

GUIDELINES FOR PREPARING LOCAL BLACK SYSTEM PROCEDURES

PREPARED BY: Power System Operations

VERSION: 2.1

FINAL

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Abbreviations

TNSP	Transmission network service provider
DNSP	Distribution network service provider
NSP	Network service providers
LBSP	Local Black System Procedures
NER	National Electricity Rules
MNSP	Market Network service Provider
SRAS	System Restart Ancillary Service
TTHL	Trip to house load
DC Link	Asynchronous transmission link forming a part of a network interconnection or a MNSP

1 Background

AEMC published the National Electricity Amendment (System Restart Ancillary Services and pricing under market suspension) Rule 2006 No.2 which commenced operation on 20 April 2006. The rule changes associated with System Restart Ancillary Services require AEMO to develop and publish guidelines for preparation of local black system procedures (LBSPs), in consultation with Generators and NSPs.

This document aims to provide sufficient guidelines for Generators and NSPs to prepare LBSPs as required by NER 4.8.12 (d).

2 Summary of NER requirements

- NER 4.8.12 (a) requires AEMO to prepare system restart plan for managing and coordinating system restoration during any major supply disruption.
- AEMO must develop and publish guidelines for the preparation of LBSPs as required by NER 4.8.12 (e).
- NER 4.8.12 (d) requires each Generator and NSP to develop LBSPs in accordance with the guidelines published by AEMO. These LBSPs must be consistent with any ancillary service agreements to provide SRAS, to which the Generator or MNSP is a party.
- According to NER 4.8.12 (f), the LBSPs must provide sufficient information to enable AEMO to understand the likely condition and the capabilities of plant following any major supply disruption such that AEMO is able to effectively coordinate the safe implementation of the system restart plan. The LBSPs must incorporate relevant energy support arrangements to which a Generator or NSP may be a party.
- Each Generator and NSP must submit LBSPs to AEMO for approval, as required by NER 4.8.12 (g). AEMO must take into account the guidelines for preparation of LBSP published under NER 4.8.12 (e) and the relevant components of the system restart plan in approving LBSPs.

The Appendix 1 gives the NER provisions associated with the LBSPs.

3 Local black system procedures

The LBSPs of Generators and NSPs are the main source of information for AEMO to understand the likely condition and the capabilities of generation/network plant, following supply disruptions resulting in disconnecting power station/s from the rest of the power system or the loss of supply to a significant portion of a transmission/distribution network.

Generators and/or NSPs may have certain obligations to be fulfilled under such circumstances, associated with the energy support agreements they are party to. AEMO needs to be aware of such obligations so that the power system restoration can be performed efficiently in accordance with the principles of system restart plan.

Provision of accurate information in LBSPs is extremely useful and important for AEMO to be fully informed of the technical requirements and limitations of power stations and network plant, in developing robust system restart plans.

Generators and NSPs may make the basic assumption that the power station and network plant are not damaged due to the events resulted in the major supply disruption, in providing required information in the local black system procedures. Generators and NSPs are encouraged to include additional scenarios that could occur in relation to generation and network plant following a major supply disruption, to demonstrate the status and the capabilities of plant.

AEMO takes the view that some of the information included in the local black system procedures (such as the timeframes etc.) would be the best estimates of generators and NSPs, giving

consideration to the known limitations of generation and network plant. Inclusion of a suitable disclaimer on the information included in local black system procedures is acceptable to AEMO.

AEMO will treat LBSPs of Generators and NSPs as confidential information.

3.1 Local black system procedures for Generators

Local black system procedures are not the internal procedures of the power stations, detailing switching sequences used by the power station staff in restarting the generating units.

The information required in Generator LBSPs is stated at high level in this section. A generic list of information to be provided is covered in the Appendix 2, in the form of a template. Generators are expected to use this template to develop LBSPs.

The Generators are required to develop a LBSP for each of its power station. Generators must submit LBSPs to AEMO electronically by emailing to the following email address.

system_restart_advice@AEMO.com.au

The broader areas of information to be provided in a LBSP for a power station are:

- General information on power station
- Assessment of the emergency situation and safe shut down of generating units
- Restart of generators and high-level strategies followed by power stations in the event of a major supply disruption
- Technical and operations information need to be considered in developing system restart plans
- Specific information to be provided by embedded generation and wind generation
- Energy support arrangements the Generator is a party to

If some of the required information are not readily available, the Generator should state when that information is likely to be available, in the space provided to include the required information.

