

Certification – Clause 4(1)(a) of Schedule 2 of the
Legislation Act 2019

I certify that this document is a correct copy of the
system operator rolling outage plan adopted as having
legal effect as part of the Electricity Industry
Participation Code 2010 from **1 September 2024** by
Gazette notice dated 20 August 2024



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Electricity Authority

Date: 21/08/2024

System Operator Rolling Outage Plan

Effective from 1 September 2024

1. Background

- 1.1 This Plan is the **system operator rolling outage plan**, which the **system operator** is required to prepare and **publish** under clause 9.2 of the **Code**.
- 1.2 This Plan provides for the management and co-ordination of planned **outages** as an emergency measure during energy shortages.
- 1.3 Other policies and procedures detail how the **system operator** will provide security of supply related information and respond in other ways to emergencies and security of supply situations. These include the **security of supply forecasting and information policy**, the **emergency management policy**, the **policy statement**, and the clauses of the **Code** relating to **grid emergencies**.

2. Glossary

- 2.1 In this Plan, unless the context otherwise requires-

capacity savings target means a **savings target** expressed as a maximum instantaneous demand (in MW) during a period.

Code refers to the Electricity Industry Participation Code 2010.

available hydro storage has the meaning given to that term in the **security of supply forecasting and information policy**.

contingent hydro storage has the meaning given to that term in the **security of supply forecasting and information policy**.

developing event means an event arising over time that could cause a **supply shortage**. An example of a **developing event** is an extended period of reduced generating capacity.

direction means a direction given by the **system operator** to a **specified participant** under clause 9.15(1) of the **Code**.

energy savings target means a **savings target** expressed as a percentage of the **specified participant's forecast electricity** consumption (in MWh) as forecast over a period of time.

extended emergency has the meaning given to that term in the **emergency management policy**.

immediate event means an event arising with little or no time that could cause a **supply shortage**. An example of an **immediate event** is an unexpected outage of a major transmission line or **generating plant**.

outage means a reduction in **demand** or **electricity** consumption due to a lack of **electricity** supply or capacity. This is as defined for the SOROP, although is contrary to Part 12 of the Code and Transpower's quality standards under the IPP.

rolling outages means reductions in **demand** or **electricity** consumption implemented by **specified participants** in order to comply with a **direction**.

savings target means a **demand** or **electricity** consumption target contained within a **direction**.

supply shortage means a situation when the **system operator** considers that the normal operation of the spot market for **electricity** is, or will soon be, unlikely to facilitate the adjustment of supply and **demand** necessary to ensure supply matches **demand** for extended periods of time and if planned **outages** are not implemented, unplanned **outages** are likely.

- 2.2 References in this Plan to a **distributor's demand** or **electricity** consumption mean the **demand** or **electricity** consumption on the **distributor's network**.
- 2.3 References in this Plan to **specified participants** include **distributors** and persons who use **electricity** that is conveyed directly from the **grid** but does not include **retailers** and **line owners** (other than **distributors**).
- 2.4 Any term in bold that is not defined in this Plan is defined in the Code.

3. Supply shortages and supply shortage declarations

Supply shortages

- 3.1 Clause 9.14(2) of the **Code** provides that the **system operator** may make a **supply shortage declaration**.
- 3.2 A **supply shortage** does not constitute an **unsupplied demand situation**. A **supply shortage** may coincide with such a situation.
- 3.3 *[Revoked]*
- 3.4 A **supply shortage** is a condition of an **extended emergency**. The **emergency management policy** sets out various means available to the **system operator** to manage **extended emergencies**, which include **rolling outages**.

Thresholds for supply shortage declarations

- 3.5 Under clause 9.14(1) of the **Code** the **system operator** has discretion to make a **supply shortage declaration** when there is a **supply shortage**.
- 3.6 The **system operator** will make a **supply shortage declaration** for a shortage of **electricity** supply if-
 - (a) an **official conservation campaign** has commenced; and
 - (b) an extended period of unplanned **outages** at any **GXP** is forecast to occur within the next 35 days under current modelling forecasts.
- 3.6A The **system operator** will make a **supply shortage declaration** for a shortage of capacity if an extended period of unplanned **outages** at any **GXP** is forecast to occur within the next 35 days under current modelling forecasts.
- 3.6B The **system operator** will revoke the **supply shortage declaration** when an extended period of unplanned **outages** at all **GXP**s will not occur within the next 35 days under current **system operator** modelling forecasts.
- 3.7 The **system operator's** determination of unplanned **outages** will take into account the following factors-
 - (a) **available hydro storage**
 - (b) **contingent hydro storage**
 - (c) forecast hydro inflows for the next 35 days, assuming minimal (1 percentile) weekly inflows after the next seven days

- (d) forecast wind, solar, geothermal, thermal, and run of river hydro generation using weather and climate forecasts.
- (e) expected generation availability, based on the planned outage co-ordination process
- (f) forecast **electricity** consumption over the next 35 days.
- (g) thermal fuel availability
- (h) transmission configuration and capacity.

