

Power System Incident Reporting Guideline

Version 0.1
D2021/159497



Contents

Contents	2
1 Application of this Guideline	3
1.1 Purpose	3
1.2 Scope	3
1.3 Definitions	3
1.4 Interpretation of this Guideline	3
2 Reporting Process	4
2.1 Overview	4
2.2 Reportable Incident Reporting Process Overview	6
2.3 Identification and Classification of Reportable Incidents	6
2.4 Notification of Reportable Incidents	7
2.5 Investigation of Reportable Incidents	8
2.6 Stage 1 – Brief Report	8
2.7 Stage 2 – Final Report	9
2.8 Submission of the Incident Investigation Reports	11
2.9 Recommendations and actions relating to Reportable Incidents	11
2.9.1 Recommendation and Agreed Action Completion Timelines	12
2.9.2 Close Out of Reportable Incidents	12
2.10 Reporting and Distribution of Reportable Incidents	12
3 Extensions to Reporting Timeframes	12
4 Response to Non-Compliance	13
5 Change Management and Continuous Improvement	13
5.1 Consultation, Approval and Communication	13
5.2 Review	13
5.3 References, Legislative and Regulatory Obligations	13
5.4 Records Management	14
5.5 Requests for amendment	14
5.6 Document History	15



1 Application of this Guideline

1.1 Purpose

This *Power System Incident Reporting Guideline* (**Guideline**) is made by the *Power System Controller* under Section 7 of the System Control Technical Code (*SCTC*).

Under clause 7.5.2 of the *SCTC*, this Guideline is binding on all *System Participants*.

The objective of this Guideline is to assist the *Power System Controller* in exercising its function under the *Electricity Reform Act* and the *System Control Licence* issued by the Utilities Commission, i.e. the function of monitoring and controlling the operation of the *power system* with a view to ensuring that the *power system* operate reliably, safely and securely in accordance with the *SCTC*.

1.2 Scope

This Guideline commenced on the **first of October 2021** and incorporates amendments made from time to time as indicated in Section 5 of this guideline.

This Guideline describes the information and actions required from *System Participants* to assist the *Power System Controller* in maintaining and restoring *power system security*.

The data and information provided by *System Participants* as part of the reporting process is used by the *Power System Controller* to support the investigation of *reportable incidents*, and consequently in facilitating determination of clearly defined recommendations.

The *Power System Controller* may amend or replace this Guideline from time to time to meet changing needs with respect to the reliability, safety and security of the *power system*.

This guideline will only apply to incidents which occur after the commencement date. Where amendments are made to this guideline, the amended guidelines will only apply to incidents which occur after the amendment date.

1.3 Definitions

Terms defined in the *SCTC* have the same meaning in this Guideline.

Defined terms in the *SCTC* are intended to be identified in this Guideline by italicising them, but failure to italicise a defined term does not affect its meaning.

1.4 Interpretation of this Guideline

This Guideline is subject to the principles of interpretation set out in clause 1.4 and Attachment 2 of the *SCTC*.



2 Reporting Process

2.1 Overview

This section outlines the responsibilities of the *Power System Controller* and *System Participants* including the obligation to report on *reportable incidents*, and sets out the required form, manner, content and timing of reporting, investigations and recommendations/agreed actions.

The reporting process has been designed to deliver timely reporting of a *reportable incident* in a staged manner. Depending on the classification of the *reportable incident*, up to two stages may apply. A flowchart (Figure 1) provides an overview of the reporting processes.

