

SYSTEM RESTART TERMINOLOGY AND PHRASEOLOGY

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Operations Working Group
(CROWG)





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Version control

Version	Release date	Changes
1.0	09 September 2022	First Issue
1.1	09 March 2023	Minor changes and updated references.



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1 INTRODUCTION

1.1 Purpose and Scope

The purpose of this document is to provide information about common terms, phrases, acronyms, scripts and abbreviations as at the date of publication.

1.2 Related Documents and References

Table 1 Related Documents

REFERENCE	TITLE	LOCATION / COMMENT
NER Chapter 10	National Electricity Rules Version 171 – Chapter 10 - Glossary	https://energy-rules.aemc.gov.au/ner/175
SO_OP_2000	System Operating Procedure – Version 20 - Glossary	https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures
SO_OP_5000	System Restart Plan Overview – Version 11	Not for Publication, restricted distribution
Regional OP, OM, TNO's	Regional Operating Procedures, Operating Manuals, Tasmanian Region Operating Procedures	Not for Publication, restricted distribution
SO_OP_5005	System Restart Tasmania – Version 13	Not for Publication, restricted distribution
SO_OP_3707	Procedure for Issue of Directions and Clause 4.8.9 Instructions	https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures
SO_OP_4000 series	Regional Load Shedding Procedure	Not for Publication, restricted distribution
Industry Terminology	AEMO - Learn – Industry Terminology	https://aemo.com.au/en/learn/industry-terminology



2 GLOSSARY OF TERMS

The electricity industry can be a complicated sector to understand for those who are new to it. To help your knowledge of industry terms that may be applicable to system restart situations, AEMO has collated this list of common terms, phrases, acronyms, and abbreviations. Many of these are used in AEMO’s power system operating procedures and other AEMO publications. This glossary is intended to be used as a guide and has noted references if applicable.

Table 2 Definitions

TERM	DEFINITION / EXPANDED NAME	REFERENCE / RELATED DOCUMENT (WHERE APPLICABLE)
Active power	The rate at which active energy is transferred.	NER Chapter 10
AGC	Automatic generator control.	SO_OP_5000/SO_OP_2000
AUFLS	Automated under frequency load shedding.	Various Regional OP, OM, TNO's
Available to start (SRAS unit or any other unit)	SRAS or other unit have auxiliary supplies and are in a position to begin the starting process.	n/a
Available to start (station services)	Receiving auxiliary supplies to establish station services.	n/a
Black System	The absence of voltage on all or a significant part of the transmission system or within a region during a major supply disruption affecting a significant number of customers.	SO_OP_5000
CCGT	Combined cycle gas turbine.	SO_OP_5005/ SO_OP_2000
De-energised	Means separated from all sources of electrical supply	n/a
Delegating	Transferring authority for a specific system management function or responsibility. Both parties understand what function is being delegated and for how long (can be until further notice). Invoke or Revoke XXXX delegated function for XXXX (duration).	n/a
Delivery Point	As specified in each SRAS Agreement, usually: (a) In the case of a primary restart service, the auxiliary power supply	AEMO Glossary

TERM	DEFINITION / EXPANDED NAME	REFERENCE / RELATED DOCUMENT (WHERE APPLICABLE)
	<p>point at a specified generating unit; and</p> <p>(b) In the case of a secondary restart service, an agreed point on the power system (which could be the connection point for the SRAS Provider's generating unit).</p>	
Direction	<p>Section 116 of the NEL and clause 4.8.9 of the NER establish that AEMO may, where it considers it is necessary, direct a Registered Participant (or authorise another person to direct a Registered Participant) to take relevant actions to maintain or restore the security or reliability of the power system, or for reasons of public safety. For NER purposes:</p> <p>(i) Action relating to scheduled plant (comprising scheduled generating units, semi-scheduled generating units, scheduled load or scheduled network services) or market generating units - in which case it is a direction; or</p> <p>Any other action (including in relation to transmission or distribution systems and non-scheduled loads) – in which case it is a clause 4.8.9 instruction. Directions for load shedding will generally be clause 4.8.9 instructions.</p>	NER Chapter 10/SO_OP_3707
Dispatch of generation	Dispatch of generation verbally or via AEMO AGC systems.	n/a
Energised	Means connected to a source of electrical supply.	n/a
Establish a corridor	Establishing express transmission corridors between an energisation source (adjacent parts of the grid, one or more SRAS or any online generators that are stable) and the auxiliary loads of other generating units.	SO_OP_5000
Frequency Control	Performed to maintain the frequency level on the power system within acceptable limits.	n/a

