

# System Operator Rolling Outage Plan

## 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**. This Plan replaces the **system operator rolling outage plan** issued by the Electricity Commission on 30 September 2010.
- 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

**controlled 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** has the meaning given to that term in paragraph 3.3

**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 maximum level of **electricity** consumption (in MWh) over a period

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

**full information plan** has the meaning given to that term in paragraph 6.17

**immediate event** has the meaning given to that term in paragraph 3.3

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

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

**supply shortage** has the meaning given to that term in paragraph 3.1 of this Plan.

- 2.2 In Part 9 of the **Code** and this Plan a **grid owner** is a **distributor**.
- 2.3 References in this Plan to a **distributor's demand** or **electricity** consumption mean the **demand** or **electricity** consumption on the **distributor's network**.
- 2.4 Any term in bold that is defined in the **Code** and used but not defined in this Plan has the same meaning as in the **Code**.

### **3. Supply shortages and supply shortage declarations (clauses 9.4(a) and 9.4(b) of the Code)**

#### *Supply shortages*

- 3.1 Clause 9.14(2) of the **Code** provides that the **system operator** may make a **supply shortage declaration** only if there is a shortage of **electricity** supply or transmission capacity such that the **system operator** considers-
- (a) 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 that supply matches demand; and
  - (b) if planned outages are not implemented, unplanned outages are likely.

This situation is referred to in this Plan as a **supply shortage**.

- 3.2 A **supply shortage** is different from a **shortage situation**, which is a condition for scarcity pricing under Part 13 of the **Code**. A **supply shortage** may coincide with a **shortage situation**.
- 3.3 There is a range of events that could cause a **supply shortage**. Some events may develop over time (a **developing event**) and some events may arise with little or no warning (an **immediate event**). Examples of events that could contribute to a **supply shortage** are a period of low hydro inflows or an extended outage of a major transmission line or **generating plant**.

- 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**. The **system operator** will-
- (a) make a **supply shortage declaration** when it considers the probability of unplanned outages occurring as a result of a **supply shortage** is greater than 50%; and
  - (b) revoke the **supply shortage declaration** when it considers the probability of unplanned outages occurring as a result of the **supply shortage** is 50% or less.
- 3.6 The **system operator's** determination of the likelihood of unplanned outages will take into account the following factors-
- (a) **controlled hydro storage**
  - (b) **contingent hydro storage**
  - (c) historical hydro inflows
  - (d) weather and climate forecasts relating to future hydro inflows
  - (e) expected generation availability
  - (f) expected **demand**
  - (g) thermal fuel availability
  - (h) transmission configuration and capacity.

- 3.7 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 deficit 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*

- 3.8 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.

3.9 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 (clause 9.4(c) of the Code)

##### *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**.
- (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 electricity** consumption for the equivalent period in the previous year. The **system operator** will generally set the same **energy savings target** in percentage terms for all **distributors** in the affected region.
- (c) A **savings target** will typically be an **energy savings target** per week. 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** will 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).

##### *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 likely 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.

#### *Monitoring*

- 4.5 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**.
- 4.6 The **system operator** will provide, on a daily basis, each **distributor** (other than **grid owners**) or **direct consumer** to whom a **direction** containing a **savings target** applies with actual **electricity** consumption data for the **grid exit points** at which the **distributor's** or **direct consumer's assets** are connected to the **grid**. The data will be the **distributor's** or **direct consumer's electricity** consumption (in MWh) during the previous 24 hours (beginning at midnight) for each **grid exit point** at which the **distributor's** or **direct consumer's assets** are connected to the **grid**.

### **5. Specified participants required to develop participant rolling outage plans (clause 9.4(d) of the Code)**

- 5.1 Each **distributor** (other than **grid owners**) and **direct consumer** must develop a **participant rolling outage plan** unless the **distributor's** or **direct consumer's electricity** consumption is less than 60 GWh per calendar year.

### **6. Criteria, methodologies and principles (clauses 9.4(e) and 9.4(f) of the Code)**

- 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** in order to ensure that **rolling outages** across an affected region do not have unexpected power system outcomes.
- 6.3 Each **participant rolling outage plan** must describe the **specified participant's** arrangements for disconnecting and restoring **demand**. 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 any five minute period without the **system operator's** prior approval
- (b) minimise the impact on frequency and voltage stability
- (c) minimise the disconnection and restoration of its **demand** during times when **demand** is typically ramping up or down 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-

- (a) list the **specified participant's GXPs** at which **rolling outages** may occur
- (b) list the **specified participant's GXPs** at which **rolling outages** will not occur along with reasons why **rolling outages** will not occur at those **GXPs**.

