSPGCF values for demand and generation

Impact of differing LLFs on netting process

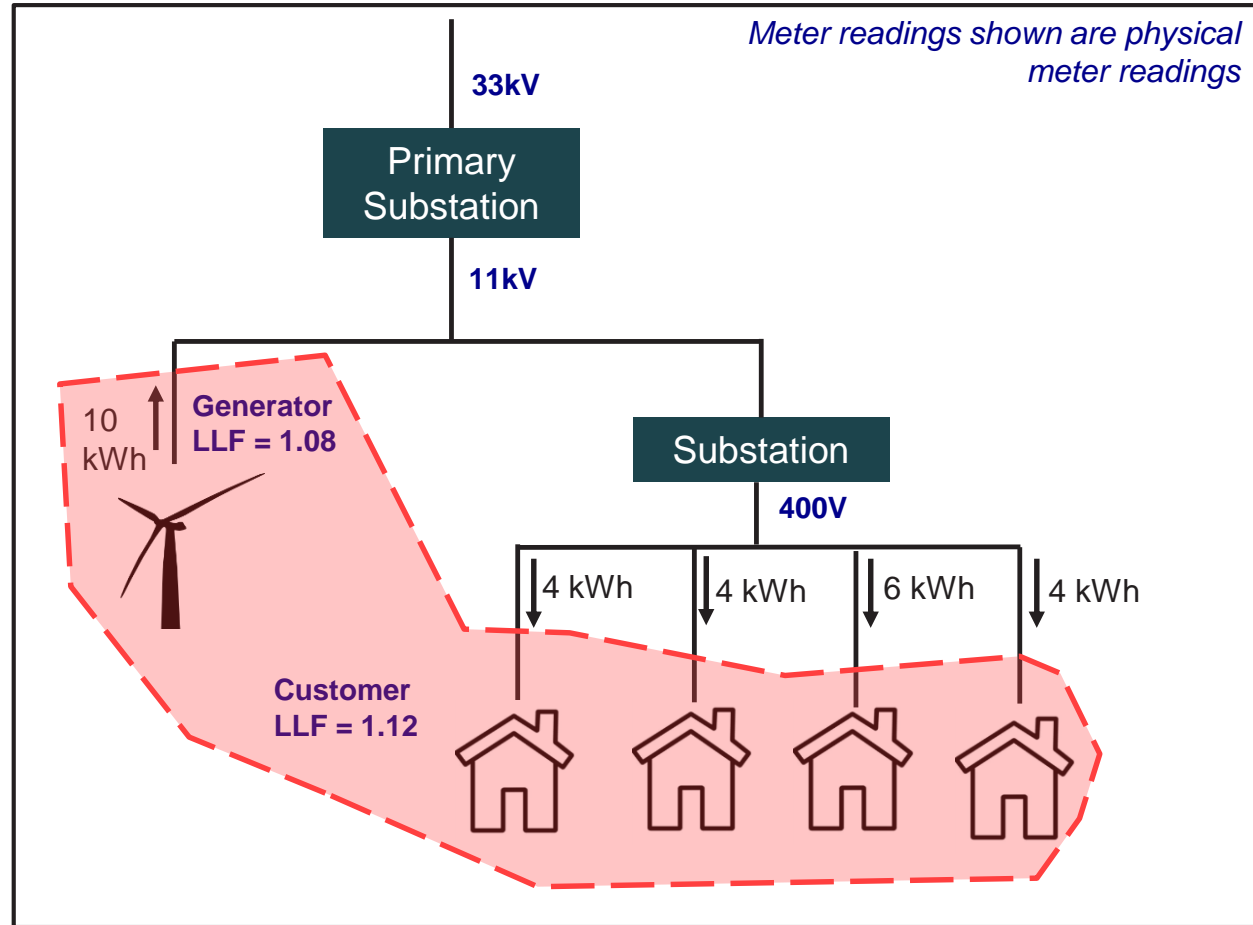


In a Class 5 Complex Site, the HHDC is netting Import and Export, effectively working out the power sold to customer(s) by the exempt supplier

As currently envisaged, this process does not take into account any difference in LLFs e.g. one unit generated is one unit sold

Arguably the differences in voltage levels means that generation should be discounted by c. 4% - but that goes beyond Settlement to affect the relationship between exempt supplier and customer (which is not covered by the BSC).