3.8 If a **supply shortage** is caused by a power system event, it is likely any **supply shortage declaration** will be preceded by a **grid emergency** caused by a shortfall of energy or **instantaneous reserve**. If the **grid emergency** is likely to persist for a sustained period, the **system operator** will make a **supply shortage declaration** if it considers the **supply shortage** would be more appropriately managed by **rolling outages**.

Notice period

- 3.9 During a **developing event** the **system operator** will endeavour to provide at least 14 days' notice to **specified participants** in the region affected by the **supply shortage** of a **supply shortage declaration**, including the time and date the **supply shortage declaration** is likely to be made. If it is not reasonably practicable to provide 14 days' notice, the **system operator** will provide as much prior notice as reasonably practicable.
- 3.10 During an **immediate event** the **system operator** will provide as much prior notice as reasonably practicable to **specified participants** in the region affected by the **supply shortage** of a **supply shortage declaration**, including the time and date the **supply shortage declaration** is likely to be made. However, it is likely a **supply shortage declaration** for an **immediate event** will need to be made without prior notice.

4. Directions

Savings targets

- 4.1 A **direction** may contain a **savings target** for the **specified participant** to whom it is given. The **system operator** will set **savings targets** as follows-
- (a) The **system operator** will determine the total **demand** or **electricity** consumption savings required in the region affected by the **supply shortage**. The **savings targets** will be set to the minimum necessary so that there is no extended period of unplanned **outages** forecast at any **GXP** within the next 35 days.
 - (b) The **system operator** will determine any **energy savings target** for a **specified participant** in the affected region as a percentage of the **specified participant's** forecast

electricity consumption over the next 35 days. The **system operator** will generally set the same **energy savings target** in percentage terms for all **specified participants** in the affected region. **Specified participants** may provide feedback by email to the **system operator** on their 35-day forecast **electricity** consumption within 48 hours of receipt of any such forecast if they believe the forecast is inaccurate.

- (c) A **savings target** will typically be an **energy savings target** per week, updated weekly on a rolling basis. In some cases (for example, an **immediate event** limited to a particular area) a **savings target** in the form of a **capacity savings target** may be applied for particular peak periods in addition to, or instead of, a **savings target** in the form of an **energy savings target**.

4.2 The **system operator** may amend the **savings targets** for all or some **specified participants** if it considers there are circumstances that justify it, for example-

- (a) a **grid** reconfiguration
- (b) to manage power system stability
- (c) to minimise the use of hydro storage (by increasing thermal generation elsewhere)
- (d) **specified participant** feedback indicates a system security, operational reason or operational restriction to amend savings for that participant.
- (e) Operational reasons or operational restrictions may include (but are not limited to) reasons such as constraints on reducing load in blocks or steps, impacts to AUFLS, impacts on plant or personnel safety, impacts to system security, or co-dependent processes where reducing load could increase a net load.

Notice period

4.3 During a **developing event** the **system operator** will endeavour to provide at least nine days' notice to relevant **specified participants** of a **direction** containing a **savings target**, including the times and dates the **savings target** will apply. If it is not reasonably practicable to provide nine days' notice, the **system operator** will provide as much prior notice as reasonably practicable.

4.4 During an **immediate event** the **system operator** will provide as much prior notice as reasonably practicable to relevant **specified participants** of a **direction** containing a **savings target**, including the times and dates the **savings target** will likely apply. However, it is likely a **direction** for an **immediate event** will need to be given without prior notice.

Changes to Rolling Outage Start and End Times

- 4.5 The **system operator** must notify **specified participants** of any required changes to the start or end times of rolling outages, once advised by the **specified participant**. It is possible that restrictions on the timing and location of **rolling outages** may need to be stipulated by the **system operator**.

Monitoring

- 4.6 The **system operator** will use information provided by **specified participants** and information otherwise available to the **system operator** to continuously monitor **specified participants'** performance against **savings targets**.
- 4.7 The **system operator** will provide, on a daily basis, each **specified participant** to whom a **direction** containing a **savings target** applies, with actual **electricity** consumption data for the **grid exit points** at which the **specified participant's assets** are connected to the **grid**. The data will be the **specified participant's electricity** consumption (in MWh) during the previous 24 hours (beginning at midnight) for each **grid exit point** at which the **specified participant's assets** are connected to the **grid**.