The Generator LBSPs must be consistent with the system restart ancillary service agreements to which that Generator is a party.

Generators may have to provide information in addition to what is specified in the Appendix 2, on the request of AEMO.

Generators must review and amend the LBSPs as appropriate on AEMO request or whenever significant changes to generation plant are implemented.

3.2 Local black system procedures for NSPs

The NSP LBSPs will contain sufficient information for AEMO to understand the capability of NSP to restore the network following disruption of supplies to a major part of its network. The NSP LBSPs are not the detailed internal switching procedures followed by NSP operations staff following supply disruptions. The NSP LBSPs will contain the relevant information in the following areas.

- Capability of control centre business continuity (and back up control centres) following the loss of primary supplies, capabilities of emergency supplies, high level strategies to conserve emergency supplies, etc.
- Availability of communication systems (normal and emergency), groups who have access/use these systems and the capability of continued use following a significant supply disruption.
- Length of time the NSP supervisory systems (SCADA monitoring and control) are likely to remain operational following the loss of primary supplies and high level strategies to conserve emergency supplies.

- Activation of LBSP within the NSP system. Safe shutdown and preparation of the transmission/distribution network to accept supply. The high level strategy of preparing individual substations to accept supply and critical locations where staff are required.
- Synchronising points available within the transmission network and at connection points to the distribution network.
- Technical limitations/requirements AEMO should be aware of when restarting the transmission/distribution network
- Specific requirements of major time critical loads connected to the NSP network, details of any relevant energy support arrangements to which the NSP is a party.
- Operating arrangements between TNSPs and DNSPs to liaise restoration of the power system following a significant supply disruption.
- Ability of the TNSP/DNSP to deliver discrete loads as required by AEMO.

The networks owned by NSPs include transmission networks, distribution networks and DC Links.

The detailed items of information to be provided in LBSPs of DC Links are included in the Appendix 3.

The Appendix 4 covers the detailed items of information to be included in TNSP/DNSP LBSPs.

All NSPs must submit LBSPs to AEMO electronically, to the following email address.

system_restart_advice@AEMO.com.au

4 LBSP Approval process

AEMO will assess the adequacy of the information provided in LBSPs (refer the Appendix 2, 3 and 4 for items of information to be included in LBSPs) and the consistency of LBSPs with the system restart plan, before approval. [NER 4.8.12 (g)].

AEMO is required to develop its system restart plans consistent with the system restart standard. Restoration of the power stations and transmission/distribution networks within certain timeframes is required to meet the system restart standard. AEMO will assess whether the strategies detailed in LBSPs are sufficient for the power system to be restarted to meet the system restart standard. If the strategies detailed in Generator and/or NSP LBSPs are not adequate, AEMO will use provisions in NER 4.8.12 (h) to request changes to the strategies presented by Generators and/or NSPs as required.

AEMO will consider the impact of Generator/NSP obligations associated with the energy support agreements the Generators/NSPs may be party to, in developing system restart plans. If the Generator/NSP obligations are likely to cause delays in restoring the power system, AEMO will impose suitable conditions in respect of the energy supply agreement/s and request amendments to the relevant LBSPs.

