

Generic Commissioning Requirements Including Typical Timescales

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1. Definitions

In this document the following words and expressions will have the following meanings:

Item	Meaning
Commissioning Hold Point	A mandatory verification point beyond which commissioning activities cannot proceed without ElectraNet's approval.
Commissioning Witness Point	An identified point in the commissioning process where ElectraNet may review or witness a commissioning activity. The remaining commissioning activities, however, may proceed.
CQMP	Commissioning Quality Management Plan.
EMS	Energy Management System.
Equipment	Transmission assets and related auxiliary systems.
FAT	Factory Acceptance Test.
IFC	Issued for construction.
ITP	Inspection and Test Plan.
IUSA	Identified User Shared Assets.
IUSA Provider	The party providing the IUSA.
IWA	Interface Works Agreement.
NOA	Network Operating Agreement.
SWOBS	Switching Writer Outage Booking System.
TCA	Transmission Connection Agreement.

2. Purpose

The purpose of this document is to outline the generic timescales associated with the commissioning of transmission assets and related auxiliary systems, hereafter referred to as Equipment, installed within an IUSA site.

3. Scope

This document is applicable to the commissioning of all Equipment installed within an IUSA site. It also applies to the commissioning of any Equipment providing the interface between the IUSA site and ElectraNet's infrastructure and systems.

4. Commissioning Process

4.1 Commissioning Objectives

In order to achieve satisfactory commissioning of Equipment, ElectraNet's commissioning process has the following five principal objectives:

- a) Statutory Work Health & Safety and Environmental requirements, primarily the *Work Health & Safety Act 2012* (SA) and *Electricity Act 1996* (SA);
- b) Transmission network reliability requirements (i.e. maintaining reliability during commissioning);
- c) ElectraNet's organisational requirements (definition of tasks, responsibilities and timescales);
- d) ElectraNet's Equipment performance requirements (definition of a test regime that ensures correct Equipment commissioning); and
- e) Contractual requirements defined within the Interface Works Agreement (IWA), Transmission Connection Agreement (TCA) and Network Operating Agreement (NOA).

4.2 Commissioning Philosophy

To ensure the IUSA site is commissioned to a standard which meets the principal objectives outlined in Section 4.1 the commissioning philosophy will comprise;

- a) A process framework which ensures that commissioning is undertaken with a demonstrable level of governance and associated audit trail; and
- b) A requisite level of skills, knowledge and competency which ensures the quality and accuracy of the commissioning undertaken.

4.3 Communication During Commissioning

4.3.1 Commissioning Start-Up Meeting

The IUSA Provider must schedule a Commissioning Start-up Meeting prior to ElectraNet approving the Commissioning Quality Management Plan (CQMP). The purpose of the Commissioning Start-Up Meeting is to:

- a) Introduce the IUSA Provider's commissioning team to the ElectraNet handover team;
- b) Establish the lines of communication for managing unexpected or abnormal test results, Equipment failures, delays etc.;
- c) Ensure the IUSA Provider's commissioning team is fully briefed on ElectraNet's commissioning requirements;
- d) Review the CQMP; and
- e) Agree dates and venues for subsequent Commissioning Progress and Handover Meetings.

4.3.2 Commissioning Progress and Handover Meetings

The IUSA Provider must schedule the Commissioning Progress Handover Meetings (as defined within the CQMP) at the conclusion of each stage of commissioning. The purpose of the Commissioning Progress and Handover Meeting is to:

- a) Review the documentation and drawings for the stage of commissioning that has been completed;
- b) Sign off the Completion Certificate for the stage of commissioning that has been undertaken; and
- c) Agree resolutions and timeframes for any omissions, errors, defects or limitations.

4.3.3 Extraordinary Meetings

Under certain circumstances, ElectraNet may request the IUSA Provider to attend an extraordinary meeting. Extraordinary meetings would typically be held to discuss technical issues such as defects, non-conformances or program related issues such as delays or outage management.

5. Commissioning Quality Management Plan

5.1 Application

To comply with the requirements of ElectraNet's commissioning process, the IUSA Provider must prepare a CQMP. The CQMP is generally jointly prepared by the design and commissioning team to ensure the proposed tests align with the design intent. Under the IWA, ElectraNet will provide a draft CQMP to the IUSA Provider, who must provide any proposed amendments within 20 business days after the commencement date of the IWA. ElectraNet will provide its response to the proposed amendments within 10 business days and the parties will then use best endeavours to agree and sign the CQMP within a further 10 business day period. During the CQMP approval process ElectraNet will nominate the desired Commissioning Hold Points and Commissioning Witness Points. Throughout the commissioning process the CQMP must be maintained, at the IUSA site, by the IUSA Provider's Commissioning Manager and made available for inspection to ElectraNet's nominated representative on request. On completion of the project, the CQMP must form part of the handover documentation.

