

G21 – Operational Conditions Precedent (Metering and Settlement)

EMRS Guidance

Public

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Change Amendment Record

Version	Date	Description
1.0	21 Sep 2017	Go Live Version
2.0	24 Oct 2017	<p>Added more detail on relationships between LCCC and EMRS (section 2)</p> <p>Added link to LCCC guidance (section 4)</p> <p>Added only Metering and Settlement OCPs in the guidance (section 6)</p> <p>Added more detail on relevant Metering governance (section 7)</p> <p>Added clarification on process to submit to LCCC (section 8)</p> <p>Added more detail on what has to be measured by the Facility Metering Equipment (section 9)</p>

1. Introduction

The CFD Generator has to satisfy a number of metering and settlement related conditions prior to the Start Date. These are contained in the CFD Agreement Schedule 1 Part B (2) Operational Conditions Precedent (OCP) – 2.1 (A), (B), (C) and (D). The CFD Generator has to submit evidence of compliance for these conditions. The purpose of this guidance document is to detail the required evidence for these metering and settlement related conditions.

Any evidence submitted to the Low Carbon Contracts Company (LCCC) for an OCP must be accompanied by a Directors’ Certificate certifying that the information is true, complete and accurate in all material respects and is not misleading.

EMR Settlements (EMRS), acting on behalf of the LCCC, review OCP evidence submitted in relation to the metering related OCPs (C), (D) and (E). EMRS, acting as the CfD Settlement Services Provider, will confirm compliance with the settlement related OCP (A).

2. Purpose

The purpose of this document is to provide guidance to CFD Generators to highlight the required evidence for CFD Generators to meet the metering and settlement related conditions precedent, and the associated timeframes.

3. Who is this document for?

This guidance document is for use by CFD Generators in the preparation of their OCP submissions.

We would recommend that CFD Generators submit Supporting Information for OCPs initially in draft form before they proceed with the formal submission to allow feedback to be provided. This feedback would include details of any further Supporting Information that is required to demonstrate compliance.

4. Associated documents

This document should be read in conjunction with the LCCC’s OCP Guidance¹ and with²:

Document
CFD Standard Terms and Conditions and all subsequent amendments applicable to the relevant CFD ³
The Generator’s CFD Agreement ³ and all subsequent amendments
Private Network CFD Agreement ³ and all subsequent amendments
WP33 - Working Practice Electrical Schematic Obligation ⁴
WP24 - Working Practice Settlement Required Information ⁴

¹ LCCC Guidance can be found on the LCCC website:

https://lowcarboncontracts.uk/publications?f%5B0%5D=field_publications_category%3A31&page=1

² EMRS Working Practices can be found on the EMRS website: <https://www.emrsettlement.co.uk/publications/working-practices/>

³ Standard Terms and Conditions are updated for each Allocation Round. The latest Standard Terms and Conditions and template agreement can be found at <https://www.gov.uk/government/publications/contracts-for-difference-standard-terms-and-conditions>

⁴ <https://emrsettlement.co.uk/publications/working-practices/>

Document
WP25 - Working Practice EMR Aggregation Rules ⁴
WP02 - Working Practice Private Network Meter Commissioning, Proving and Calibration Tests ⁴
WP133 - Working Practice EMR Metering Disputes Resolution Procedure ⁴
WP195 - Working Practice Capacity Market and CFD Metered Data ⁴
BSCP02 – Proving Test Requirements for Central Volume Allocation Metering Systems ⁵
BSCP06 – CVA Meter Operations for Metering Systems Registered in CMRS ⁵
BSCP20 – Registration of Metering Systems for Central Volume Allocation ⁵
BSCP75 – Registration of Meter Aggregation Rules for Volume Allocation Units ⁵
BSCP514 – SVA Meter Operations for Metering Systems Registered in SMRS ⁵

5. What are the Operational Conditions Precedent (OCPs) related to metering and settlement?

There is a subset of the OCPs that relate to settlements and metering i.e. of the OCPs: 2.1 (A) to (E); 2.2; 2.3; 2.4; and 2.5 there are four (4) of these that relate to metering and settlement and are the subject of this guidance, they are: OCP 2.1 (A); 2.1 (C); 2.1 (D) and 2.1 (E).

The CFD Generator is required to submit evidence for each of the metering and settlement related OCPs listed below.

The OCPs are:

OCP (A) – Settlement Required Information Obligation

"Written confirmation from the CFD Settlement Services Provider that:"

- *"It has received the CFD Settlement Required Information which is required from the Generator prior to the Start Date; and"*
- *"The Generator has in place the systems and processes which are necessary for the continued provision of the CFD Settlement Required Information"*

OCP (C) – Metering Compliance Obligation

"Evidence, in form and content satisfactory to the CFD Counterparty, acting reasonably, that the CFD Generator is complying in full with the Metering Compliance Obligations."

OCP (D) – Electrical Schematic Obligation

"Date and time stamped copy of the electrical schematic diagram⁶, certified as being correct and up to date by a director or company secretary of the CFD Generator and showing the locations of the Facility Metering Equipment associated with all assets comprised within the Facility (including details of the type of BSC approved metering⁷ and Communications Equipment installed in compliance with the Metering Compliance Obligation and any relevant Metering System Identifier (MSID))."

OCP (E) – Communications Equipment Obligation

⁵ <https://www.elexon.co.uk/bsc-related-documents/related-documents/bscps/>

⁶ Appendix 1, Figure 3

⁷ Code of Practice (COP) Compliance and Protocol Approvals List <https://www.elexon.co.uk/bsc-related-documents/related-documents/codes-of-practice/>

"Evidence, in form and content satisfactory to the CFD Counterparty, acting reasonably, that all Communications Equipment relating to the Facility Metering Equipment has been satisfactorily installed, commissioned, configured, operational, maintained and tested and is fully compliant with the BSC."

6. What are the different registration services?

The evidence required will differ depending on how the Metering System is registered. That is, whether the site is registered in Central Meter Registration Service (CMRS), Supplier Meter Registration Service (SMRS) or Private Network. Table 1 highlights the key differences between CMRS and SMRS.

This Guidance has been ordered by the type of registration services and the generator need only read the relevant requirements depending on how their Metering System is registered.

✦ Central Meter Registration Service (CMRS)

The service for registration of data relating to Metering Systems at Boundary Points or System Collection Points maintained (for the purposes of the Code) by the Central Data Collection Agent.