Appendix 1 - Relevant NER provisions associated with LBSPs

4.8.12 System restart plan and local black system procedures

- (a) *AEMO* must prepare, and may amend, a *system restart plan* for the purpose of managing and coordinating system restoration activities during any *major supply disruption*.
- (b) The *system restart plan* is *confidential information*.
- (c) The *system restart plan* must be consistent with the *system restart standard*.
- (d) Each *Generator* and *Network Service Provider* must develop *local black system procedures* in accordance with the guidelines referred to in clause 4.8.12(e). A *Generator's* or *Network Service Provider's local black system procedures* must be consistent with any *ancillary services agreement* to provide *system restart ancillary services* to which that *Generator* or *Network Service Provider* is a party. On request from *AEMO*, or as a result of a significant change of circumstances, a *Generator* or *Network Service Provider* must review, and amend if appropriate, its *local black system procedures*.
- (e) Subject to clause 4.8.12(f), *AEMO* must develop and *publish*, and may amend, guidelines for the preparation of *local black system procedures* in consultation with *Generators* and *Network Service Providers*.
- (f) *Local black system procedures* must:
 - (1) provide sufficient information to enable *AEMO* to understand the likely condition and capabilities of *plant* following any *major supply disruption* such that *AEMO* is able to effectively co-ordinate the safe implementation of the *system restart plan*; and
 - (2) appropriately incorporate any relevant *energy support arrangements* to which a *Generator* or *Network Service Provider* may be party.
- (g) Each *Generator* and *Network Service Provider* must submit its *local black system procedures*, including any amendments to those procedures, to *AEMO* for approval. In considering whether to grant approval, *AEMO* must take into account the consistency of the *local black system procedures* with:
 - (1) the guidelines referred to in clause 4.8.12(e); and
 - (2) relevant components of the *system restart plan*.
- (h) *AEMO* may request amendments to *local black system procedures*, including, without limitation, imposing conditions in respect of any *energy support arrangement* as *AEMO* reasonably considers necessary to ensure the integrity of the *system restart plan*. When requesting amendments to the *local black system procedures*, *AEMO* must provide reasons for those requested amendments.
- (i) Requests by *AEMO* for amendments under clause 4.8.12(h) must be by notice in writing to a *Generator* or *Network Service Provider*. Reasonable requests by *AEMO* for amendments under clause 4.8.12(h) must be complied with by a *Generator* or *Network Service Provider*.
- (j) *AEMO* and *Network Service Providers* must jointly develop communication protocols to facilitate the exchange of all information relevant to the roles played by *AEMO*, *Network Service Providers*, *Generators* and *Customers* in the implementation of the *system restart plan*.

4.8.14 Power system restoration

- (a) *AEMO* must notify a *Registered Participant* if, in *AEMO*'s reasonable opinion, there is a *major supply disruption* which is affecting, or which may affect, that *Registered Participant*.
- (b) If *AEMO* advises a *Generator* or *Network Service Provider* of a *major supply disruption*, or if the terms of the relevant *local black system procedures* require the *Generator* or *Network Service Provider* to take action, then the *Generator* or *Network Service Provider* must comply with the requirements of the *local black system procedures* as quickly as is practicable.

Chapter 10

energy support arrangement

A contractual arrangement between a *Generator* or *Network Service Provider* on the one hand, and a customer or *participating jurisdiction* on the other, under which *facilities* not subject to an *ancillary services agreement* for the provision of *system restart ancillary services* are used to assist *supply* to a customer during a *major supply disruption* affecting that customer, or customers generally in the *participating jurisdictions*, as the case may be.

major supply disruption

The unplanned absence of *voltage* on a part of the *transmission system* affecting one or more *power stations*.

In addition to the above provisions, NER clauses 4.3.2 (f), 4.3.2 (h) and 4.3.2 (j)(3) have relevance to load shedding and restoration in managing supply disruptions.

Appendix 2 – Information to be included in Generator LBSPs

Note:

- LBSPs of embedded generation are required to cover only the sections 1 and 5 of the Appendix 2.
- LBSPs of wind generation are required to cover only the sections 1 and 6 of the Appendix 2.

Section 1: General information on the power station

Item	Information required	Include information in this column
1A	Name of Registered Participant:	
1B	Is the Generator a party to an energy support agreement (refer Appendix 1 for the Rules definition)?	Yes / No (If yes, include all relevant information associated with the power station in section 9)
1C	Name of the power station:	
1D	Address of the power station:	
1E	Primary and back up contact for matters relating to local black system procedures:	
1F	Provide the TNSP or DNSP substation where the generator/s connect to the power system.	
1G	Generating unit type:	(leave the correct type, strikethrough or delete others) coal-fired gas-fired CCGT hydro wind other, please indicate :
1H	Number of generating units and MW capacity of each unit	
1J	Number of generating units that can be returned to service without external supply:	
1K	Is the power station staffed under normal operation conditions ?	
1L	Number of generating units capable of tripping to house load (TTHL):	

