

WP33 – CFD Electrical Schematic Obligation

EMRS Working Practice

Public

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Change Amendment Record

Version	Date	Description
1.0	20 October 2015	Go-Live Version
2.0	24 November 2015	Corrections
3.0	13 October 2017	Document transfer to new template

1. Introduction

The generator has to submit an updated Electrical Schematic Diagram should a material change occur after the initial copy of the diagram has been submitted as part of the fulfilment of Operational Further Conditions Precedent (FCP). This is the Electrical Schematic Obligation contained in the CFD Agreement, condition 31.9.

The Electrical Schematic Diagram is sent to the Low Carbon Contracts Company (LCCC) who can outsource the validation process to a Management Services Provider (MSP). The MSP will appoint a suitably qualified agent to check compliance of the diagram. This working practice is also relevant to that nominated representative of the MSP; the Metering Agent (MA).

This must be accompanied by a Directors’ Certificate certifying that the information is true, complete and accurate in all material respects and is not misleading.

Failure to fulfil the Electrical Schematic Obligation can result in payments being suspended.

1.1 Scope and Purpose

This document has been written by EMR Settlement Ltd (EMRS) on behalf of the Low Carbon Contracts Company (LCCC) for Contracts for Difference (CFD). It covers procedures for the Management Services Provider (MSP) and Metering Agent (MA) roles. The MSP role is being fulfilled by EMRS for the 2015/16 financial year. The MSP and MA roles will be subject to a LCCC procurement exercise for subsequent financial years. If you have any questions on the MSP and MA roles please contact LCCC.

The generator is responsible for maintaining and updating the Electrical Schematic Diagram following a material change to the Facility Metering Equipment. A material change, as far as the Electrical Schematic Diagram is concerned is, would be anything that causes the information on the Electrical Schematic Diagram to be incorrect. This includes:

- Replacement Current Transformer (CT) with a different ratio;
- Replacement Voltage Transformer (VT) with a different ratio;
- Replacement Meter of a different Type;
- Replacement Meter of a different Serial Number (Private Network only);
- Replacement communication equipment of a different Type;
- Change of MPAN or MSID (Central Meter Registration Service (CMRS) / Supplier Meter Registration Service (SMRS) only); and
- Change of location of Facility Metering Equipment.

There are other requirements in the Balancing and Settlement Code (BSC) and Private Network Agreement Metering Operational Framework (MOF) when a material change occurs. These are not discussed in this working practice.

The Electrical Schematic Diagram will be submitted to the LCCC. The LCCC can submit the diagram to the MA, via the MSP, for evaluation to determine compliance to the requirements of the CFD Agreement.

1.2 Main Users and Responsibilities

Table 1: Main Users and Responsibilities

Role	Responsibilities
CFD Generator	To submit Electrical Schematic Diagram and Obligation Notice.

Role	Responsibilities
EMR Settlement Ltd (EMRS)	Receive Metering Agent Aggregation Rule. Follow LCCC instruction on payment suspension / resumption.
Low Carbon Contracts Company Ltd (LCCC)	To arrange a Service Provider to manage the checking of the Electrical Schematic. Notify CFD Generator of results.
Management Services Provider (MSP)	Service Provider who will perform the management of the Metering Assurance Process on behalf of the LCCC. They will arrange for a Metering Agent to perform the analysis.
Metering Agent (MA)	Service Provider who will perform the onsite testing and analysis of technical specifications and test results on behalf of the Management Services Provider.

1.3 Associated Documents

This working practice should be read in conjunction with the following documents:

Document
CFD Standard Terms and Conditions ¹ and all subsequent amendments
CFD Agreement ¹ and all subsequent amendments
Private Network CFD Agreement ¹ and all subsequent amendments

2. Required Supplier Information

2.1 Electrical Schematic Obligation

Following a material change to the Facility Metering Equipment the Generator is required to inform the LCCC (send an Electrical Schematic Obligation Notice) within two Working Days of the change and provide an updated version of the Electrical Schematic Diagram within 10 Working Days of the change. Both the Notice and the updated diagram should be accompanied by a Directors’ Certificate.