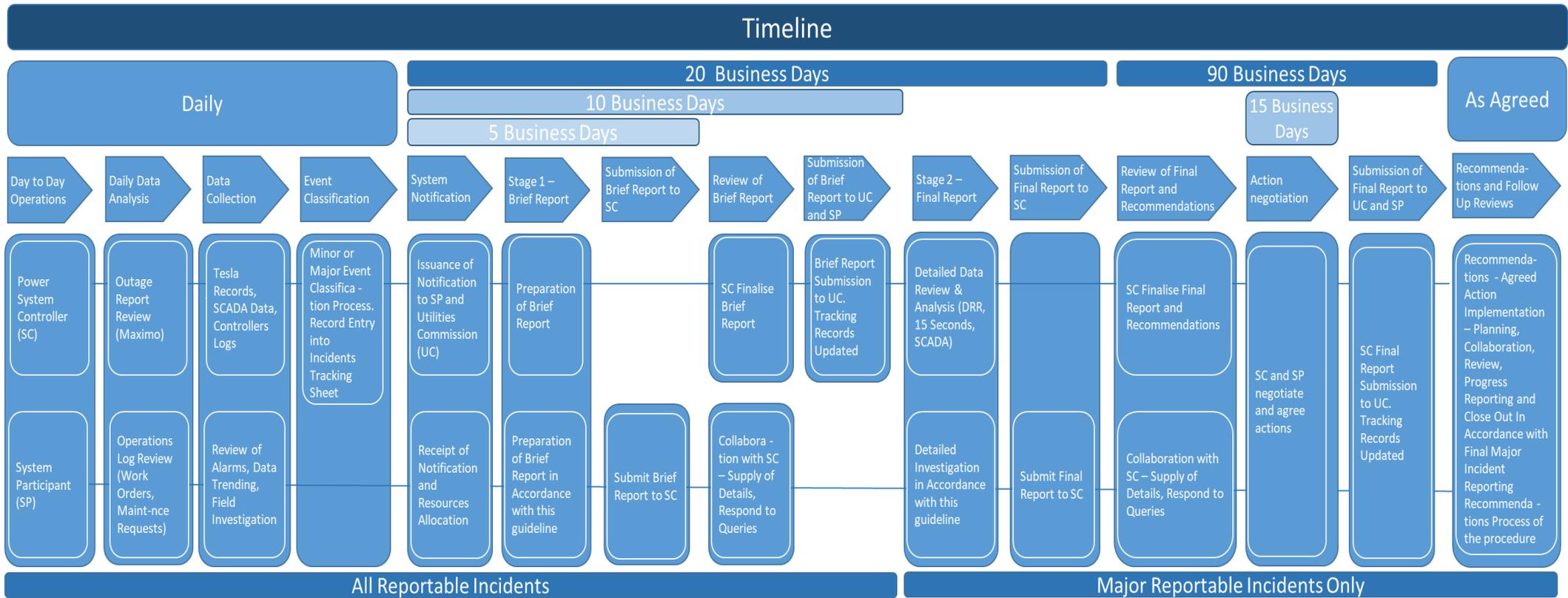


FIGURE 1 MAJOR REPORTABLE INCIDENT REPORTING FLOWCHART



2.2 Reportable Incident Reporting Process Overview

The *Power System Controller*, under the *Electricity Reform Act* and the *System Control Licence*, has the function of monitoring and controlling the operation of the *power system* with a view to ensuring that the *power system* operates reliably, safely, securely and efficiently in accordance with the *SCTC*.

In order to carry out this function, the *Power System Controller* must monitor the operating status of a *power system* and assess the availability and adequacy of *power system* reserves and *power system* responses to ensure that the *power system* is:

- maintained in a secure operating state;
- meeting the power system security and reliability standards; and
- capable of arresting the impacts of a range of contingency events.

TO ACHIEVE THIS, THE POWER SYSTEM CONTROLLER UNDERTAKES CONTINUOUS MONITORING OF ALL REGULATED POWER SYSTEMS. AS A PART OF ITS DAILY MONITORING ACTIVITIES, THE POWER SYSTEM CONTROLLER UNDERTAKES A SIX-STEP REPORTABLE INCIDENT REPORTING PROCESS. THE PROCESS IS ILLUSTRATED BELOW IN

Figure 2.