TERM	DEFINITION / EXPANDED NAME	REFERENCE / RELATED DOCUMENT (WHERE APPLICABLE)
Instruction	See 'Direction'.	NER Chapter 10, SO_OP_3707
Island / Islanding	In relation to an inertia sub-network or a combination of two or more inertia subnetworks, temporary loss of synchronous connection to all adjacent parts of the national grid.	NER Chapter 10
JSSC	Jurisdictional system security coordinator.	SO_OP_5000/ SO_OP_2000
LBSP	Local black system procedures.	SO_OP_2000
Load block	Amount of electrical load capable of being connected to the transmission system during a system restart.	SO_OP_2000
Manual load shedding	Manually reducing or disconnecting load from the power system.	NER Chapter 10
NEMDE	National electricity market dispatch engine or AEMO's National Electricity Market Dispatch Engine.	SO_OP_5000/ SO_OP_2000
NER	National electricity rules.	SO_OP_5000/ SO_OP_2000
Permission to Proceed (PTP)	An instruction from AEMO granting permission to an NSP to proceed with an outage.	SO_OP_2000
Permission to Restore (PTR)	An instruction from AEMO granting permission to an NSP to restore supply to a transmission element.	SO_OP_2000
PS	Power station.	SO_OP_5005
Reactive Power	The rate at which reactive energy is transferred.	NER Chapter 10
Reconfigure network	Altering the network topology due to safety, security or loading reasons.	n/a
Restart Path	As specified in each SRAS Agreement, the route that generation from the SRAS Provider's generating unit will utilise to supply the Delivery Point.	AEMO Glossary
Restoring load	Process by which demand is returned to the power system.	n/a
RP	Restart plan.	SO_OP_5005
Soft Starting a generator	Method which reduces in-rush current during generator start-up.	n/a

TERM	DEFINITION / EXPANDED NAME	REFERENCE / RELATED DOCUMENT (WHERE APPLICABLE)
SRAS	System Restart Ancillary Service.	NER Chapter 10
SRAS Agreement	Agreement for the provision of system restart ancillary services to AEMO.	SO_OP_2000
SRAS Equipment	As specified in each SRAS Agreement.	SO_OP_2000
Stabilising Load	Load added to enhance control and stability of the resultant island(s) formed.	SO_OP_5000
Standby	Wait and I will re-engage you in due course.	n/a
Station services	Electrical supply for station auxiliaries.	n/a
Strip the bus	Act of opening CB's from service to disconnect buses in a substation. Note phrase "stripping of buses".	n/a
Synchronise	The act of synchronising a generating unit or a scheduled network service to the power system.	NER Chapter 10
Synchronising to a dead bus	Connecting a generator at rated speed and voltage to a de-energised bus.	n/a
Synchronising, Synchronisation	To electrically connect a generating unit or a scheduled network service to the power system.	NER Chapter 10
TI	Trading Interval. A 5 minute period ending on the hour (EST) and each continuous period of 5 minutes thereafter and, where identified by a time, means the 5 minute period ending at that time.	NER Chapter 10
T/L	Transmission line. A power line that is part of a transmission network.	NER Chapter 10
TTHL or Trip to house load	An electrical islanding scheme using generating units that can disconnect from the transmission network following a major supply disruption and continue to supply their own auxiliaries or an isolated segment of system load.	SO_OP_2000
UFLS	Under frequency load shedding.	Various Regional OP, OM, TNO's
Voltage Control	To maintain the voltage level on the power system within acceptable limits.	n/a

3 SCRIPTS

The following scripts are dialogue which may be used by AEMO under system restart situations.

Table 3 Scripts

SUBJECT	SCRIPTS OR PHRASES	REFERENCE
LOAD RESTORATION	<p>Connect stable load to a maximum of X MW in Y MW blocks over the next Z minutes.</p> <p>The size and timing of the loads blocks will be determined by AEMO and the TNSP to match available generation and network capability.</p> <p>The DNSP should also endeavour to ensure that significant load creep does not occur.</p> <p>That is if a DNSP is requested to restore a certain amount of load then this load does not change over time.</p>	SO_OP_5000
LOAD RESTORATION	<p>"This is Name, Manager NEM Real Time Operations</p> <p>In accordance with section 116 of the National Electricity Law, AEMO is issuing a direction to [ElectraNet/Powerlink/TransGrid/AusNet/TasNetworks] to take the following action:</p> <p>At [hrs] to commence load restoration in/at [insert region, area or connection points where the load is to be restored] as per the regional load shedding procedure."</p>	SO_OP_4000 series
RESTART	<p>"This is Name, Manager NEM Real Time Operations</p> <p>This is a direction under section 116 of the National Electricity Law, and a clause 4.8.9 instruction under the NER.</p> <p>AEMO directs [insert name of TNSP] to commence switching to establish a restart path in accordance with the AEMO [insert Region] System Restart SO_OP_[insert number of restart plan]. AEMO authorises [insert name of TNSP] to make variations to the restart plan, restart sources and the load restoration sequence but only after confirmation with AEMO as power system conditions change during the restart process.</p> <p>Please confirm when switching to establish the initial restart path is completed and when [insert name of TNSP] is ready to continue with system restart and load restoration switching.</p> <p>This direction is issued at xxxx hrs on [date].</p>	SO_OP_5000
SRAS	<p>This is an instruction to activate SRAS in accordance with the terms in your SRAS contract.</p> <p>Please notify AEMO at each of the following milestones (as appropriate):</p> <ul style="list-style-type: none"> • Restart source started / TTHL unit islanded and • Stable specified generating unit at synchronous speed and excited. 	SO_OP_5000