The generator is required to submit a copy of the Electrical Schematic Diagram (single line diagram) to LCCC showing the locations of the Facility Metering Equipment. This will include CTs and VTs² as well as the type of meters and communications equipment installed. For a Central Meter Registration Service (CMRS) / Supplier Metering Registration Service (SMRS) CFD Generator the type of meter used must be approved under the BSC³.

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.

¹ <https://www.gov.uk/government/publications/contracts-for-difference-standard-terms-and-conditions>

² CTs and VTs are collectively referred to as Measurement Transformers

³ List of BSC approved meters in [CoP Compliance and Protocol Approval List](#)

The Electrical Schematic Diagram must be date and time stamped, and accompanied by a Directors' Certificate certifying that the information contained in, and enclosed with, is true, complete and accurate in all material respects and is not misleading, in each case by reference to the facts and circumstances then existing. The Directors' Certificate shall include the date and version number of the accompanying Electrical Schematic Diagram.

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. It would be expected to see 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.

A basic example is illustrated in Figure 1 in Appendix 1. In this simplified example any protection, control and instrumentation equipment has been removed to highlight the metering equipment. In a typical single line diagram protection, control and instrumentation equipment would normally be included.

The MA will check that the Electrical Schematic diagram meets the criteria in the Agreement for FCP, the checks will verify that:

- Metering System is located at the DMP;
- Measurement Transformers are of the correct accuracy class;
- Meter Type is on the approved BSC list (CMRS / SMRS only);
- MPAN or MSID is a valid number (CMRS / SMRS only);
- Communications Type is stated; and
- For Private Network Meter Serial Numbers are stated.

As part of the Electrical Schematic Diagram check the MA will provide an aggregation rule to EMR Settlement Ltd (EMRS), via the MSP, that will detail how Metered Volume will be derived.

The MA aggregation rule must include all relevant identifiers for the Metering System; the examples below illustrate what is required for CMRS, SMRS and Private Network.

The convention is that net export will return a positive value and net import will return a negative value.

In CMRS the BMU ID is the only data item required. The BMU ID, if not included in the Electrical Schematic Diagram, will be requested from the CDCA from the MSID quoted on the Electrical Schematic Diagram.

In the example below there are two generator circuits and a shared station transformer demand circuit each with a Metering System that are making up the Facility for two CFD IDs.

$$\text{CFD ID 1} = (\text{T_WXYZ-1}) + [0.5 \times (\text{T_WXYZ-D})];$$

$$\text{CFD ID 2} = (\text{T_WXYZ-2}) + [0.5 \times (\text{T_WXYZ-D})];$$

Where the BM Unit ID is T_WXYZ-1 for Generator 1; T_WXYZ-2 for Generator 2; T_WXYZ-D for the Station Transformer (demand BMUs have a negative value for Active Import).

This example assumes that the generating units are identical and the station transformer demand is used equally between them.

In SMRS the MPAN is the only data item required. The MPANs will be quoted on the Electrical Schematic Diagram.

In the example below there is one metered point making up the Facility that has one MPAN for the Active Export and another MPAN for the Active Import.

$$\text{CFD ID} = (1900012345678) - (1900012345679);$$

Where the MPAN for Active Export is 1900012345678; the MPAN for Active Import is 1900012345679.

The metered volumes provided by the Half Hourly Data Aggregator (HHDA) will be positive for both Active Import and Active Export, and adjusted for Line Loss Factors (LLF).

In a Private Network the Metered Entity Identifier agreed with EMRS is required. The Metered Entity Identifier is an 18 character alphanumeric identifier.

In the example below there is one metered point making up the Facility. The net Active Energy is submitted by the CFD Generator.

CFD ID = (XY15A12345NET00000);

Where Metered Identity Identifier is made up of the metering device identifier, in this case the Meter serial number (XY15A12345); the format of the energy (e.g. NET); and the remaining characters are populated with zeroes.

The convention is that a net Export value is positive (+ve) and a net Import value is negative (-ve).

In the example below there is one metered point making up the Facility. The Active Export and the Active Import are submitted separately by the CFD Generator.