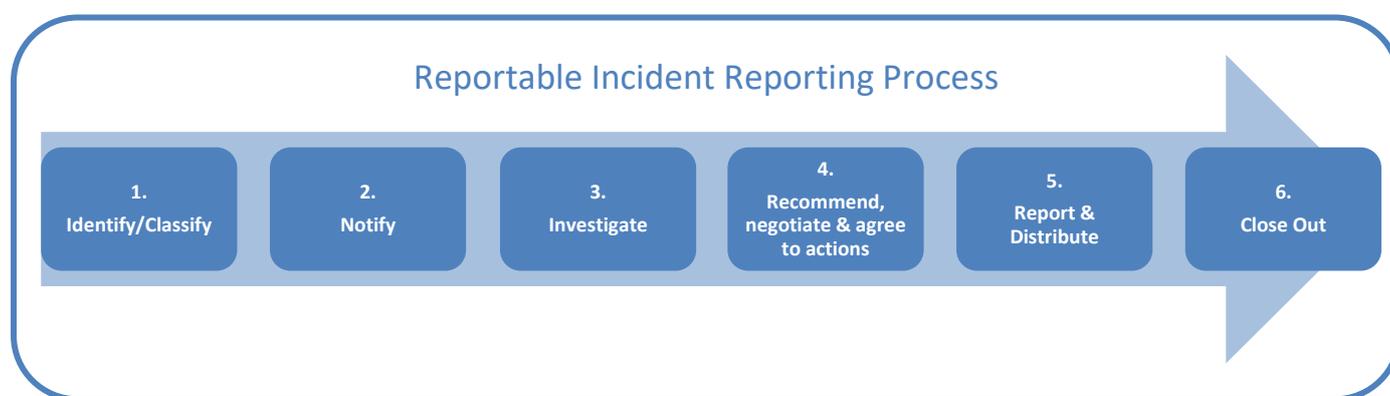


FIGURE 2 POWER SYSTEM CONTROLLER POWER SYSTEM INCIDENT REPORTING PROCESS

2.3 Identification and Classification of Reportable Incidents

The *Power System Controller* is required under clause 7.3.2 of the *SCTC* to determine whether a *power system* incident is a *reportable incident* and if determined to be a *reportable incident*, classify the *reportable incident* as either:

- a major reportable incident; or
- a minor reportable incident.

The *Power System Controller*, in classifying a reportable incident, will be guided by good electricity industry practice and the objectives of the *SCTC*, the *Network Technical Code (NTC)* and the *Secure System Guidelines*.

The identification/classification process encompasses the following daily actions undertaken by the *Power System Controller*:

- The electronic logging of power system incidents in real time;
- Automatic daily reporting (Daily Report) of the logged power system incidents from the previous day;
- Identification of reportable incidents from the Daily Report by System Control which includes limited reportable incident data collection; and
- Classification of reportable incidents.

The term *reportable incident* is defined in clause 7.2.1 of the *SCTC*. *Reportable* incidents may include:

- incidents that involve *black system* events, hence affecting a significant number of *customers*;
- incidents involving *load shedding*;



- *contingency events* arising from automatic or manual operation of a *transmission network* elements, *generating plant* and associated auxiliary equipment;
- incidents that result in a power system or a part of a power system not being in a secure operating state or a satisfactory operating state;
- a detection of oscillatory or transient instability conditions, arising from the operation of *generating plant*, *power system* faults, *power system* operational errors and any other material *power system* disturbances; and,
- *power system* incidents that have a potential to constitute a threat to *power system security* or *reliability* of the *power system*.

A reportable incident will be classified as **minor** if it meets the following criteria:

- 50,000 customer minutes (*Duration* × *impacted customers*).

A reportable incident will be classified as **major** as per section 7.2.2 in the SCTC,

- Load shedding arising from the failure of a generating system;
- Load shedding lasting longer than 0.1 system minutes¹ ($\frac{\sum(MW \times Duration) \times 60}{system\ peak\ load}$) arising from the failure of a transmission network, excluding where the load shedding is under an agreement between a Network Operator and Network User; or,
- An outage of any transmission network element arising from equipment failure or operator error in a zone substation and which has a material impact (within the meaning as defined below) on the supply to customers; and,
- A reportable incident not referenced above that resulted (or could reasonably be expected to result) in a material impact to security or reliability to supply to the power system, that the Power System Controller classifies as being a *major reportable incident*. For example, should a proponent be found to be non-compliant with the NTC, the SCTC or/and the subsidiary procedures.

For the purpose of the definition of a reportable incident, the definition of material impact is as such,

- An incident longer than 2 hours with no restoration;
- An incident which impacted at least 1000 customers; or/and,
- In the view of the System Controller, is an abnormal incident and/or a safety incident.