Impact of differing LLFs on Settlement



The HHDC determines the total net Import or Export for the Complex Site and submits it to the HHDA

The HHDA will apply a LLF based on the Line Loss Factor Class (LLFC) to which the Metering System is allocated

Arguably the HHDC should be allocating net Imports and Exports to a Metering System with appropriate LLFC. For example, in the diagram:

- Customers' Net Imports allocated to a Metering System with a Low Voltage (LV) LLFC;
- Generator's net Exports allocated to a Metering System with a High Voltage (HV) LLFC

This approach could require additional pseudo MPANs if there were customers (or generators) at multiple Voltage Levels

GSP Group Correction Factor

GSPGCF values don't differ by voltage level, so the issues are unaffected by the voltage levels of Customer and Generator

- Any net Export to the Class 5 Complex Site will be corrected as per the rules for Export
- Any net Import to the Class 5 Complex Site will be corrected as per the rules for Import



P441 IMPACTS (DOCUMENTS, PROCESSES AND SYSTEMS)

P441 – Document Implementation

- Complex Sites are (and the processes by which they should be implemented, maintained and governed) are currently defined in BSCP502 and the REC Metering Operations Schedule.
- Under BSCP502, whilst the requirement to send a Complex Site Supplementary Form (where a site is identified under Complex) is detailed in each relevant process, the detailed obligations related to Complex Sites are detailed under "Appendix 4.9 - Guide to Complex Sites".
- Paragraph 4.9 includes more granular obligations which Suppliers, SVA MOAs and HHDCs must adhere to, whilst Paragraphs 4.9.1 - 4.9.8 provide a list of non-exhaustive examples of Complex Sites and how the Complex Site rule should be constructed for each example.
- The structure of this Appendix (which was previously duplicated in BSCP514 for SVA MOAs pre REC) has caused ambiguity over which parts of the appendix is mandatory obligations and which parts are "guidance".
- The use of the word "Guide" in the title has added to the confusion over the ambiguity of rules. Whilst 4.9.1 - 4.9.8 are described as "examples" they include words such as "must" and "shall" which indicate they are intended to be mandatory obligations.
- Under the REC Metering Operations Schedule the relevant mandatory obligations are covered under "Section 5 – Complex Sites". This section is akin to paragraph 4.9 in BSCP502. Whilst this section is clear that the requirements within are mandatory, the examples included in BSCP502 4.9.1 - 4.9.8 (and previously in BSCP514) were not transferred across to the REC MO Schedule from BSCP514.
- This leads to SVA MOAs using BSCP502 or the archived BSCP514 to understand how to construct Complex Site rules and adds to the confusion over whether the requirements detailed in the examples are mandatory.
- It is therefore imperative that the drafting under P441 is clear and unambiguous. As such we have drafted different principles for which the drafting could adhere to.

P441 – Drafting Options

Option 1

- A general high level requirement in the BSC (Section K) and REC that Registrant must register all Complex Sites in line with the Class criteria set out in the relevant Code Subsidiary Documents.
- Complex Site Class criteria (and all registration elements of P441), mandatory obligations and guidance on examples all to be implemented into BSCP502 and REC MO Schedule.
- Would need to ensure that drafting was clear which (if any) text was for guidance only.

Option 2

- Complex Site Class criteria and registration elements of P441 defined within Section K and the REC
- Lower level mandatory obligations and guidance on examples to be implemented into BSCP502 and REC MO Schedule.
- Would need to ensure that drafting was clear which (if any) text was for guidance only.

Option 3

- A general high level requirement in the BSC (Section K) and REC that Registrant must register all Complex Sites in line with the Class criteria set out in the relevant Code Subsidiary Documents.
- Registration elements of P441 and mandatory obligations to be implemented into BSCP502 and REC MO Schedule
- Jointly owned Guidance Note (BSC and REC) to be created to include examples.
- Would need to make sure that Guidance Note included no mandatory text.

Option 4

- Complex Site Class criteria and registration elements of P441 defined within Section K and the REC
- Mandatory obligations to be implemented into BSCP502 and REC MO Schedule
- Jointly owned Guidance Note (BSC and REC) to be created to include examples.



WILL P441 IMPACT THE EBGL PROVISIONS?

Will P441 Impact the EBGL provisions?

- The European Electricity Balancing Guideline (EBGL) procedure was incorporated in the BSC Change process via Modification P392
- The EBGL is an EU legislation consisting of various articles constructed to create a binding framework for Electricity balancing. Article 18 of the EBGL describes the terms and conditions related to balancing for balancing service providers and balancing responsible parties
- The below are sections of the BSC that also constitute article 18 terms and conditions:
 - Section A
 - Section G
 - Sub-Section 3
 - Section H
 - Sub-Sections: 3, 4.2, 4.7, 4.8, 5.5, 6, 10
 - Section J
 - Sub-Sections: 3.3, 3.6, 3.7, 3.8
 - Section N
 - Sub-Sections: 2, 6, 8, 12
 - Section K
 - Sub-Sections: 1.2, 2, 3.2, 3.3, 8
 - Section O
 - Section P
 - Subsections: 2 and 3
 - Section Q
 - Sub-Sections: 3, 5.3, 5.6, 6.2, 6.3
 - Section S
 - Sub-Sections: 6.2, 6.3, 11
 - Section T
 - Sub-Sections: 1.14, 3, 4, 4.5
 - Section U
 - Section Z
 - Sub-Section 7