CFD ID = (XY15A12345AE000000) + (XY15A12345AI000000);

Where Metered Identity Identifier is made up of the metering device identifier, in this case the Meter serial number (XY15A12345); the format of the energy is AE for the Active Export in the first part of the aggregation rule and is AI for the Active Import in the second part of the aggregation rule; and the remaining characters are populated with zeroes.

The convention is that an Active Export value is positive (+ve) and an Active Import value is negative (-ve).

In addition for a Private Network CFD Generator the MA must submit the voltage level at the Boundary Point to the Total System to EMRS so they can apply the correct LLF.

This Metering Agent Aggregation Rule will be submitted to the MSP who will then submit it to EMRS. The template in Appendix 3 – Analysis Results Template should be used to submit the MA aggregation rule.

EMRS are responsible for creating the Settlement Aggregation Rule from the Metering Agent Aggregation Rule. For example, by accounting for any applicable LLF or Transmission Loss Multipliers (TLM) value in the aggregation rule.

3. Interface and Timetable Information

3.1 Electrical Schematic Obligation

Following a material change to the Metering System provide an updated Electrical Schematic Diagram as evidence of the type of metering and communications equipment being installed and that the metering is installed at the Defined Metering Point (DMP). This also includes the creation of the MA Aggregation Rules for use by EMRS to establish the Settlement Aggregation Rule. The initial Electrical Schematic submitted will be considered under the Further Conditions Precedent (Metering) Working Practice.

Ref	Condition	When	Action	From	To	Input Information Required	Method
3.1.1	3.9 , 31.9 (A) & 31.10 (A)	Following a material change and within 2 WD of it	Submit an Electrical Schematic Obligation Notice	Generator	LCCC	Electrical Schematic Obligation Notice ⁴ Directors' Certificate	Email
3.1.2	3.9, 31.9 (B) & 31.10 (B)	Following a material change and within 10 WD of it	Submit an updated electrical schematic diagram of the metering arrangements If Electrical Schematic Diagram not received by deadline continue to 3.1.15	Generator	LCCC	Electrical Schematic Diagram; Directors' Certificate (include date and version number of Electrical Schematic Diagram)	Email
3.1.3		Following receipt of information in 3.1.2, 3.1.13 or 3.1.16, as	Submit information to MSP	LCCC	MSP	CFD ID; Electrical Schematic Diagram	Email

⁴ CFD Standard Terms and Conditions <https://www.gov.uk/government/publications/contracts-for-difference-standard-terms-and-conditions>

Ref	Condition	When	Action	From	To	Input Information Required	Method
		applicable, and within 2 WD					
3.1.4		Following receipt of information in 3.1.3 and within 1 WD	Submit information to MA	MSP	MA	CFD ID; Electrical Schematic Diagram	Email
3.1.5		Following receipt of information in 3.1.4 and within 2 WD	Determine whether Electrical Schematic Diagram shows all Facility Metering Equipment and is at the Defined Metering Point to allow net Metered Volume to be recorded; Meter Types are valid; other relevant details included; and Determine MA Aggregation Rule as per 2.2	MA		CFD ID; Electrical Schematic Diagram	Internal Process
3.1.6		Same WD as 3.1.5	Submit result to MSP	MA	MSP	Notification of analysis results (template in Appendix 3 – Analysis Results Template). If not compliant detail reasons of problem	Email

Ref	Condition	When	Action	From	To	Input Information Required	Method
						MA Aggregation Rule (template in Appendix 2 - Metering Agent Aggregation Rule Template)	
3.1.7		Same WD as 3.1.5	Submit MA Aggregation Rule	MSP	EMRS	MA Aggregation Rule (template in Appendix 2 - Metering Agent Aggregation Rule Template)	Email
3.1.8		Following receipt of result 3.1.6 and within 1 WD	Submit result to LCCC	MSP	LCCC	Notification of analysis results (template in Appendix 3 – Analysis Results Template). If not compliant detail reasons of problem	Email
3.1.9		Same WD as 3.1.8	If conditions met continue to 3.1.10 If conditions not met continue to 3.1.11	LCCC		Notification of analysis results.	Internal Process
3.1.10		Following 3.1.9 and within 5 WD	Inform Generator that the Electrical Schematic Obligation condition has been met. END PROCESS	LCCC	Generator	Notification of compliance	Email