2.4 Notification of Reportable Incidents

Notifications provided by *System Participants* to the *Power System Controller* under clause 7.3.1 of the *SCTC* must be provided via email (SCOperationsPlanning.PWC@powerwater.com.au) or in such other form as notified by the *Power System Controller*, within three *business days* (or in such other timeframe as notified by the *Power System Controller*) of becoming aware of the occurrence of *reportable incident*.

The notification must set out:

- The time and date of the incident;
- Duration of the incident;
- Power System Impacted;
- What occurred;
- Plant involved; and,
- The impact of the incident.

Notifications provided by the *Power System Controller* to the Utilities Commission and *System Participants* under clauses 7.3.3 of the *SCTC* must be via email (SCOperationsPlanning.PWC@powerwater.com.au) or in such other form as notified by the *Power System Controller*, to the Utilities Commission and relevant *System Participant's* nominated personnel within three business days (or in such other timeframe as notified by the

¹ System peak loads, Darwin Katherine (294MW), Alice Springs (58MW), Tennant Creek (7MW) as of publication of this document.



Power System Controller) of becoming aware of the occurrence of the *reportable incident*.

The notification must set out (amongst other things):

- Date/Time of the incident;
- Duration;
- Power System;
- Description of the incident;
- Customers affected;
- Classification;
- Report Required From (which System Participants are expected to provide a report);
- Brief report due by (from System Participants); and,
- Final Report due by (from System Participants).

2.5 Investigation of Reportable Incidents

Under clause 7.4.1 of the *SCTC*, *System Participants* may be required to provide a written brief report and a written final report for all *major reportable incidents* (and where required by the *Power System Controller*, *minor reportable incidents*) upon request by the *Power System Controller*. Reports must include the details appropriate (applying *good electricity industry practice*) to the consequences or potential consequences of the *reportable incident* and enable a clear determination of the root cause(s) of the *reportable incident*.

The sections below provide the level of details necessary to complete each type of report.

2.6 Stage 1 – Brief Report

Stage 1 – a brief report must include objective information regarding the *major reportable incident* (or where required by the *Power System Controller*, *minor reportable incident*) and be sufficient to support the *Power System Controller's* reports under clause 7.4.2 of the *SCTC* which are to be provided to the Utilities Commission.

Note: where no clear finding of the cause of *power system* incident is available, the brief report should set out all available information/data. Information can be revised when more accurate data becomes available (through a request for extension in accordance with Section 3 of this guideline or in the final report).

The brief report must be issued to the *Power System Controller* within **five (5) business days** of a notification by the *Power System Controller* under clause 7.3.3 and must include any details listed in **Error! Reference source not found.** which are relevant to the *reportable incident*. The *Power System Controller* will use its reasonable endeavours to send periodic reminders to *System Participants* before the brief report is due to assist the *System Participant* in meeting the deadline for submission.

Note, *System Participants* are responsible for determination of whether the details listed in Table 1 are applicable or not. A failure to submit applicable *reportable incident* details, is a breach of the *SCTC* (clause 3.3.4), and will be reported in line with section 4 of this guideline.



TABLE 1: STAGE 1 – BRIEF REPORTING DETAILS

Item	Type of Information	Remarks
1	<i>Reportable incident</i> location	Include general description of the location relating to the <i>reportable incident</i>
2	Environmental conditions at the time of <i>reportable incident</i>	Noting the temperature, rainfall, wind, visibility, fires, smoke, lightning, cloud
3	Asset(s) related to the <i>reportable incident</i>	Include asset(s) description, name plate details
4	Consequences of the <i>reportable incident</i>	Include effect on safety, people, machinery, service delivery (reliability)
5	<i>Reportable incident</i> Response/Immediate Actions	Include details of communication with <i>Power System Controller</i> , i.e. station response and actions. Include details of actions undertaken to minimise the impact on <i>customers</i> and <i>power system security</i>
6	Sequence of Events Logs	Include local SCADA alarms historian
7	Immediate Rectification Actions	Evidence should be provided for any immediate actions resulting in a modification of any <i>power system</i> parameters: control system logic, equipment, devices, asset operation

2.7 Stage 2 – Final Report

A final report must include all of the details surrounding the *reportable incident* and an explanation of the subsequent investigations undertaken by the *System Participant*. The *Power System Controller* will analyse the investigations undertaken by the *System Participant* to determine whether the *System Participant* has responded to the *reportable incident* in accordance with the *SCTC* and whether any remedial actions are required to prevent a repetition of the *reportable incident*.