#### *Communications*

6.5 Each **participant rolling outage plan** must identify at minimum two key personnel for the **system operator** to contact about matters relating to **supply shortages, supply shortage declarations, directions** and **rolling outages**, being-

- (a) an operational contact for all operational matters (typically an operations manager)
- (b) a managerial contact for all administrative matters and escalation (typically a senior manager or regulatory specialist).

The **system operator** notices under paragraphs 3.8, 3.9, 4.3 and 4.4 will be sent to the operational contact and managerial contact. **Directions** will typically be sent to the operational contact only.

6.6 Each **participant rolling outage plan** must contain contact details for the key personnel referred to in paragraph 6.5 and note any preferred means of communication with them.

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 the nature and extent of the **rolling outages** implemented by the **specified participant**.

#### *Prioritisation of demand to be disconnected by distributors*

6.8 A **distributor** should disconnect **demand** on its **network** for **rolling outages** in accordance with the following priorities. Priority 1 is the **demand** that should least readily be disconnected and priority 6 is the **demand** that should most readily be disconnected.

Priority	Priority Concern	Maintain Supply to:
1	Public health and safety	Critical health and disability services e.g. major hospitals, air traffic control centres, emergency operation centres.
2	Maintaining 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 supermarkets.
3	Public health and safety	Vulnerable sectors e.g. rest homes, prisons, medical centres, schools, street lighting.
4	Animal health and food production/storage	Dairy farms, milk production facilities, chicken sheds, cool stores.
5	Maintaining production	Central business districts, commercial and industrial premises.
6	Avoiding disruption to 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.

These priorities are intended as a guide. They do not prevent **distributors** making pragmatic decisions based on particular circumstances and their knowledge of local communities.

6.9 **Distributors** are responsible for communicating and co-ordinating with **retailers** and major **consumers** on their **networks** who may be affected by **rolling outages** and for managing the impact of **rolling outages** on any **consumers** identified as having health and safety issues. Each **distributor's participant rolling outage plan** must describe 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-

- (a) 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**
- (b) whether any of the **demand** on the **participant's** network is for the provision of other services, such as **interruptible load** or **extended reserves** (including **AUFLS**).

6.11 The **system operator** will not determine which **consumers' demand** on a **distributor's network** is disconnected for **rolling outages**.

#### *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 **electricity** consumption for the same period in the previous year.

For the avoidance of doubt, an **energy savings target** may be more than a 25% reduction of the **specified participant's electricity** consumption for the same period in the previous year.

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

- (a) acknowledgment of receipt of a **direction**
- (b) for **developing events**, planning for disconnection of **demand** (nine days out to real time)
- (c) disconnection of **demand** (real time)
- (d) restoration of **demand** (real time)
- (e) monitoring of compliance with the **direction**.

6.14 A **distributor** is not required to include a list of all feeders, or the sequence of outages to be applied to those feeders, in its **participant rolling outage plan**.

6.15 In addition to the key personnel described in paragraph 6.5 of this Plan, 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) the personnel responsible for reporting to the **system operator** on the **specified participant's** performance against **savings targets**
- (b) the personnel responsible for communicating with public agencies (for example, police, civil defence and local authorities) and the media (if required).

#### *Continuing compliance with other Code obligations*

6.16 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** or **extended reserve** it is obliged to provide under the **Code**.

*Full information plans for direct consumers*

6.17 A **full information plan** is a **direct consumer's participant rolling outage plan** that contains the following information-

- (a) the nature of the **direct consumer's demand**
- (b) whether any of the **demand** is for the provision of other services, such as **interruptible load** or **extended reserve** (including **AUFLS**)
- (c) constraints on the disconnection of the **demand** (for example, notice periods and maximum durations)
- (d) the extent to which different levels of **target savings** could be achieved (for example, whether a 10% **energy savings target** is significantly more easily achieved than a 20% **energy savings target**)
- (e) the costs associated with achieving different levels of **target savings**.

6.18 A **direct consumer** may, at any time, update its **participant rolling outage plan** with information that meets the requirements of a **full information plan**.

6.19 If a **direct consumer's participant rolling outage plan** is a **full information plan**, the **system operator** may set **energy savings targets** for the **direct consumer** different in percentage terms to the **energy savings targets** for **distributors** in the region affected by the **supply shortage**, taking into account the information in the **full information plan**. Otherwise, the **energy savings targets** for the **direct consumer** will likely be the same in percentage terms as the **energy savings targets** for **distributors** in the affected region.