Ref	Condition	When	Action	From	To	Input Information Required	Method
3.1.11		Following 3.1.9 and within 5 WD	Inform Generator that the Electrical Schematic condition has not been met.	LCCC	Generator	CFD ID Details of non-compliance	Email
3.1.12	31.11	Following 3.1.11	Notify Generator they are in breach of the Electrical Schematic Obligation and they must submit an Electrical Schematic Diagram. The LCCC may suspend payment of Net Payable Amounts in any period the Generator is in breach of the Electrical Schematic Obligation.	LCCC	Generator EMRS (If applicable)	Notification of Electrical Schematic Obligation Breach. If applicable notify the Generator of: 1. Its intention to suspend payment of any Net Payable Amounts; and 2. The date from which it proposes to effect such suspension. Implement suspension	Email Internal process
3.1.13		Following 3.1.12	Rectify the problem and submit an updated Electrical Schematic Diagram	Generator	LCCC	Updated Electrical Schematic Diagram; Directors' Certificate.	Email
3.1.14	31.12	Following 3.1.13	If applicable the LCCC shall pay any amounts to the Generator which would have been payable but for the operation of	LCCC	Generator EMRS	Arrange payment.	Email

Ref	Condition	When	Action	From	To	Input Information Required	Method
			<p>3.1.12. No compensatory interest or default interest shall be payable.</p> <p>Continue to 3.1.3</p> <p>END PROCESS</p>				
3.1.15	31.11	Following 3.1.2	<p>Notify Generator they are in breach of the Electrical Schematic Obligation and they must submit an Electrical Schematic Diagram.</p> <p>The LCCC may suspend payment of Net Payable Amounts in any period the Generator is in breach of the Electrical Schematic Obligation.</p>	LCCC	Generator	<p>Notification of Electrical Schematic Obligation Breach.</p> <p>If applicable notify the Generator of:</p> <ol style="list-style-type: none"> 1. Its intention to suspend payment of any Net Payable Amounts; and 2. The date from which it proposes to effect such suspension. 	Email
					EMRS (If applicable)	Implement suspension	Internal process
3.1.16	31.9 (B) & 31.10 (B)	Following 3.1.15	The Generator complies with the Electrical Schematic Obligation.	Generator	LCCC	Updated Electrical Schematic Diagram; Directors' Certificate.	Email

Ref	Condition	When	Action	From	To	Input Information Required	Method
3.1.17	31.12	Following 3.1.16	<p>If applicable the LCCC shall pay any amounts to the Generator which would have been payable but for the operation of 3.1.15. No compensatory interest or default interest shall be payable.</p> <p>Continue to 3.1.3</p> <p>END PROCESS</p>	LCCC	<p>Generator</p> <p>EMRS</p>	Arrange payment.	Email

4. Contact Information

For all queries please contact:

Contact Organisation	Contact
Settlement Services Provider (EMR Settlement Ltd)	Telephone: 020 7380 4333 Email: contact@emrsettlement.co.uk
Low Carbon Contracts Company (LCCC)	Telephone: 020 7211 8881 Email: info@lowcarboncontracts.uk

5. Acronyms and Definitions

A list of acronyms and definitions can be found in the 'Acronyms and Definition' document on the EMRS website⁵.