Section 2: Assessment of the situation and safe shut down of generating units

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date that this information will be provided)
2A	<p>Who would the power station staff contact to get an assessment of the situation and the estimated time to receive external power ?</p> <p>How would the power station staff contact this person/organisation ?</p>	
2B	<p>What organisation is responsible for restoring the power system in the vicinity of the power station ?</p> <p>How would power station staff contact this organisation ?</p>	
2C	<p>Do staff need to be called out to manage the situation at the power station?</p> <p>If yes, how long will it take to get on-call / standby/ other staff to the power station site ?</p>	
2D	<p>Is external supply required to safely shut down the generating units ?</p>	
2E	<p>Are emergency diesels/ gas turbines installed at the power station sufficient to safely shut down the generating units ?</p>	
2F	<p>How long will it take to safely shutdown, secure and make ready to restart the generating units ?</p>	
2G	<p>Can the generating units that are in a shut down sequence, be restored to service as soon as external supply becomes available or does the shut down sequence need to be completed first ?</p>	
2H	<p>Indicate how the time without external supply following a supply disruption affects the time to restart generating units.</p> <p>The required information may be provided in the following format.</p> <p>If external supply is made available within X hours, the generator can start in Y hours.</p> <p>If the external supply is not made</p>	

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date that this information will be provided)
	available within P hours, it will take Q days to start the generator.	
2J	How much time will be required for any off line units (at the time of black system event) to be available to participate in system restart process?	
2K	How long can a generating unit be without external supply and still maintain the capability to restart when external supply is made available ?	

Section 3: Restarting the generating units

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
3A	Are there any unique/complex switching requirements to receive station auxiliary supply from the power system ?	
3B	Where does the power station receive its external start up supply from ?	
3C	Can generating units be connected to a de-energised bus? Can generating units operate supplying an isolated load and then synchronise to the rest of the system ?	
3D	Provide a summary of the restart plan of the power station. Include: - power station specific information (at high level), AEMO should be aware of, in developing system restart plans - the order of unit restarts and estimates of time required to prepare units to synchronise	
3E	What is the fuel supply arrangement (coal, gas etc.) to start up and continue to run generating units ?	
3F	What is the arrangement for supplying of other station essential services such as demineralised water ?	
3G	What nominal capacity steps are available as each unit is progressively brought back on-	

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
	<p>line?</p> <p>What ramp rates for loading and unloading are available ?.</p> <p>Provide a generating unit MW loading capability curve, showing the size of load block as a function of the unit MW output., i.e. load block = f(unit active energy output).</p> <p>Is there a requirement for the load block to be a discrete value or is there a tolerance range ?</p> <p>What are the main factors that dictate these increments ?</p>	
3H	<p>If the MVar capability of generating units during restart is different to the capability under normal operation, provide the restart MVar capability as a function of MW output.</p> <p>i.e. unit MVar capability = f(unit active energy output).</p> <p>Include transformer energisation current capability. Indicate whether generator excitation can be controlled to minimise transformer magnetising current.</p>	
3J	<p>Provide the estimated electrical power requirements during various stages of the unit restart ? (provide a breakdown for individual units, an aggregate, and house load)</p>	
3K	<p>What is the minimum load requirement for stable operation of each generating unit?</p>	

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
3L	<p>What are the upper and lower values of the normal operating frequency band for each unit over which full rated output is available?</p> <p>What are the extreme frequency bands for each unit where partial output is available?</p>	
3M	<p>Are there any special procedures to be followed in energising the transformers, any interlocks that must be by-passed etc.?</p>	

Section 4: Use of TTHL capable generating units

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information can be provided)
4A	The duration of time the generator is capable of stable operation on house load?	
4B	If there is a time limit for stable operation following trip to house load, what factors determine this time limit ?	
4C	What load blocks are required? (include details of time-frames)	
4D	Are there any other requirements for stable operation supplying house load, until the required load blocks are provided ?	