✦ Supplier Meter Registration Service (SMRS)

The service provided or to be provided by a Licensed Distribution System Operator for the registration of Metering Systems at Boundary Points on its Distribution System(s) and its Associated Distribution System(s) (if any), in accordance with the Master Registration Agreement.

✦ Private Network

A Metering System not registered as CMRS or SMRS that is embedded behind a BSC Metering System.

Table 1 - Differences between sites in CMRS and SMRS

CMRS	SMRS
Part of a Balancing Mechanism (BM) unit	There is always a Meter Point Administration Number (MPAN), but the MPAN can be allocated to additional BM Units
Aggregation rule completed as per BSCP75	Aggregation Rules completed via a Complex Site Supplementary Information Form as per BSCP514
In addition to Code of Practice (COP) 4, commissioned as per BSCP02 (Proving Test requirements)	Commissioned as per COP 4 and BSCP514
Data downloaded by Central Data Collection Agent (CDCA)	Data downloaded by Half Hourly Data Collector (HHDC)
Metering technical details in BSCP20	Metering Technical details are in a data flow (D0268)

Obligations on Meter Operations defined in BSCP06	Obligations on Meter Operations defined in BSCP514
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7. What evidence do I submit to meet OCP (A): Settlement Required Information Obligation?

The purpose of the Settlement Required Information obligation is to provide evidence to the LCCC that EMRS has all the information it requires to be able to carry out the CFD Settlement activities.

To be able to carry out the CFD Settlement activities EMRS require the CFD Generator to register with EMRS. They also require an EMR Party ID which will be their BSC Party ID if they are a BSC Party already or an EMR Party ID will be agreed with them.

All requests to EMRS should be emailed to contact@emrsettlement.co.uk. EMRS must have received and processed a CFD Generator’s registration form to meet the OCP (A) obligation.

EMRS will need information to create an aggregation rule to be able to perform the CFD Settlement Activity. This aggregation rule will have to be validated and loaded to satisfy OCP (A).

Once EMRS are satisfied that they have the Settlement Required Information they will provide the written confirmation to the CFD Generator. This evidence (including the email from EMRS containing the written confirmation) needs to be submitted to the LCCC as Supporting Information to an OCP notice.

Any evidence submitted to the LCCC for an OCP must be accompanied by a Directors’ Certificate certifying that the information is true, complete and accurate in all material respects and is not misleading.

7.1 To demonstrate compliance, the required evidence for a BSC Settlement Metering System registered in CMRS

For a BSC Settlement Metering System registered in CMRS	Guidance
Register with EMRS.	<p>Complete the registration form. Contact EMRS contact@emrsettlement.co.uk to provide the registration form. BSC Party ID will be the EMR Party ID for a BSC Party. For a non-BSC Party the Generator can choose an EMR Party ID up to a maximum of eight alphanumeric characters in length. EMRS will confirm the proposed ID isn't already in use by a BSC Party.</p>
Aggregation Rule information.	<p>The Generator will need to provide the following information to allow EMRS to perform the Settlement Activity:</p> <ol style="list-style-type: none"> 1) CFD ID; 2) BMU ID(s); 3) Date when the BMU IDs became effective (i.e. registration completed with BSCCo); and 4) Confirm if the Facility is a Dual Scheme Facility.

7.2 To demonstrate compliance, the required evidence for a BSC Settlement Metering System registered in SMRS

For a BSC Settlement Metering System registered in SMRS	Guidance
Register with EMRS.	<p>Complete the registration form. Contact EMRS contact@emrsettlement.co.uk to provide the registration form. BSC Party ID will be the EMR Party ID for a BSC Party. For a non-BSC Party the Generator can choose an EMR Party ID up to a maximum of eight alphanumeric characters in length. EMRS will confirm the proposed ID isn't already in use by a BSC Party.</p>
Aggregation Rule information.	<p>The Generator will need to provide the following information to allow EMRS to perform the Settlement Activity:</p> <ol style="list-style-type: none"> 1) CFD ID; 2) Additional BMU ID(s); 3) Date when the Additional BMU IDs became effective (i.e. registration completed with BSCCo and Supplier allocated MPANs to the Additional BMU); and 4) Confirm if the Facility is a Dual Scheme Facility.

7.3 To demonstrate compliance, the required evidence for a Private Network Metering System (i.e. not a BSC Settlement Metering System registered in CMRS or SMRS)

For a BSC Settlement Metering System registered in Private Network	Guidance
Register with EMRS.	<p>Complete the registration form. Contact EMRS contact@emrsettlement.co.uk to provide the registration form. BSC Party ID will be the EMR Party ID for a BSC Party. For a non-BSC Party the Generator can choose an EMR Party ID up to a maximum of eight alphanumeric characters in length. EMRS will confirm the proposed ID isn't already in use by a BSC Party.</p>
Apply for an SFTP account.	<p>To be able to submit CSV files with Metered Volumes for your Generator you will need to have a Secure File Transfer Protocol (SFTP) account with EMRS. Email the Service Desk contact@emrsettlement.co.uk to request a Secure File Transfer Protocol (SFTP) account and provide the following details: Contact name, Email address and Mobile number. Within 5 WDs EMRS will issue a username, password and the address of the SFTP site. The username and password will be sent separately.</p>
Aggregation Rule information.	<p>The Generator will need to provide the following information to allow EMRS to perform the Settlement Activity:</p> <ol style="list-style-type: none"> 1) CFD ID; 2) The Metered Entity ID(s). This must match the Metered Entity ID used in the CSV file that is checked as part of OCP (E); 3) Date when the CSV files can be submitted to EMRS via SFTP; 4) Where the Generator is on a Private Network connected to a Distribution System the Distributor ID of the relevant Licensed Distributor System Operator (LDSO) (see section 6.4 Appendix 4 of WP25 - EMR Aggregation Rules)); 5) Where the Generator is on a Private Network connected to a Distribution System a Line Loss Factor Class (LLFC) ID for the voltage class of the Facility (i.e. if Facility connected at 11kV a generic LLFC ID for the relevant LDSO as detailed in the methodology Use of System Charging Statement - Annex 5 - Schedule of Line Loss Factors and 6) Confirm if the Facility is a Dual Scheme Facility.

8. What evidence do I submit to meet OCP (C): Metering Compliance Obligation?

The Metering Compliance Obligations are to ensure that the Facility Metering Equipment meets the applicable standards and is only recording the BM Unit Metered Volume of the Facility and is doing so accurately.