TERMS OF REFERENCE

Workgroup's initial views on each ToRs

ToR	Details	Workgroup's views
a)	Are the six classes identified by the Issue 88 Group correct?	The Workgroup agreed to the six classes that were identified by the Issue 88 Group.
b)	Define the criteria a site must meet to qualify for each Complex Site Class?	The Workgroup noted that each Complex Site Class must have clearly outlined criteria, and agreed to the criteria Elexon suggested for each Complex Site.
c)	What MSIDs need to be registered for each Complex Site Class?	The WG concluded that three of the proposed four options should be progressed and the appropriate guidance made available to support parties when dealing with any of the options
d)	What form should a central register of Class 5 Complex Sites take?	The Workgroup welcomed the idea of creating and maintaining a central register for the purpose of recording information about a Class 5 Complex Site.
e)	How should the notification process of a Class 5 Complex Site operate?	The Workgroup noted that it was prudent for Elexon to be notified of any updates to a Class 5 Complex Site. They agreed that the REC should be updated to mandate that SVA MOA are responsible for notifying Elexon.
f)	What impact do Class 5 Complex Sites have on Network Charges and BSC Charges?	The WG concluded that gross import data will be used to calculate charging for BSUoS and TNUoS. DUoS charging arrangement is still yet to be confirmed.

P441 standard Terms of Reference

ToR	Details	WG initial views
g)	Will the site arrangements be forward looking and not retrospective?	The WG and Elexon recognises that some aspects of the solution will be retrospective
h)	What should be considered as "Local" and "primary" substations?	The WG views to be confirmed.
i)	What impact will P441 have on the MHHS Programme?	The WG did not identify any direct impact on the MHHS Programme. However, the WG noted that if the agreed P441 solution results in changes to the baselined MHHS design, then a MHHS Change Request (CR) will be required.
j)	How will P441 impact the BSC Settlement Risks?	Impacts on SVA Risks 001, 008 and 012, which relates to Metering points being registered incorrectly, metered data not being processed or transferred, and inaccurate Metering System Technical Details.
k)	What changes are needed to BSC documents, systems and processes to support P441 and what are the related costs and lead times? When will any required changes to subsidiary documents be developed and consulted on?	
l)	Are there any Alternative Modifications?	

P441 standard Terms of Reference

ToR	Details	WG initial views
m)	Should P441 be progressed as a Self-Governance Modification?	The Workgroup agreed that P441 should not be treated as a Self-Governance Modification for the reasons outlined by the Proposed. Therefore, P441 will be submitted to Ofgem for decision.
n)	Does P441 better facilitate the Applicable BSC Objectives than the current baseline?	
o)	Does P441 impact the EBGL provisions held within the BSC, and if so, what is the impact on the EBGL Objectives?	
p)	What other industry Codes are impacted by P441	



A.O.B & NEXT STEPS

- Confirm the schedule for the next (sixth) Workgroup meeting:
 - W/c 17 or 22 April 2023

Next steps

- Summary of Workgroup meeting decisions and actions by **Monday 27 March 2023**
- Elexon to schedule the sixth Workgroup meeting
- We are proposing to review the Terms of References below:
 - ToR (p) – What other industry Codes are impacted by P441?
 - ToR (l) - Are there any Alternative Modifications?
 - ToR (n) - Does P441 better facilitate the Applicable BSC Objectives than the current baseline?
- Aim to agree the Assessment questions

Progression plan

Event	Date
Present IWA to Panel	14 July 2022
Workgroup meeting 1	31 August 2022
Workgroup meeting 2	6 December 2022
Workgroup meeting 3	17 January 2023
Workgroup meeting 4	21 February 2023
Workgroup meetings 5 – 6	March – April
Assessment Procedure Consultation (15WDs)	Late April 2023
Workgroup meeting 7	W/C 22 May 2023
Present Assessment Report to Panel	8 June 2023
Report Phase Consultation	12 June – 23 June 2023
Workgroup meeting 8(Placeholder)	W/C 26 June 2022
Present Draft Modification Report to Panel	13 July 2023
Issue Final Modification Report to Authority	14 July 2023

MEETING CLOSE

ELEXON

THANK YOU

Stanley Dikeocha

Stanley.Dikeocha@elxon.co.uk

bsc.change@elxon.co.uk

21 March 2023