5.2 Structure and Content

The CQMP must be prepared in accordance with the IWA, and must include the following sections.

5.2.1 Commissioning Team Contact Details

Section 1 of the CQMP must include the names, roles and contact details of the relevant IUSA Provider's personnel involved in the IUSA site's design and commissioning.

5.2.2 Diagrams

Section 2 of the CQMP must include the Simplified Single Line Diagram, the Protection & Control Single Line Diagram and the Metering Single Line Diagram. The diagrams must be the Issued for Construction (IFC) versions and must indicate the Equipment to be commissioned and the interfaces to existing infrastructure.

5.2.3 Commissioning Activity Schedule

Section 3 of the CQMP must include a Gantt style chart illustrating the proposed commissioning activity schedule. The schedule must indicate the nominated start and finish dates for each activity and identify any interdependencies between the activities.

5.2.4 Factory Acceptance Test Program

Section 4 of the CQMP must include a program which itemises the proposed Level 1 and Level 2 factory acceptance tests, indicates the Inspection & Test Plans (ITPs) that are required to conduct the tests and records the agreed Commissioning Witness Points and Commissioning Hold Points.

5.2.5 Site Test Program

Section 5 of the CQMP must include a program which itemises the proposed site tests, indicates the ITPs that are required to conduct the tests and records the agreed Commissioning Witness Points and Commissioning Hold Points. The Site Test Program must detail both off-load and on-load commissioning tests.

5.2.6 Inspection & Test Plans

Section 6 of the CQMP must include the complete suite of ITPs necessary to execute and document the range of tests detailed within the FAT and Site Test Programs. ITPs are primarily concerned with proving Equipment functionality, and are generally produced for individual items of Equipment. ITPs must provide the required test instruction, define the expected test outcomes and must be used to record the actual outcomes. At the request of the IUSA Provider, ElectraNet may provide sample ITP documents.

5.2.7 Level 1 Factory Acceptance Test Completion Certificate

Section 7 of the CQMP must include a Certificate jointly completed by the IUSA Provider and ElectraNet to confirm the Equipment has been correctly assembled, powered up, configured and is correctly communicating. The Certificate must record any errors, defects or limitations found during the tests. Completion of the Certificate is a pre-requisite to the commencement of the Level 2 Factory Acceptance Test.

5.2.8 Level 2 Factory Acceptance Test Completion Certificate

Section 8 of the CQMP must include a Certificate jointly completed by the IUSA Provider and ElectraNet to confirm the Factory Acceptance Test Program has been correctly executed and the Equipment functions in accordance with the design. The Certificate must record any errors, defects or limitations found during the tests. Completion of the Certificate is a pre-requisite to transporting Equipment to site.

5.2.9 Site Inspection Certificate

Section 9 of the CQMP must include a Certificate jointly completed by the IUSA Provider and ElectraNet to confirm the Equipment has been installed to an extent that will allow the commencement of off-load tests without health and safety concerns or the possibility of damage to plant or Equipment. The Certificate must record any errors, defects or limitations found during the inspection. Completion of the Certificate is a pre-requisite to commencing site tests.

5.2.10 Site Off-load Test Completion Certificate

Section 10 of the CQMP must include a Certificate jointly completed by the IUSA Provider and ElectraNet to confirm the off-load elements of the Site Test Program have been fully completed and the primary and secondary Equipment has been correctly integrated. The Certificate must record any errors, defects or limitations found during the tests. Completion of the Certificate is a pre-requisite to energising the Equipment from the transmission network.

5.2.11 Commissioning Completion Certificate

Section 11 of the CQMP should include a Certificate jointly completed by the IUSA Provider and ElectraNet to confirm that the Equipment has been satisfactorily energised and that on-load commissioning tests have been satisfactorily completed. The Certificate must record any errors, defects or limitations found during the tests.

5.2.12 Commissioning Defect Notification and Register

Section 12 of the CQMP should include the documentation required for the management of any defects or non-conformances identified during the commissioning process. Where a result, other than the expected result, is identified, through inspection or testing, the IUSA Provider must raise a Defect Notification to ElectraNet and record the defect within the Defect Register.

5.2.13 Other requirements

The CQMP must include other requirements as specified in the IWA or as reasonably required by ElectraNet from time to time.

6. Generic Commissioning Timescales

Table 6-1 details the generic timescales, within the commissioning process, at which various commissioning activities should be scheduled. The actual schedule for a given IUSA site must be produced by the IUSA Provider and included within Section 3 of the CQMP.