Where the definition of Metered Volume from Section R⁸ (Collection and Aggregation of Meter Data from CVA Metering Systems) is:

"1.2.1 For the purposes of this Section R, in relation to a Volume Allocation Unit and a Settlement Period, the "Metered Volume" is the net aggregate volume of Active Energy, determined as at the Transmission System Boundary, which flowed in that Settlement Period to or from that Volume Allocation Unit."

This relates to conditions 31.1 (A) to (D) of the metering compliance obligations, as detailed below:

"31.1 With effect from the Start Date, the CFD Generator undertakes to the CFD Counterparty:

(A) to ensure that at all times the Facility Metering Equipment meets all applicable rules and standards provided for in the BSC;

(B) to ensure that at all times:

(i) the Facility Metering Equipment accurately records the BM Unit Metered Volume; and

(ii) where the Facility is a Dual Scheme Facility, the Facility Metering Equipment accurately records all Imported Input Electricity in relation to the Generating Station;

(C) to ensure that at all times the Facility Metering Equipment measures the input and output electricity referred to in Condition 31.1(B) separately from any other input and output electricity; and

(D) to investigate any fault or issue with the Facility Metering Equipment of which it is notified by the CFD Counterparty or required to investigate pursuant to the BSC"

Any evidence submitted to the LCCC for an OCP must be accompanied by a Directors' Certificate certifying that the information is true, complete and accurate in all material respects and is not misleading.

⁸ BSC Sections can be found on the ELEXON website: <https://www.elexon.co.uk/bsc-and-codes/balancing-settlement-code/bsc-sections/>

8.1 Evidence for Metering Compliance Obligation for a BSC Settlement Metering System registered in CMRS

For a BSC Settlement Metering System registered in CMRS	Guidance
List of Meters.	This includes all Meters used by the Settlement Metering System. This includes Main and Check Meters. You should provide the serial numbers for all Meters.
Electrical Schematic (Single Line Diagram) Details of BSC approved metering, including the Outstation Type, the Communications Type and the MSID.	This must include all Settlement Metering Systems used by the Facility. The details can be an annex to the Electrical Schematic or included in the Electrical Schematic. The Outstation Type is a three character code in the CoP Compliance and Protocol Approval List (Data Item J0471) on the ELEXON website. This is also available in the BSCP20/4.3 Meter Technical Details form. The communications type is the method used, e.g. PSTN or GSM. This is available in the BSCP20/4.3 form.
Confirmation from a qualified person that the meters included on the list constitutes the entirety of the Facility Metering Equipment.	Declaration to confirm that the Meters on the list are all the Meters used by the Facility.
BSCP20/4.3 (Registration of Metering Systems for CVA) – Registration of Meter Technical Details.	The Meter Operator (MOA) can provide copies of the BSCP20/4.3 Meter Technical Details form. This must include all Metering System Identifiers (MSID) used in the Facility Metering Equipment.
Calibration Certificates (Manufacturers Certificates for Meters and Current/Voltage Transformers).	The calibration test certificates must be provided for Meters and CT/VTs used by the Facility Metering Equipment. These confirm the accuracy class and compliance with the relevant IEC standard. The Meter calibration certificates can be provided by the Meter Operator. The CT/VT test certificates can be provided by the Distribution System Operator or switchgear owner.
Commissioning Test results.	This is for both the Meters and the Measurement Transformers (i.e. CTs and VTs). This should be done to the requirements of Code of Practice 4.

For a BSC Settlement Metering System registered in CMRS	Guidance
	<p>Measurement Transformers should have Primary Injection testing to confirm the ratio and polarity of the CTs and VTs. Where the Measurement Transformer is multi-ratio type (e.g. a 400/200/5A CT) evidence must be provided to clearly show what ratio the Meter has been connected to. The test results should be provided by the party responsible for completing the commissioning tests (e.g. Distribution System Operator or switchgear owner).</p> <p>Each Meter (i.e. Main and Check) should be commissioned by the Meter Operator to confirm the correct operation of the Meter. The test results from the Meter Operator should be provided.</p> <p>Where the Meter has been commissioned using secondary injection evidence to prove the Meter is operating correctly under prevailing load conditions should be provided (e.g. this could be another Meter commissioning test; a download of the Meter's instantaneous parameters; or comparison of the Metered Volumes with an independent Metering System (e.g. SCADA system)).</p> <p>Where the Meters have been compensated for Current Transformer and Voltage Transformer errors a copy of the compensation calculation must be provided. This can be provided by the Meter Operator.</p>
BSCP02/4.4 (Proving Test Requirements for CVA Systems) – Confirmation that the Metering System has been installed and commissioned.	This is confirmation from the Meter Operator / Registrant that the Metering System is fully installed, commissioned and operational. This can be provided by the Meter Operator.
Confirmation that no outstanding CDCA-IO38s for MSID from BSCP06 (CVA Meter Operations for Metering Systems Registered in CMRS).	The Meter Operator or CDCA can confirm that there are no outstanding faults (i.e. a IO38) with the Metering System.

8.2 Evidence for Metering Compliance Obligation for a BSC Settlement Metering System registered in SMRS

For a BSC Settlement Metering System registered in SMRS	Guidance
List of Meters.	This includes all Meters used by the Settlement Metering System. This includes Main and Check Meters. You should provide the serial numbers for all Meters.
Electrical Schematic (Single Line Diagram). Details of BSC approved metering, including the Outstation Type, the Communications Type and the MPAN.	This must include all Settlement Metering Systems used by the Facility. The details can be an annex to the Electrical Schematic or included in the Electrical Schematic. The Outstation Type is a three character code in the CoP Compliance and Protocol Approval List (Data Item J0471) on the ELEXON website. This is also available in the D0268. The communications type is the method used, e.g. PSTN, GSM or IP. This is available on the D0268.
Confirmation from a qualified person that the meters included on the list constitutes the entirety of the Facility Metering Equipment.	Declaration to confirm that the Meters on the list are all the Meters used by the Facility.
D0268 Data Flow – Half Hourly Meter Technical Details.	This must be for both the Import and Export MPANs. The Meter Operator (MOA) can provide copies of the D0268s.
Calibration Certificates (Manufacturers Certificates for Meters and Current/Voltage Transformers).	The calibration test certificates must be provided for Meters and CT/VTs used by the Facility Metering Equipment. These confirm the accuracy class and compliance with the relevant IEC standard. The Meter calibration certificates can be provided by the Meter Operator. The CT/VT test certificates can be provided by the Distribution System Operator or switchgear owner.