The final report must be issued to the *Power System Controller* within **Twenty (20) business days** of a notification by the *Power System Controller* under clause 7.3.3 and must include the details listed in Table 2 in addition to the details listed in **Error! Reference source not found.**. The *Power System Controller* will use its reasonable endeavours to send periodic reminders to *System Participants* before the final report is due to ensure the timeline submission requirement is met.

In exceptional circumstances the *Power System Controller* may request information from *System Participants* outside the reporting timelines as permitted under clause [8.5] of the *SCTC*.

Items 1 to 7 of **Error! Reference source not found.** will be included from the brief report and form the details for the final report, hence are not listed in Table 2.



TABLE 2: STAGE 2 - FINAL REPORTING DETAILS

Item	Type of Information	Remarks
1	Factors leading up to the <i>reportable incident</i>	A review of conditions prior to the <i>reportable incident</i>
2	Technical Investigation of the <i>reportable incident</i> – Details of asset(s) failure	Description of asset(s) failure
3	Root Cause Analysis – Logic diagrams	Include cause and effect diagram or control system logic diagram, description of what caused the alarm and trip, description of control settings
4	Root Cause Analysis - Tesla DDR records	Include all relevant DDR records and provide files to the <i>Power System Controller</i> (if access has not already been provided to the <i>Power System Controller</i>)
5	Root Cause Analysis - Protection relays data	Include protection relays settings, active elements and if available relay graphical data for the <i>reportable incident</i> . A protection investigation must include (where applicable): <ul style="list-style-type: none"> ▪ Protection operation (as designed, expected or otherwise); ▪ Protection recommendations or improvements; ▪ Any other findings or conclusions.
6	Root Cause Analysis – Asset(s) drawings	Include drawings (where relevant) of the asset(s) involved in the <i>reportable incident</i> such as Single Line Diagram (SLD), Process and Instrumentation Diagrams (P&IDs), Layout, Control Schematics
7	Root Cause Analysis - Local data trending	Include local trend data of the asset(s) involved in the <i>reportable incident</i> which supports the root cause identification
8	Root Cause Analysis – Operating conditions of the asset(s) at the time of <i>reportable incident</i>	Include conditions overview such as pressure, temperature, loading
9	Root Cause Analysis – Asset(s) maintenance history	Include information of failed asset(s) maintenance history and replacement
10	Corrective and Preventative/Mitigation Actions	Include corrective actions taken to remove or control the cause(s) of <i>reportable incident</i> (immediate action). Include preventative actions taken to reduce the likelihood of the <i>reportable incident</i> across similar assets i.e. asset failed for one unit may fail for another with a similar conditions/settings. Provide evidence of actions in progress or completed such as work order number, photographic evidence, statutory declaration, testing plan and results.
11	Incident Reporting Investigator	Include point of contact for the incident investigation and communication with the <i>Power System Controller</i>
12	Identified Non-Compliance	Include any non-compliance with clauses within the NTC, SCTC and relevant subsidiary documents. Include any actions taken to correct non-compliance. Provide evidence of corrective actions.

The *Power System Controller* has discretion of determining whether the information provided is sufficient and may request additional information from *System Participants*. The requested information must be provided to the *Power System Controller* no later than *reportable incident* reporting deadline. Where the requested



information requires significant time to obtain, a *System Participant* must follow the extension to reporting timeframe process described in Section 2.10 of this guideline.

2.8 Submission of the Incident Investigation Reports

System Participants are required to submit their brief reports and final reports to SC Operations Planning PWC via email (SCOperationsPlanning.PWC@powerwater.com.au). The email should be sent as a response to the original *reportable incident* notification email.