5. Specified participants required to develop participant rolling outage plans

- 5.1 Each **specified participant** must develop a **participant rolling outage plan** unless the **specified participant's** electricity consumption is less than 60 GWh per calendar year.

6. Criteria, methodologies, and principles to be provided for in participant rolling outage plans

- 6.1 This paragraph 6 sets out the criteria, methodologies and principles to be-
- (a) applied by **specified participants** (whether or not they have developed a **participant rolling outage plan**) in implementing **rolling outages**, or taking any other action, in accordance with **directions**.
 - (b) provided for in **participant rolling outage plans** for those **specified participants** which are required to develop them.

Coordination with system operator

- 6.2 **Specified participants** must coordinate the implementation of their **rolling outages** with the **system operator** using the contact information specified in clause 6.5. This co-ordination is to ensure that **rolling outages** across an affected region do not have unexpected power system outcomes.

- 6.2A **Specified participants** must provide a rolling seven days planned **outage** list, updated daily, once their **savings targets** have been notified. These lists will include daily **outage** start and restore times per **GXP**. This list is to be provided on a reasonable endeavours basis.
- 6.2B **Specified participants** must provide half hourly **GXP** level **demand** forecast information (in MW) for **conforming GXPs** for the week ahead on a rolling daily basis, once their savings targets have been notified. This information is to be provided on a reasonable endeavours basis.
- 6.2C **Specified participants** must provide updated bid information for **non-conforming GXPs** for the week ahead submitted via **WITS** in the usual manner, once their **savings targets** have been notified.
- 6.2D **Participant rolling outage plans** must include the requirement for **specified participants** to provide the information in clauses 6.2A and 6.2B to the **system operator** by email, updated on a daily basis.
- 6.3 Each **participant rolling outage plan** must state that after receiving a **direction** a **specified participant** must use best endeavours to-
- (a) not increase or decrease its **demand** by more than 25 MW (in aggregate across all the **specified participant's GXPs**) in any five-minute period without the **system operator's** prior approval,
 - (b) minimise the impact on frequency and voltage stability,
 - (c) minimise the disconnection of its **demand** during times when **demand** is typically ramping down and restoration of its **demand** when **demand** is typically ramping up in the region affected by the **supply shortage** (for example, either side of morning and evening peaks).
- 6.4 Each **participant rolling outage plan** must list in a table format-
- (a) the **specified participant's GXPs** at which **rolling outages** may occur
 - (b) the **specified participant's GXPs** at which **rolling outages** will not occur along with reasons why **rolling outages** will not occur at those **GXP**s.

Communications

- 6.5 Each **participant rolling outage plan** must specify all personnel of the **specified participant** who will be involved in implementing the **participant rolling outage plan** and their roles, including-

- (a) a minimum of two key personnel (including contact details and any preferred means of communication with these key personnel) for the **system operator** to contact being:
 - i. an operational contact for all operational matters (typically an operations manager)
 - ii. a managerial contact for all administrative matters and escalation (typically a senior manager or regulatory specialist).
- (b) any other personnel responsible for reporting to the **system operator** on the **specified participant's** performance against **savings targets**
- (c) the personnel responsible for communicating with public agencies (for example, police, civil defence, and local authorities) and the media
- (d) contact details for the **system operator** including a general email for administrative matters and email and phone number for operational matters.

The **system operator** notices under paragraphs 3.9, 3.10, 4.3 and 4.4 will be sent to the operational contact and managerial contact, unless the **participant rolling outage plan** specifies otherwise. **Directions** will typically be sent to the operational contact only.

- 6.6 Contact details for the key personnel must be withheld or redacted before being published publicly on the **participant's** website but must be included in the **participant rolling outage plan** sent to the **system operator** for approval. Contact details should include phone and email or alternatively a 24-hour email.
- 6.7 As well as complying with any **system operator** information requirements under clause 9.18 of the **Code**, each **specified participant** to whom a **direction** containing a **savings target** applies must regularly provide information to the **system operator** about the **specified participant's** performance against the **savings target**, including:
 - (a) the nature and extent of the **rolling outages** implemented by the **specified participant**
 - (b) any other information requested by the **system operator** in order to monitor **specified participants'** performance against **savings targets**.