For a BSC Settlement Metering System registered in SMRS	Guidance
Commissioning Test results.	<p>This is for both the Meters and the Measurement Transformers (i.e. CTs and VTs). This should be done to the requirements of Code of Practice 4. Measurement Transformers should have Primary Injection testing to confirm the ratio and polarity of the CTs and VTs. Where the Measurement Transformer is multi-ratio type (e.g. a 400/200/5A CT) evidence must be provided to clearly show what ratio the Meter has been connected to. The test results should be provided by the party responsible for completing the commissioning tests (e.g. Distribution System Operator or switchgear owner).</p> <p>Each Meter (i.e. Main and Check) should be commissioned by the Meter Operator to confirm the correct operation of the Meter. The test results from the Meter Operator should be provided.</p> <p>Where the Meter has been commissioned using secondary injection evidence to prove the Meter is operating correctly under prevailing load conditions should be provided (e.g. this could be another Meter commissioning test; a download of the Meter's instantaneous parameters; or comparison of the Metered Volumes with an independent Metering System (e.g. SCADA system)).</p> <p>Where the Meters have been compensated for Current Transformer and Voltage Transformer errors a copy of the compensation calculation must be provided. This can be provided by the Meter Operator.</p>
Proving Test results.	<p>The Proving Test is confirmation that the Half-Hourly Data Collector (HHDC) can accurately download the primary energy recorded by the Settlement Meter. The evidence should be the actual test results to confirm compliance. Even if the BSC doesn't require a Proving Test to be completed the terms the CfD Agreement require this to be done to prove compliance with OCPs (C) and (E).</p> <p>Typical techniques to do this are to compare a half hour period downloaded by the HHDC with either an advance of the cumulative register of the meter for the same half hour recorded by the MOA or a download of the half hourly data by the MOA using the meter manufacturer's software.</p>

For a BSC Settlement Metering System registered in SMRS	Guidance
Confirmation that no outstanding D0001 Data Flow – Request Metering System Investigation.	The Meter Operator or Half Hourly Data Collector can confirm that there are no outstanding faults (i.e. a D0001) with the Metering System.

8.3 Evidence for Metering Compliance Obligation for a Private Network Metering System (i.e. not a BSC Settlement Metering System registered in CMRS or SMRS)

For a BSC Settlement Metering System registered in Private Network	Guidance
List of Meters.	This includes all Meters used by the Facility. This includes Main and Check Meters. You should provide the serial numbers for all Meters.
Electrical Schematic (Single Line Diagram). Details of BSC approved metering, including the Outstation Type, the Communications Type and the MPAN.	This must include all Metering Systems used by the Facility. The details can be an annex to the Electrical Schematic or included in the Electrical Schematic. The Meter type can be the Outstation Type (three character code) in the CoP Compliance and Protocol Approval List (Data Item J0471) on the ELEXON website where a Meter capable of being used in Settlement is installed. Alternatively the manufacturer and model Type code should be submitted. The communications type is the method used, e.g. PSTN, GSM or IP.
Confirmation from a qualified person that the meters included on the list constitutes the entirety of the Facility Metering Equipment.	Declaration to confirm that the Meters on the list are all the Meters used by the Facility.
Key Meter Technical Details Form.	The details that must be for both the Main and the Check Meters and include the Meter Serial Numbers, the Outstation Number of Channels, the Measurement Quantity ID, the Meter Multiplier, the Pulse Multiplier, the Current Transformer (CT) and/or Voltage Transformer (VT) serial numbers and the CT and/or VT ratios. Number of channels: Every measurement quantity that is setup in the Meter/Outstation should be included and not just the Active Energy channels use to settle in EMR. So if the Meter/Outstation is configured

For a BSC Settlement Metering System registered in Private Network	Guidance
	<p>with Half Hourly reactive energy channels (e.g. Reactive Import and Reactive Export) as well as active energy channels (e.g. Active Import and Active Export) the number of channels would be 4 and not 2.</p> <p>Measurement Quantity IDs: This is linked to the number of channels above. The number of Measurement Quantity IDs provided should be the same as the number of channels setup. The convention for the most common configurations are:</p> <ul style="list-style-type: none"> • Active Energy Import AI • Active Energy Export AE • Reactive Energy Import RI • Reactive Energy Export RE • Reactive Import associated with Active Import Q1 • Reactive Export associated with Active Export Q2 • Reactive Import associated with Active Export Q3 • Reactive Export associated with Active Import Q4 <p>Meter Multiplier: Any multiplier applied to the cumulative register on the display of the meter. For example if the cumulative meter reading on the display was 123456 x10 kilo Watt hours (kWh) the Meter multiplier would be 10. If the reading on the display was 123456 kWh the Meter multiplier would be 1. This can be either kWh or Mega Watt hours (MWh) depending on the setup of the meter.</p> <p>Pulse multiplier: This is any multiplier applied to the Half Hour pulses recorded (either by the meter itself or a separate Outstation) in order for it to be converted to energy. So if a meter recorded pulses in kW and in a Half-Hour recorded 5000 pulses (kW) to convert to energy (2500kWh) the multiplier would be 0.5. Where the Outstation is separate to the meter the output pulse value of the meter should be included.</p> <p>Ratios: An example of a CT ratio would be 200/5A; an example of a VT ratio would be 11kV/110V.</p> <p>The installer of the Metering System should be able to provide these details.</p>
Calibration Certificates (Manufacturers Certificates for Meters and Current/Voltage Transformers.	The calibration test certificates must be provided for Meters and CT/VTs used by the Facility Metering Equipment. These confirm the accuracy

For a BSC Settlement Metering System registered in Private Network	Guidance
	<p>class and compliance with the relevant IEC standard. The Meter calibration certificates can be provided by the Meter Operator. The CT/VT test certificates can be provided by the Distribution System Operator or switchgear owner.</p>
Commissioning Test results.	<p>A Metering Equipment Commissioning Record Part 1 (Measurement Transformers) and Part 2 (Meters) must be completed. This is for both the Meters and the Measurement Transformers (i.e. CTs and VTs). Measurement Transformers should have Primary Injection testing to confirm the ratio and polarity of the CTs and VTs. Where the Measurement Transformer is multi-ratio type (e.g. a 400/200/5A CT) evidence must be provided to clearly show what ratio the Meter has been connected to. The test results should be provided by the party responsible for completing the commissioning tests (e.g. switchgear owner or installer). Each Meter (i.e. Main and Check) should be commissioned by the Meter installer to confirm the correct operation of the Meter. The test results from the Meter installer should be provided. Where the Meter has been commissioned using secondary injection evidence to prove the Meter is operating correctly under prevailing load conditions should be provided (e.g. this could be another Meter commissioning test; a download of the Meter's instantaneous parameters; or comparison of the Metered Volumes with an independent Metering System (e.g. SCADA system)). Where the Meters have been compensated for Current Transformer and Voltage Transformer errors a copy of the compensation calculation must be provided. This can be provided by the Meter installer.</p>
Proving Test results.	<p>The Proving Test is confirmation that the CfD Generator can accurately download the primary energy recorded by the Meter. Typical techniques to do this are to compare a half hour period downloaded by the data collector or CfD Generator with either an advance of the cumulative register of the meter for the same half hour</p>