2.9 Recommendations and actions relating to Reportable Incidents

Brief reports are primarily to identify systemic issues relating to reliability and do not individually contain recommendations or actions. In circumstances where an incident should require remedial actions to be taken, the incident will be reclassified as a *major reportable incident*.

Upon receipt of all relevant brief reports and final reports, the *Power System Controller* will prepare a detailed final report which will be provided to the Utilities Commission. The detailed final report will outline a set of recommendations and agreed actions.

The detailed report must include a set of agreed actions that aim to prevent repetition of the *major reportable incident*, identify possible improvements to the operating practices of the *Power System Controller* and *System Participants* and the practices for maintaining *power system security* and the *reliability* of the *power system*.

Compliance with *reportable incident* agreed actions is a part of achieving and demonstrating compliance with regulatory obligations and technical performance requirements by the *Power System Controller* and *System Participants*.

This section describes the process of defining, endorsing and completing the *Power System Controller's* recommendations and subsequent agreed actions. The recommendations process is initiated prior to the *reportable incident* reporting distribution. Recommendations will be provided to the *System Participants* and may consist of (proposed) actions required by the *Power System Controller* and *System Participants* to enable a close out process of the *reportable incident*. The *Power System Controller* and *System Participant* will negotiate the actions required to complete the recommendation until agreement is reached. Failure to reach agreement within **fifteen (15) business days** may result in escalation to the Utilities Commission. The final report will be distributed with the recommendations and agreed actions.

Reportable incident actions progress status is tracked through the status change activities in the Major Incident Reports Action Tracking Register (Register) and the Action Completion Form. Each action will be given a unique identifier in the register for tracking purposes. The following steps to progress actions are applied:

1. **Under Negotiation** – This status is applied to the action following the issuance of the recommendations to the *System Participant*.
2. **Assigned Status** – This status is applied to an action following the issuance of a final report with a timeframe for completion recorded in the Register. This status indicates that the action has undergone negotiation and has been agreed.
3. **In Progress Status** - This status is applied to an agreed action when the *System Participant* has commenced work on and provided evidence of progress to the *Power System Controller*.
4. **Completed Status** – This status is applied to an agreed action when the *System Participant* has provided evidence of completion of the agreed action to the *Power System Controller*
5. **Closed Status** - This status is applied to an agreed action when the evidence of completion is reviewed and endorsed by the *Power System Controller*. For the purposes of clause 7.6, evidence of completion of an agreed action may be in the form of a work order number, investigation report, photographic evidence, statutory declaration or any other form that, in the *Power System Controller's* reasonable opinion is satisfactory proof that the agreed action has been implemented and that the expected outcomes have been or will be achieved.



2.9.1 Recommendation and Agreed Action Completion Timelines

Major *reportable incident* agreed actions must be completed within an agreed timeframe with the *System Participant* as soon as practicably possible, from the issuance of final report by the *Power System Controller*.

Where a *System Participant* requires more than a **six (6) month** period to complete an agreed action or requires an extension, a statement must be provided stating:

- The reasons why the time frame for completing the agreed action cannot be met;
- An estimate as to when the *System Participant* expects to complete and submit all supporting evidence for the recommendation and agreed action to the *Power System Controller*.

All requests for extension or any queries relating to recommendations or agreed actions must be sent to *Power System Controller* via email (SCOperationsPlanning.PWC@powerwater.com.au). Approval/rejection of the extension request or request for further information will be returned in writing within **ten (10)** business days.

2.9.2 Close Out of Reportable Incidents

A *reportable incident* investigation is complete and the *reportable incident* can be closed out if the following criteria are met:

- *System Participants* brief and final reports are received by the *Power System Controller* and satisfy the reporting criteria as detailed in this Guideline;
- *System Participants* have completed the agreed actions and have provided sufficient evidence as outlined in section 2.9 of this guideline;
- Agreed actions are closed by the *Power System Controller*;
- The Utilities Commission is satisfied with the *reportable incident* investigation process, recommendations and completion of agreed actions.

If the criteria mentioned above are met, the *reportable incident* can be closed, relevant records updated such as records database and/or incident management case. Where criteria is not met, the process will iterate until either criteria is met, or the agreed action is satisfactorily addressed by other mechanisms.