Section 5: Restarting embedded generators

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information can be provided)
5A	Does the embedded generator have capability to restart and form an island supplying local load ?	
5B	If an island can be formed, are there facilities for the island to be synchronised to the transmission network at a later stage?	
5C	<p>Do you have any operational arrangements [as detailed in the Connection and Access Agreement (CAA) or in any other agreement] with a TNSP/ DNSP regarding the starting and operation of embedded generation in a black system condition or major supply disruption?</p> <p>If yes, please include relevant details</p>	

Section 6: Restarting wind generators

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
6A	How are the wind generating units started and connected to the power system under normal operating conditions ?	
6B	<p>Do you have any operational arrangements [as detailed in the Connection and Access Agreement (CAA) or in any other agreement] with a TNSP/ DNSP regarding the starting and operation of wind generation in a black system condition or major supply disruption?</p> <p>If yes, please include relevant details</p>	

Section 7: Technical details associated with the power station

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
7A	Do generating units have under-frequency trip setting/s? If so, provide the settings	
7B	Do generating units have over-frequency (and/or over-speed) trip settings? If so, provide the settings.	

Section 8: Technical details associated with TTHL capable generating units

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
8A	What are the triggering mechanisms of the TTHL capable generating units? (include details of the levels, durations, and rates of change of frequency and voltage, and power swings)	
8B	Are the TTHL units fully or partially automated? Is any form of manual intervention required for the generating unit to trip to house load ?	
8C	Are there any likely conditions that trip generating units prior to tripping to house load?	
8D	If there are multiple generating units with TTHL capability, how many generating units are normally enabled for TTHL ? What strategy is used in selecting the number of generating units for TTHL ?	

Section 9: Generator participation in energy support arrangements

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
9A	Is the generator a party to an energy support arrangement ?	
9B	Include relevant information on the energy support arrangement associated with this power station.	

Section 10: Communication facilities

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
10A	What communication facilities do you have to communicate with your on-call, standby and other staff?	
10B	What communication facilities do you have to communicate with AEMO, TNSP and DNSP?	

Appendix 3 - Information to be included in LBSPs of DC Links

Section 1: General information on the DC Link

1A	Registered name of the DC Link:	
1B	Is the DC Link a party to an energy support agreement (refer Appendix 1 for the Rules definition) ?	Yes / No (If yes, include all relevant information in section 4)
1C	Primary and back up contact for matters relating to local black system procedures:	
1D	Provide the TNSP or DNSP substation where the DC Link connects to the power system	
1E	Are the converter stations manned under normal operation conditions ?	

Section 2: Assessment of the situation and safe shut down

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
2A	Who would the staff of DC Link contact to get an assessment of the situation and the estimated time to receive external power ?	
2B	What organisation is responsible for restoring the power system in the vicinity of converter stations ?	
2C	Is staff need to be called out to manage the situation ? If yes, how long will it take to get on-call / standby/ other staff to the converter station site/s ?	
2D	Is external supply is required to safely shut down the DC Link ?	
2E	Are emergency diesels/ gas turbines installed at converter stations sufficient to safely shut down ?	
2F	Indicate how the time without external supply following a supply disruption affects the restart of the DC Link when the power system is restored ?	
2G	How long will it take for the DC Link to return to service once the power system in the vicinity of converter stations is restored ?	

Section 3: Restoration of DC Links

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
3A	Are there any unique/complex switching requirements to provide converter station auxiliary supply from the power system ?	
3B	Which substation/s are capable of providing external supply to converter stations ?	
3C	Are AC sources required at both ends of the DC Link for transferring power across the link ? (include details of specific technical requirements of the AC sources)	
3D	Provide a summary of the restart plan of the DC Link	
3E	Can the DC Link provide voltage support at one or both ends immediately following energising the DC Link ? (provide details)	
3F	Is there any limitation of the power transfer capability of the DC Link immediately following the return to service, due to the state of the power system in the vicinity of the DC Link ?	

Section 4: DC Link participation in energy support arrangements

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
4A	Is the DC Link a party to an energy support arrangement ?	
4B	Include relevant information on the energy support arrangement associated with the DC Link.	

Section 5: Communication facilities

Item	Information required	Include the information in this column (If the required information is not readily available, include the likely date this information will be provided)
5A	What communication facilities do you have to communicate with your on-call, standby and other staff?	
5B	What communication facilities do you have to communicate with AEMO, TNSP and DNSP?	