For a BSC Settlement Metering System registered in Private Network	Guidance
	<p>recorded by the Meter installer or a download of the half hourly data by the Meter installer using the meter manufacturer's software. Where data is submitted through a non-BSC process, i.e. a CSV file submitted over SFTP, this file has to be provided as part of the proving test evidence.</p>
<p>A report from a suitably qualified person, approved by the LCCC, confirming that the Facility Metering Equipment has satisfied all the applicable tests required to be completed prior to the Start Date pursuant to the Metering Operational Framework (MOF) and the Technical System Requirements (TSR).</p>	<p>Declaration to confirm that all of the equipment making up the Metering System has been commissioned.</p>
<p>A Directors' Certificate confirming that each of the Meters and the Measurement Transformers has been calibrated, installed, commissioned, proved and tested in accordance with the manufacturer's instruction.</p>	<p>Declaration to confirm that all of the equipment making up the Metering System has been calibrated installed and commissioned.</p>

9. What evidence do I submit to meet OCP (D): Electrical Schematic Obligation?

The CFD Generator is required to submit a copy of the Electrical Schematic Diagram (single line diagram) to the LCCC showing the locations of the Facility Metering Equipment. This will include Current Transformers (CT) and Voltage Transformers (VT) as well as the type of meters and communications equipment installed. For a CMRS / SMRS CFD Generator, the type of meter used must be approved under the BSC.

The Electrical Schematic Diagram must include any relevant MPAN/MSID for a generator that is CMRS or SMRS and is using BSC Settlement metering. Any generator operating on a Private Network that has no MPAN/MSID will include the meter serial numbers instead. These details can be submitted separately from the Electrical Schematic.

The Electrical Schematic Diagram must be date and time stamped.

These details can be submitted separately from the Electrical Schematic.

The location of the CTs and VTs should be at the Defined Metering Point (DMP) of the Facility and in such a position so as to measure net Metered Volume of the Facility. An AC electrical schematic can be submitted along with the single line diagram and this would be expected to show the ratio, accuracy class and rated burden of the Measurement Transformers on the single line diagram. If any of the Measurement Transformers are multi-ratio the ratio used for the metering should be highlighted.

Any evidence submitted to the LCCC for an OCP must be accompanied by a Directors' Certificate certifying that the information is true, complete and accurate in all material respects and is not misleading.

9.1 Evidence Electrical Schematic Obligation for BSC Settlement Metering System registered in CMRS

For a BSC Settlement Metering System registered in CMRS	Guidance
Electrical Schematic (Single Line Diagram).	This must include all Settlement Metering Systems used by the Facility.
Details of BSC approved metering, including the Outstation Type, the Communications Type and the MSID.	<p>The Outstation Type is the three character code in the CoP Compliance and Protocol Approval List (Data Item J0471) on the ELEXON website. This is also available in the BSCP20/4.3 Meter Technical Details form.</p> <p>The communications type is the method used, e.g. PSTN or GSM. This is available in the BSCP20/4.3 form.</p> <p>The details can be an annex to the Electrical Schematic or included in the Electrical Schematic.</p>
Confirmation from a qualified person that the meters included on the Electrical Schematic constitutes the entirety of the Facility Metering Equipment.	Declaration to confirm that the Electrical Schematic includes all Meters used by the Facility.
BSCP20/4.3 (Registration of Metering Systems for CVA) – Registration of Meter Technical Details.	<p>The Meter Operator (MOA) can provide copies of the BSCP20/4.3 Meter Technical Details form.</p> <p>This must include all Metering System Identifiers (MSID) used in the Facility Metering Equipment.</p>

9.2 Evidence Electrical Schematic Obligation for BSC Settlement Metering System registered in SMRS

For a BSC Settlement Metering System registered in SMRS	Guidance
Electrical Schematic (Single Line Diagram).	This must include all Settlement Metering Systems used by the Facility.
Details of BSC approved metering, including the Outstation Type, the Communications Type and the MPAN.	The Outstation Type is the three character code in the CoP Compliance and Protocol Approval List (Data Item J0471) on the ELEXON website. This is also available in the D0268.

For a BSC Settlement Metering System registered in SMRS	Guidance
	<p>The communications type is the method used, e.g. PSTN or GSM. This is available on the D0268.</p> <p>The details can be an annex to the Electrical Schematic or included in the Electrical Schematic.</p>
Confirmation from a qualified person that the meters included on the Electrical Schematic constitutes the entirety of the Facility Metering Equipment.	Declaration to confirm that the Electrical Schematic includes all Meters used by the Facility.
D0268 Data Flow – Half Hourly Meter Technical Details.	<p>This must be for both the Import and Export MPANs.</p> <p>The Meter Operator (MOA) can provide copies of the D0268s.</p>

9.3 Evidence Electrical Schematic Obligation for a Private Network Metering System (i.e. not a BSC Settlement Metering System registered in CMRS or SMRS)

For a BSC Settlement Metering System registered in Private Network	Guidance
Electrical Schematic (Single Line Diagram).	This must include all Settlement Metering Systems used by the Facility.
Details of the type of metering and communications equipment, and the Meter serial numbers.	<p>The Meter type can be the Outstation Type (three character code) in the CoP Compliance and Protocol Approval List (Data Item J0471) on the ELEXON website where a Meter capable of being used in Settlement is installed. Alternatively the manufacturer and model Type code should be submitted.</p> <p>The communications type is the method used, e.g. PSTN, GSM or IP.</p> <p>The details can be an annex to the Electrical Schematic or included in the Electrical Schematic.</p>