2.10 Reporting and Distribution of Reportable Incidents

The reporting timeline in Figure 1 provides the details on the investigation durations and expected submissions. Following incident investigation review and consolidation of data, the *Power System Controller* undertakes a thorough review of the obtained and provided data for accuracy and completeness and prepares the report for the Utilities Commission. The purpose of the report is to provide visibility of investigation outcomes, identify necessary recommendation and associated agreed actions and hold *System Participants* accountable for their operating actions and decisions.

All brief and detailed reports relating to *major reportable incidents* and *minor reportable incidents* are issued to the Utilities Commission and *System Participants* electronically.

3 Extensions to Reporting Timeframes

For all reporting stages (brief and final) *System Participants* may seek an extension where the facts around a *reportable incident* are unclear or unknown and require additional investigation.

Where, a *System Participant* requires an extension, the *System Participant* must provide a statement before the due date for the relevant report which sets out:

- The reasons why the applicable time frame for that reporting stage cannot be met;
- A request for an extension to submit the report; and,
- An estimate as to when the *System Participant* expects to complete and submit the report to the *Power System Controller*.

Requests for extension or any queries relating to the *reportable incident* investigation must be sent to the *Power System Controller* via email (SCOperationsPlanning.PWC@powerwater.com.au). An Extension request



is not considered accepted, unless the *Power System Controller* has notified the *System Participant* of the acceptance. The *Power System Controller* will take into consideration before approval/rejection of an extension request;

- The validity of the reason for the request;
- The risk to system security and reliability; and,
- The impact to related deadlines.

The *System Participant* will be informed as to the reason for the rejection of any extension request. Approval/rejection of the extension request or request for further information will be returned in writing within **three (3) business days**.

4 Response to Non-Compliance

In accordance with the *SCTC*, the *Power System Controller* reviews all *reportable incidents* that are reported in order to assess whether *System Participants* have taken the appropriate corrective actions and to identify trends that may exist.

All non-compliances (inclusive of non-compliance to the reporting obligations) are reviewed and reported regularly to the Utilities Commission, as part of the *Power System Controller's* reporting process.

Failure to complete agreed actions within the required timeframe, may result in escalation to the Utilities Commission.

These will be reported to the Utilities Commission in the half yearly report (Brief Report breaches) and in the monthly meetings between the Utilities Commission and System Control (Final Report breaches).

5 Change Management and Continuous Improvement

5.1 Consultation, Approval and Communication

This Guideline must be endorsed by the Responsible Manager and approved by the Accountable Manager.

Role / title	Requirement
Executive General Manager – Core Operations	Accountable - approve this document
Senior Manager System Control	Responsible - endorse this document
Operations Planning Manager	Consult - endorse this document
System Participants	Communicate – consult and inform of any changes

5.2 Review

This Guideline must be reviewed and updated periodically by the *Power System Controller* to ensure that it reflects *good electricity industry practice*.

5.3 References, Legislative and Regulatory Obligations

- Electricity Reform Act 2000
- Electricity Reform (Administration) Regulations 2000
- Electricity Reform (System Control And Market Operator Functions Code) Regulations 2015
- System Control Licence
- Network Technical Code
- System Control Technical Code
- Secure System Guidelines
- National Electricity (Northern Territory) (National Uniform Legislation) Act 2015
- National Electricity (Northern Territory) (National Uniform Legislation) (Modification) Regulations 2016



- National Electricity Rules (Northern Territory)

5.4 Records Management

This Guideline and all related documents are captured, stored and managed in Power and Water's Electronic Document and Records Management System and controlled in the Controlled Document Register.

5.5 Requests for amendment

A *System Participant* may request an amendment to this Guideline by sending details concerning the proposed amendment to System Control via email (SCOperationsPlanning.PWC@powerwater.com.au). The *Power System Controller* must apply *good electricity industry practice* in determining whether any proposed amendments are to be implemented. The Power System Controller will consult with the Utilities Commission and Power System participants on any changes deemed appropriate.



5.6 Document History

Date of issue	Version	Description of changes
29/04/2021	0.1	Draft guidelines for consultation