Table 6-1 Schedule of Generic Timescales for Commissioning

Item No	Item	Responsible Party	Minimum Required Timeframe
1	Commissioning Quality Management Plan submitted.	IUSA Provider	20 business days post IWA commencement date.
2	Commissioning Start-up Meeting held.	IUSA Provider / ElectraNet	Prior to approval of Commissioning Quality Management Plan
3	Commissioning Quality Management Plan approved with nominated Commissioning Witness Points and Commissioning Hold Points.	ElectraNet	10 business days post receipt of document.
4	Preliminary commissioning outages booked into SWOBS.	IUSA Provider	20 business days post IWA commencement date.
5	Inspection & Test Plans submitted for all primary plant and substation infrastructure.	IUSA Provider	40 business days post IWA commencement date.
6	Inspection & Test Plans returned for all primary plants and substation infrastructure approved.	ElectraNet	10 business days post receipt of document.
7	Factory Acceptance Test and Site Acceptance Test Inspection & Test Plans submitted for secondary systems Equipment.	IUSA Provider	26 weeks prior to energisation or 8 weeks prior to FAT whichever is earlier
8	Factory Acceptance Test and Site Acceptance Test Inspection & Test Plans for secondary systems approved.	ElectraNet	20 business days post receipt of document
9	EMS database submitted for approval.	IUSA Provider	6 weeks prior to Factory Acceptance Test.
10	EMS database approved.	ElectraNet	4 weeks prior to Factory Acceptance Test.
11	Outage & Switching Plan submitted for approval.	IUSA Provider	20 weeks prior to energisation
12	Outage & Switching Plan approved.	ElectraNet	18 weeks prior to energisation
13	Request to Activate Telecoms Services submitted.	IUSA Provider	28 days prior to activation of service.

Item No	Item	Responsible Party	Minimum Required Timeframe
14	Confirmed commissioning outages booked into SWOBS.	IUSA Provider	18 weeks prior to energisation.
15	Outages approved.	ElectraNet / AEMO	16 Weeks prior to energisation
16	EMS failover and screen-build completed.	ElectraNet	Prior to commencing Level 2 Factory Acceptance Test.
17	Level 1 Factory Acceptance Test Completion Certificate Issued	IUSA Provider	Prior to commencing Level 2 Factory Acceptance Test.
18	Level 2 Factory Acceptance Test Completion Certificate Issued	IUSA Provider	Prior to commencing Site Acceptance Tests
19	Protection Operation Times Data submitted.	IUSA Provider	12 weeks prior to energisation
20	Plant and Protection Thermal Rating Data Submitted.	IUSA Provider	12 weeks prior to energisation
21	System Switching Diagrams Submitted for approval	IUSA Provider	12 weeks prior to energisation
22	Asset Information SAP Datasheet Submitted.	IUSA Provider	12 weeks prior to energisation
23	Switching Program & Temporary Protection Requests submitted for approval.	IUSA Provider	12 weeks prior to energisation
24	HV plant HV tests undertaken.	IUSA Provider	No earlier than 12 Weeks prior to Energisation
25	HV plant HV Test Report submitted.	IUSA Provider	4 weeks post completion of tests.
26	HV plant Test Report approved.	ElectraNet	10 business days following receipt of document
27	System Switching Diagrams approved.	ElectraNet	10 weeks prior to Energisation
28	Switching Program & Temporary Protection Memos approved.	ElectraNet	10 weeks prior to energisation
29	Site Inspection Certificate Issued	IUSA Provider / ElectraNet	Prior to commencement of off-load tests
30	Offload commissioning tests commenced.	IUSA Provider	10 weeks prior to energisation
31	Communications bearers soak test completed.	IUSA Provider / ElectraNet	4 weeks prior to energisation
32	HV plant insulation resistance tests undertaken.	IUSA Provider	No later than 10 days prior to energisation
32	SCADA Points tested to EMS	IUSA Provider	2 weeks prior to energisation

Item No	Item	Responsible Party / ElectraNet	Minimum Required Timeframe
33	Joint feeder protection tests completed.	IUSA Provider / ElectraNet	1 week prior to energisation
34	Off-load primary and secondary commissioning tests complete.	IUSA Provider	2 days prior to energisation
35	Off-load Test Completion Certificate issued.	IUSA Provider / ElectraNet	2 days prior to energisation
36	Off-load test & inspection documentation approved.	ElectraNet	2 days prior to energisation
37	Visual inspection of Equipment to be energised carried out.	IUSA Provider	No earlier than 1 day prior to energisation
38	Request to Energise Form submitted.	IUSA Provider	Day of energisation
39	System Switching Program executed / IUSA site energised.	IUSA Provider / ElectraNet	Day of energisation
40	Protection on-load tests complete & protection on-load test documentation submitted for approval.	IUSA Provider	Day of energisation
42	Commissioning Completion Certificate issued.	IUSA Provider / ElectraNet	Within 10 days of energisation.
43	Marked up drawings submitted.	IUSA Provider	Within 10 days of energisation
44	Formal Transfer / Handover of IUSA site	IUSA Provider / ElectraNet	In accordance with IWA+TCA+NOA



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