For a BSC Settlement Metering System registered in Private Network	Guidance
Confirmation from a qualified person that the meters included on the Electrical Schematic constitutes the entirety of the Facility Metering Equipment.	Declaration to confirm that the Electrical Schematic includes all Meters used by the Facility.
Key Meter Technical Details Form.	<p>The details that must be for both the Main and the Check Meters and include the Meter Serial Numbers, the Outstation Number of Channels, the Measurement Quantity ID, the Meter Multiplier, the Pulse Multiplier, the Current Transformer (CT) and/or Voltage Transformer (VT) serial numbers and the CT and/or VT ratios.</p> <p>Number of channels: Every measurement quantity that is setup in the Meter/Outstation should be included and not just the Active Energy channels use to settle in EMR. So if the Meter/Outstation is configured with Half Hourly reactive energy channels (e.g. Reactive Import and Reactive Export) as well as active energy channels (e.g. Active Import and Active Export) the number of channels would be 4 and not 2.</p> <p>Measurement Quantity IDs: This is linked to the number of channels above. The number of Measurement Quantity IDs provided should be the same as the number of channels setup. The convention for the most common configurations are:</p> <ul style="list-style-type: none"> ● Active Energy Import AI ● Active Energy Export AE ● Reactive Energy Import RI ● Reactive Energy Export RE ● Reactive Import associated with Active Import Q1 ● Reactive Export associated with Active Export Q2 ● Reactive Import associated with Active Export Q3 ● Reactive Export associated with Active Import Q4 <p>Meter Multiplier: Any multiplier applied to the cumulative register on the display of the meter. For example if the cumulative meter reading on the display was 123456 x10 kilo Watt hours (kWh) the Meter multiplier would be 10. If the reading on the display was 123456 kWh the Meter multiplier would be 1. This can be either kWh or Mega Watt hours (MWh) depending on the setup of the meter.</p>

For a BSC Settlement Metering System registered in Private Network	Guidance
	<p>Pulse multiplier: This is any multiplier applied to the Half Hour pulses recorded (either by the meter itself or a separate Outstation) in order for it to be converted to energy. So if a meter recorded pulses in kW and in a Half-Hour recorded 5000 pulses (kW) to convert to energy (2500kWh) the multiplier would be 0.5. Where the Outstation is separate to the meter the output pulse value of the meter should be included.</p> <p>Ratios: An example of a CT ratio would be 200/5A; an example of a VT ratio would be 11kV/110V.</p> <p>The installer of the Metering System should be able to provide these details.</p>

10. What evidence do I submit to meet OCP (E): Communications Equipment?

This requirement involves demonstrating that the communications equipment is installed, commissioned, configured, operational, maintained and tested.

Any evidence submitted to the LCCC for an OCP must be accompanied by a Directors' Certificate certifying that the information is true, complete and accurate in all material respects and is not misleading.

10.1 Evidence Communication for BSC Settlement Metering System registered in CMRS

For a BSC Settlement Metering System registered in CMRS	Guidance
List of Communications Equipment.	This includes all communication equipment used by the Settlement Metering System. For example - GSM Type X Manufacturer Y. Where there isn't a lot of communications equipment the list can be included as part of the confirmation from a qualified person (see below).
Confirmation from a qualified person that the Communications Equipment included on the list does comprises all of the relevant Communications Equipment for the Facility Metering Equipment.	Declaration to confirm the list of communications equipment. Can also include the list (see above).
BSCP20/4.3 (Registration of Metering Systems for CVA) – Registration of Meter Technical Details.	The Meter Operator (MOA) can provide copies of the BSCP20/4.3 Meter Technical Details form. This must include all Metering System Identifiers (MSID) used in the Facility Metering Equipment.
BSCP02/4.2 & 4.3 (Proving Test Requirements for CVA Systems) – Confirmation the Proving Test has been completed and the CDCA can dial the meters.	The Proving Test is confirmation that the Central Data Collection Agent (CDCA) can accurately download the primary energy recorded by the Settlement Meter. The evidence should be the actual test results to confirm compliance. This can be provided by the Meter Operator and must include the BSCP02/4.3 form completed by the CDCA to confirm they are able to download the Meter and have validated the Metered Volume value.
For existing generating stations the following additional item is required	
Confirmation that no outstanding Meter Advanced Reconciliation Error Result issue to be resolved from BSCP05 (Meter Advanced Reconciliation for CVA)	The Meter Operator or CDCA can confirm that there are no outstanding faults with the Metering System following a MAR read.

10.2 Evidence Communication for BSC Settlement Metering System registered in SMRS

For a BSC Settlement Metering System registered in SMRS	Guidance
List of Communications Equipment.	This includes all communication equipment used by the Settlement Metering System. For example - GSM Type X Manufacturer Y. Where there isn't a lot of communications equipment the list can be included as part of the confirmation from a qualified person (see below).
Confirmation from a qualified person that the Communications Equipment included on the list does comprises all of the relevant Communications Equipment for the Facility Metering Equipment.	Declaration to confirm the list of communications equipment. Can also include the list (see above).
Proving Test results.	The Proving Test is confirmation that the Half-Hourly Data Collector (HHDC) can accurately download the primary energy recorded by the Settlement Meter. The evidence should be the actual test results to confirm compliance. Even if the BSC doesn't require a Proving Test to be completed the terms the CfD Agreement require this to be done to prove compliance with OCPs (C) and (E). Typical techniques to do this are to compare a half hour period downloaded by the HHDC with either an advance of the cumulative register of the meter for the same half hour recorded by the MOA or a download of the half hourly data by the MOA using the meter manufacturer's software.
For existing generating stations the following additional item is required	
Confirmation that no outstanding D0001 Data Flow – Request Metering System Investigation.	The Meter Operator or Half Hourly Data Collector can confirm that there are no outstanding faults (i.e. a D0001) with the Metering System.