Prioritisation of demand to be disconnected by distributors

- 6.8 A **distributor** should disconnect **demand** on its **network** for **rolling outages** in accordance with a priority list. The table below is a guideline only. **Distributors** should make pragmatic decisions on the priority order based on particular circumstances and their knowledge of local communities. Priority 1 is the **demand** that should least readily be disconnected and priority 6 is the **demand** that should most readily be disconnected.

| P | Priority Concern | Supply to: |
|---|-----------------------------------|---|
| 1 | Critical public health and safety | Critical health and disability services e.g. major hospitals, air traffic control centres, emergency operation centres. |
| 2 | Important public services | Lifelines infrastructure e.g. energy control centres, communication networks, water and sewage pumping, fuel delivery systems, major ports, public passenger transport, major |
| 3 | Public health and safety | Vulnerable sectors e.g. rest homes, prisons, medical centres, schools, street |
| 4 | Animal health and food | Dairy farms, milk production facilities, chicken sheds, cool stores. |
| 5 | Domestic Production | Central business districts, commercial and industrial premises. |
| 6 | Households | Residential premises. |

*Reference: priorities in this table are based on information contained in section 13 of the National Civil Defence Emergency Management Plan 2015.

Distributors should bear in mind the expectations that the Electricity Authority has set in the consumer care guidelines, any consumer care requirements under the Code and ensure that all electricity retailers are adequately informed and advised to contact their medically dependent consumers to make arrangements.

- 6.9 **Distributors** are responsible for communicating and co-ordinating with electricity **retailers**, major **consumers** on their networks, police, health authorities and other major infrastructure providers who may be affected **by rolling outages**.
- 6.9A Each **distributor's participant rolling outage plan** must outline the arrangements in place between the **distributor** and **retailers** for identifying and managing health and safety issues affecting **consumers** on the **distributor's network**.
- 6.10 A **distributor's participant rolling outage plan** must include information about any agreements between the **distributor** and **retailers** or **consumers** on its **network** that may adversely affect the **distributor's** ability to comply with **directions** or state if there is no such agreement.
- 6.11 The **system operator** will not determine which **consumer's demand** on a **distributor's network** is disconnected for **rolling outages**. Feeder level information does not need to be provided in **participant rolling outage plans**.

Capability of achieving savings targets

6.12 In order for **specified participants** to demonstrate they are capable of meeting **directions** each **participant rolling outage plan** must-

- (a) describe how the **specified participant** intends to meet **energy savings targets** and **capacity savings targets**
- (b) demonstrate the **specified participant** will be capable of achieving an **energy savings target** of up to a 25% reduction of its forecast **electricity** consumption based on the load from the most recent month of August prior to the current date. This information must be provided in a table format showing:
 - i. how **energy savings targets** of 5%, 10%, 15%, 20% and 25% reductions, or closest amount to these percentages practicable, would be achieved.
 - ii. the priority loads (using the table in clause 6.8 as a guide) to be disconnected.
 - iii. the duration each priority load is to be disconnected on each day.

For the avoidance of doubt, an **energy savings target** may be more than a 25% reduction of the **specified participant's** forecast **electricity** consumption.

6.13 Each **participant rolling outage plan** must describe the **specified participant's** methodology for implementing **rolling outages** that includes-

- (a) Acknowledgment, within 48 hours of receipt of a **direction** by return email to the **system operator**, unless otherwise specified in the **direction**.
- (b) for **developing events**, the methodology for planning for disconnection of **electricity** (nine days out to real time)
- (c) how disconnection of **electricity** will be implemented (real time)
- (d) how restoration of **electricity** will be implemented (real time)
- (e) monitoring of compliance with the **direction**.

6.14 If no acknowledgement, as per clause 6.13 is received within 48 hours the **system operator** will call the person or persons listed in clause 6.5.

Continuing compliance with other Code obligations

6.15 A **specified participant** to which a **direction** applies must continue to comply with all of its other obligations under the **Code**. Without limitation:

- (a) the **specified participant** must make and revise its **bids** and **reserve offers** to take into account its obligation to comply with the **direction**
- (b) if there is a **grid emergency**, the **specified participant** must comply with its obligations under the **Code** that apply in **grid emergencies**
- (c) despite the **direction**, the **specified participant** must remain capable of providing any **automatic under-frequency load shedding** it is obliged to provide under the **Code**. **Specified participants** may move **automatic under-frequency load shedding** between feeders to maintain this obligation.

Energy Savings Targets for specified participants

- 6.16 All **specified participants** within the region affected by the **supply shortage** will likely be set the same **energy savings targets** (in percentage terms) unless **specified participant** feedback on **energy savings targets** (as per clause 4.2) indicate reasons to vary those targets. The **system operator** may (at its sole discretion) vary or amend the **energy savings targets** for any **specified participants** after considering any **specified participant** feedback.