⁵ <https://emrsettlement.co.uk/publications/working-practices/> > Useful Links

6. Appendices

6.1 Appendix 1 – Electrical Schematic Example

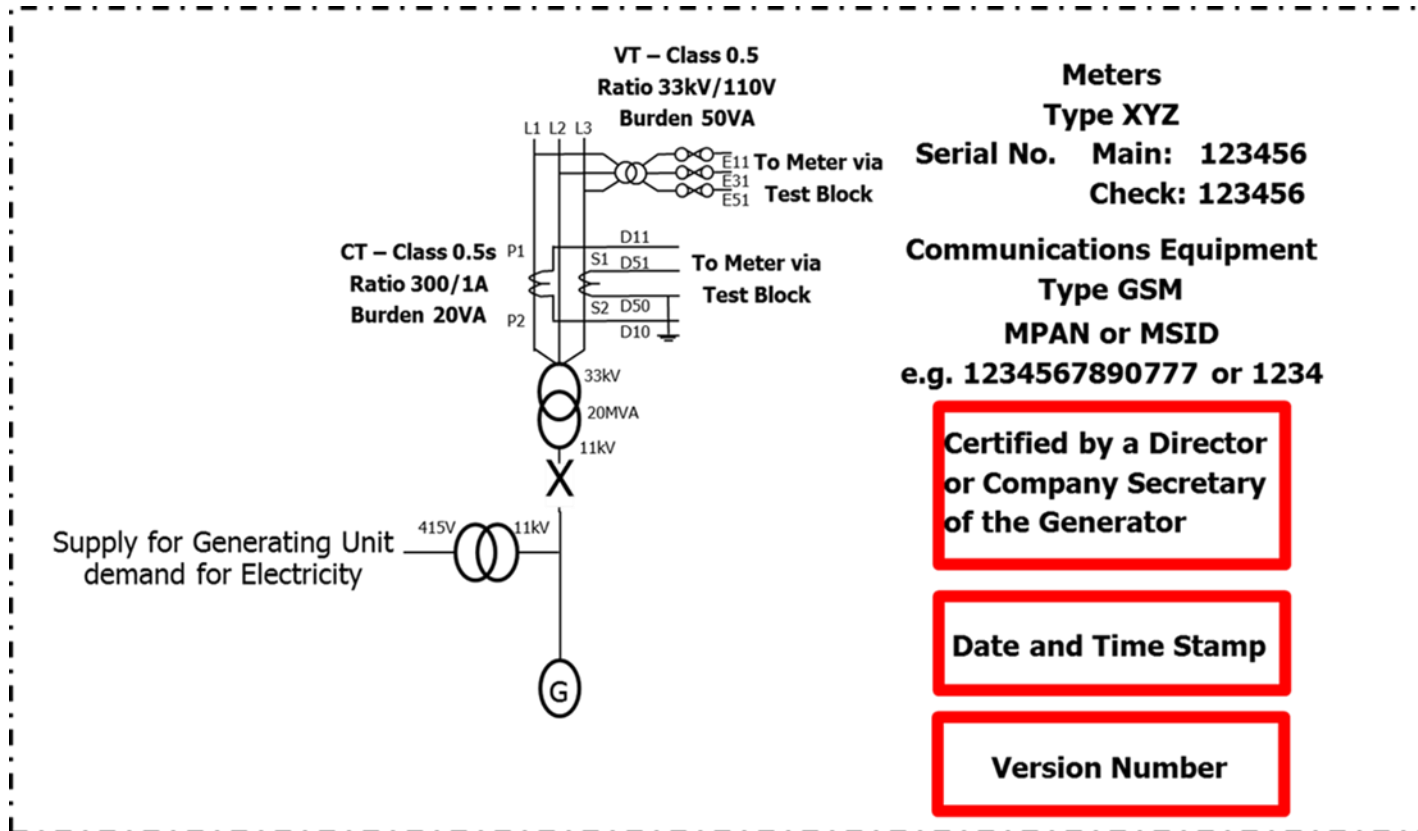


Figure 1: Example of Electrical Schematic Diagram

6.2 Appendix 2 – Metering Agent Aggregation Rule Template

Aggregation Rule Report (CFD)

CFD ID: _____

CFD Name: _____

BMU IDs (MSID) (if applicable): _____

MPANs (if applicable): _____

Metering Entity IDs
(if applicable): _____

Boundary Point Voltage Level (kV): _____
(Private Network only)

Aggregation Rule

Date of Analysis: _____ / _____ / _____

Name of person completing analysis: _____

6.3 Appendix 3 – Analysis Results Template

Contracts for Difference Electrical Schematic Obligation Report

CFD ID: _____

CFD Name: _____

Schematic Compliant: YES / NO*

Metering System Compliant: YES / NO*

(* Delete as appropriate)

Details of Non-Compliance

Date of Check: _____ / _____ / _____

Name of person completing check: _____