10.3 Evidence Communication for a Private Network Metering System (i.e. not a BSC Settlement Metering System registered in CMRS or SMRS)

For a BSC Settlement Metering System registered in Private Network	Guidance
List of Communications Equipment.	<p>This includes all communication equipment used by the Settlement Metering System. For example - GSM Type X Manufacturer Y. Where there isn't a lot of communications equipment the list can be included as part of the confirmation from a qualified person (see below).</p>
Confirmation from a qualified person that the Communications Equipment included on the list does comprises all of the relevant Communications Equipment for the Facility Metering Equipment.	<p>Declaration to confirm the list of communications equipment. Can also include the list (see above).</p>
Key Meter Technical Details Form.	<p>The details that must be for both the Main and the Check Meters and include the Meter Serial Numbers, the Outstation Number of Channels, the Measurement Quantity ID, the Meter Multiplier, the Pulse Multiplier, the Current Transformer (CT) and/or Voltage Transformer (VT) serial numbers and the CT and/or VT ratios. Number of channels: Every measurement quantity that is setup in the Meter/Outstation should be included and not just the Active Energy channels use to settle in EMR. So if the Meter/Outstation is configured with Half Hourly reactive energy channels (e.g. Reactive Import and Reactive Export) as well as active energy channels (e.g. Active Import and Active Export) the number of channels would be 4 and not 2. Measurement Quantity IDs: This is linked to the number of channels above. The number of Measurement Quantity IDs provided should be the same as the number of channels setup. The convention for the most common configurations are:</p> <ul style="list-style-type: none"> ● Active Energy Import AI ● Active Energy Export AE ● Reactive Energy Import RI

For a BSC Settlement Metering System registered in Private Network	Guidance
	<ul style="list-style-type: none"> ● Reactive Energy Export RE ● Reactive Import associated with Active Import Q1 ● Reactive Export associated with Active Export Q2 ● Reactive Import associated with Active Export Q3 ● Reactive Export associated with Active Import Q4 <p>Meter Multiplier: Any multiplier applied to the cumulative register on the display of the meter. For example if the cumulative meter reading on the display was 123456 x10 kilo Watt hours (kWh) the Meter multiplier would be 10. If the reading on the display was 123456 kWh the Meter multiplier would be 1. This can be either kWh or Mega Watt hours (MWh) depending on the setup of the meter.</p> <p>Pulse multiplier: This is any multiplier applied to the Half Hour pulses recorded (either by the meter itself or a separate Outstation) in order for it to be converted to energy. So if a meter recorded pulses in kW and in a Half-Hour recorded 5000 pulses (kW) to convert to energy (2500kWh) the multiplier would be 0.5. Where the Outstation is separate to the meter the output pulse value of the meter should be included.</p> <p>Ratios: An example of a CT ratio would be 200/5A; an example of a VT ratio would be 11kV/110V.</p> <p>The installer of the Metering System should be able to provide these details.</p>
Proving Test results.	<p>The Proving Test is confirmation that the CfD Generator can accurately download the primary energy recorded by the Meter. Typical techniques to do this are to compare a half hour period downloaded by the data collector or CfD Generator with either an advance of the cumulative register of the meter for the same half hour recorded by the Meter installer or a download of the half hourly data by the Meter installer using the meter manufacturer's software. Where data is submitted through a non-BSC process, i.e. a CSV file submitted over SFTP, this file has to be provided as part of the proving test evidence.</p>

11. What is the OCP submission process?

The required evidence to meet the OCP (A) has to be submitted to EMRS for validation and approval. Once compliance has been confirmed EMRS will provide written confirmation to the CFD Generator and this confirmation should be submitted to the LCCC. The process, with associated timeframes, can be seen below.

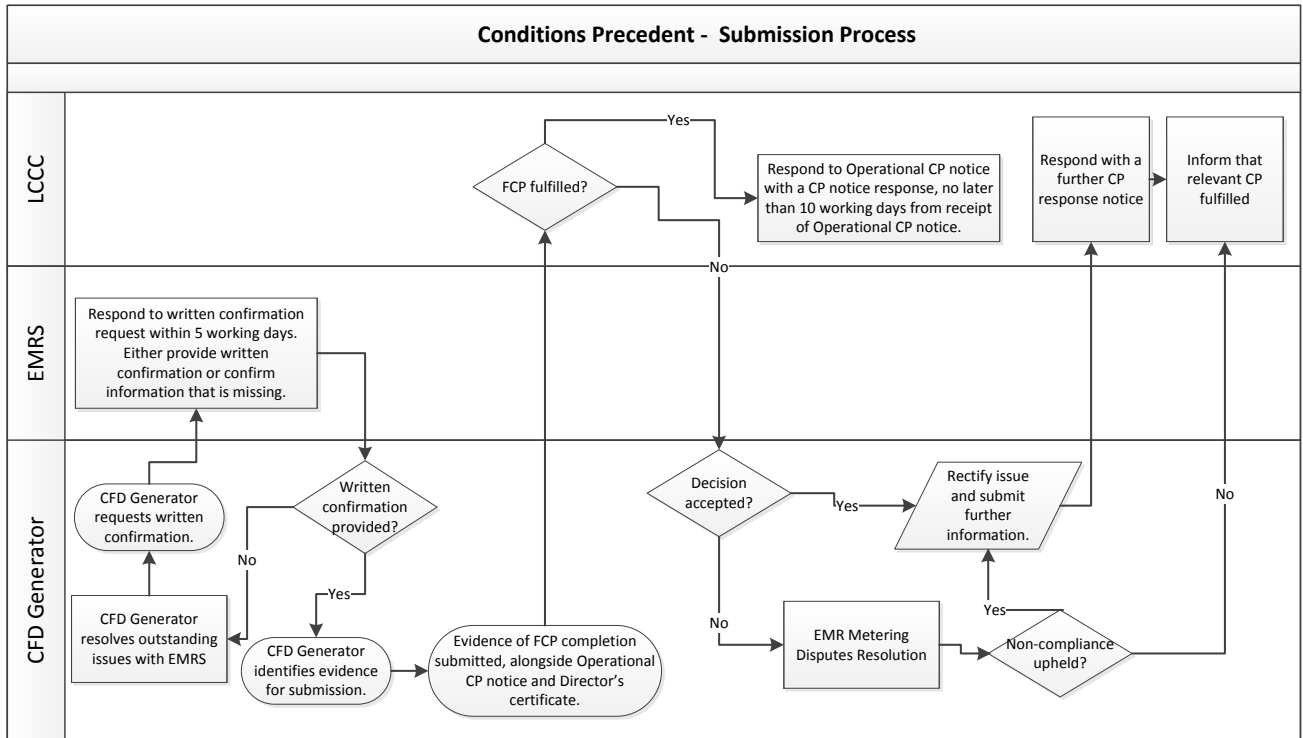


Figure 1 - Submission process for conditions precedent OCP (A)

The required evidence to meet the OCPs (C), (D) and (E) has to be submitted to the LCCC, after which they arrange for validation and approval of the submitted evidence to the technical specifications required. The process, with associated timeframes, can be seen below.

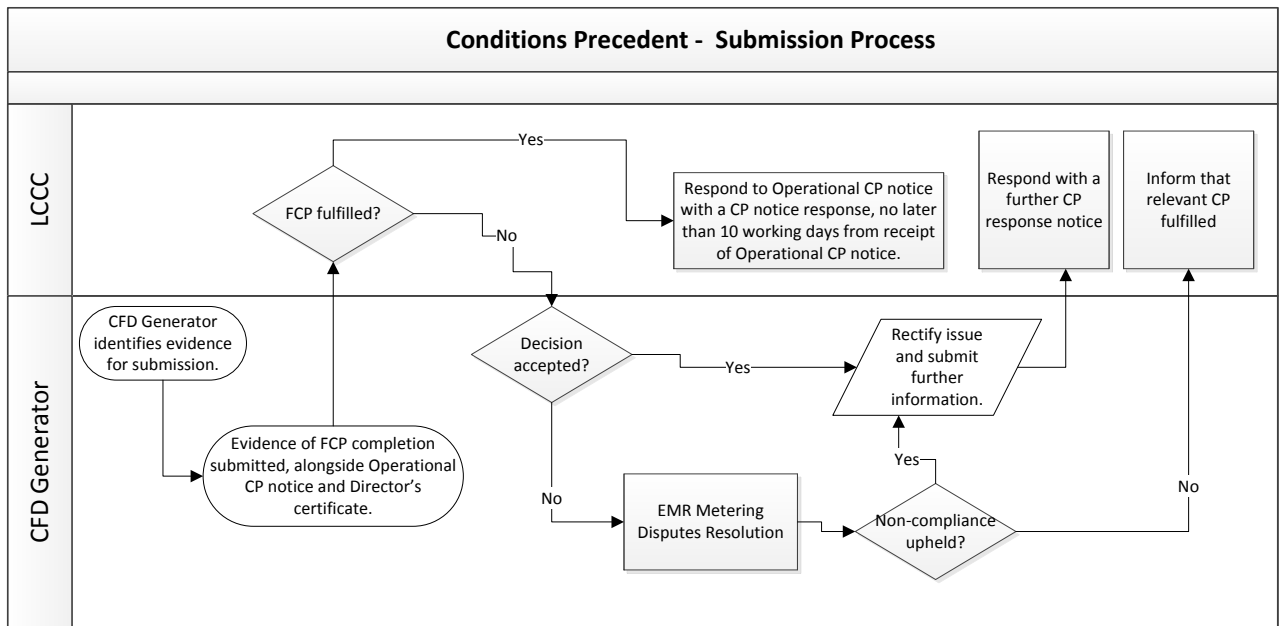


Figure 2 - Submission process for conditions precedent OCPs (C), (D) and (E)

12. Need more information?

For more information, please visit our website www.emrsettlement.co.uk or email us at contact@emrsettlement.co.uk.

13. Acronyms and Definitions

A list of acronyms and definitions can be found in the 'Acronyms and Definition' document on our website⁹.

⁹ <https://emrsettlement.co.uk/publications/>

14. Appendices

14.1 Appendix 1 – Electrical Schematic Example

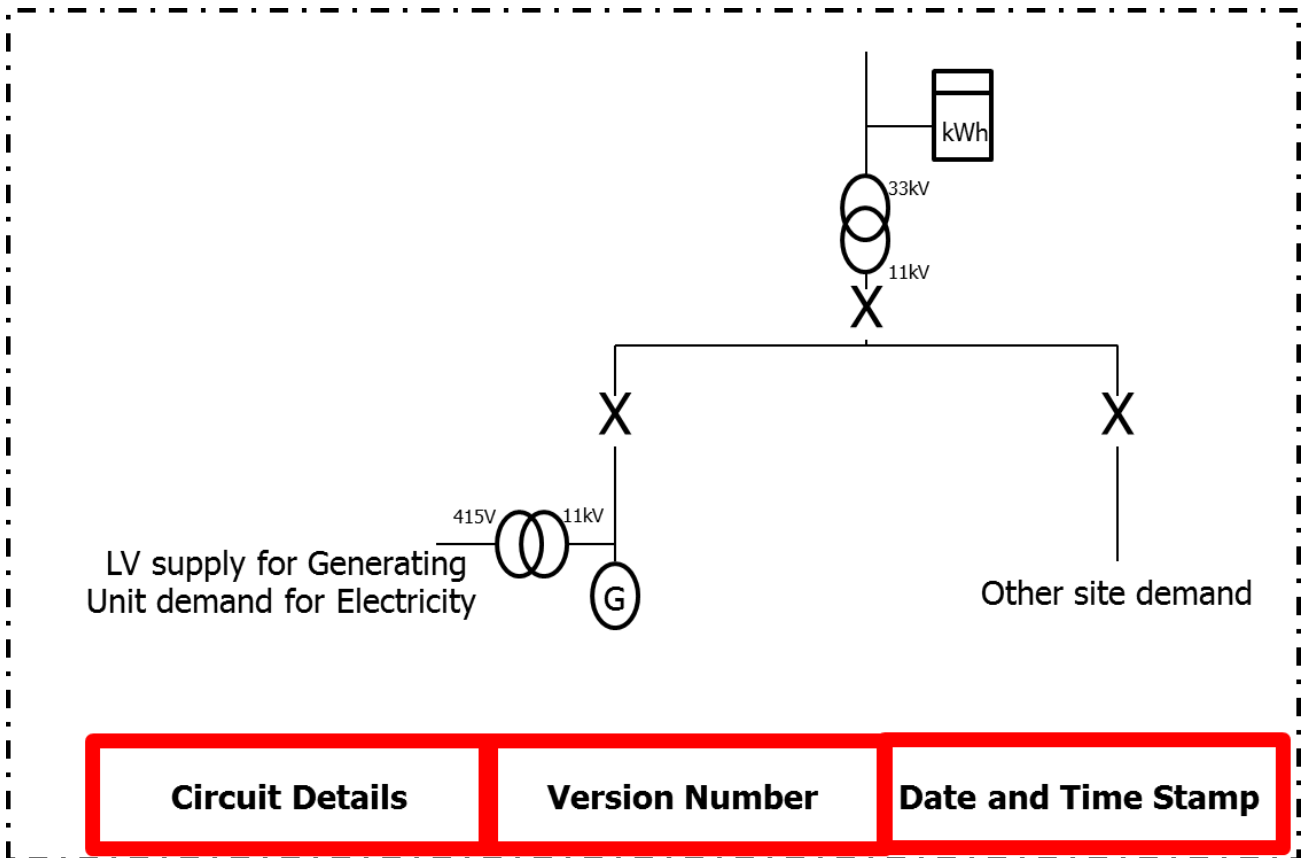


Figure 3 - Example of Electrical Schematic Diagram