Appendix 4 – Information to be included in TNSP/DNSP LBSPs

Section 1: General information

Item	Information required	Include the information in this column
1A	Registered name of the TNSP/DNSP	
1B	Primary and backup contact for matters relating to local black system procedures:	
1C	Is the TNSP/DNSP a party to an energy support agreement (refer Appendix 1 for the Rules definition) ?	Yes / No (If yes, include all relevant information in section 8)
1D	Number of primary control centres and locations	
1E	Number of back up control centres (or disaster recovery sites) and locations	

Section 2: Operational capability of control centres following the failure of primary supplies for an extended period

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
2A	Are the primary control centres capable of continued operation following an extended supply failure ? If the answer is No, indicate the estimated time duration/s for which the primary control centre/s can maintain the operational capability.	
2B	Estimated time required for the back up control centre/s to be operational	
2C	Indicate the estimated time duration/s for which the back up control centre/s can maintain their operational capability.	
2D	<p>Include a summary of emergency supplies available at primary and back up control centre/s.</p> <p>Indicate the likely consequence of loss of back up supply to control centres.</p>	

Section 3: Voice communication systems

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided))
3A	<p>List the different voice communication systems (normal and emergency) available to the operations group of TNSP/DNSP (If satellite phones are available to the operations group, include the phone numbers and locations).</p> <p>Include the operations groups of other organisations who have access to these voice communication systems</p>	
3B	<p>Estimated time duration these communications systems can be relied upon in the event of an extended interruption to primary supplies</p>	
3C	<p>Are these communication systems independent or do they rely on services provided by other parties ?</p>	
3D	<p>Include a high level summary of routine testing arrangements for voice communication systems.</p>	

Section 4: Continuity of NSP supervisory systems (SCADA monitoring and control)

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
4A	Provide a high level summary of the use of SCADA monitoring and control in normal operation of your network.	
4B	Include a high level summary of routine testing arrangements for the supervisory & control (SCADA) systems.	
4C	Estimated time duration the supervisory and control systems (SCADA) can reliably function in the event of an extended interruption to primary supplies. [Consider the capability of emergency supplies at control centres only. 5D covers the continuity of operation of Remote Terminal Units (RTUs) at substations].	

Section 5: Continuity of substation operational capability:

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
5A	<p>Indicate the arrangements for emergency supplies of 500kV, 330kV, 275kV, 220kV, 132kV, 110kV and 66kV substations.</p> <p>If the emergency supplies for some of the substations are different to the common arrangement for substations operating at the same voltage, list such substations and the differences.</p>	
5B	<p>Indicate the estimated time durations the substations can maintain operational capability (i.e. operation of circuit breakers etc.) following an extended interruption to primary supplies.</p>	
5C	<p>Indicate the estimated time durations the RTUs of substations are likely to function following an extended interruption to primary supplies.</p>	

Section 6: Relevant technical information for restarting the network

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
6A	<p>TNSPs : Provide a list of locations where synchronising facilities are available within the transmission network and at connection points of DNSP network. Indicate the circuit breakers that can be used for synchronising and whether the synchronising capability is local or remote. Include the estimated time required to achieve local action (indicative time for urban and country areas will be sufficient.)</p> <p>If this information is available in a quality assured procedure, document or a diagram, reference of that procedure, document or the diagram is sufficient.</p>	
6B	<p>TNSPs: Indicate circuit breakers where “check synchronising” is used before closing. Also indicate whether the bypassing of check synchronising for these circuit breakers is local or remote.</p>	
6C	<p>TNSPs: Indicate any technical limitations or requirements specific to your network configuration that you are aware of, that should be taken into account in restoring supply within your network.</p> <p>Example:</p> <ul style="list-style-type: none"> - Can SVCs be returned to service in the very early stages of the restoration following a black system ? - Are there any known 	

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
	restoration sequences that should be avoided to minimise the risk of possible problems such as undesirable levels of harmonics ?	
6D	Are there any location specific (i.e. at 500kV, 330kV, 275kV, 220kV, 132kV, 110kV and 66kV substations) technical limitations or requirements that should be taken into consideration in restoring supply within your network.	
6E	Are there any other technical limitations or requirements that should be taken into consideration in restoring supply within your network following a major supply failure ?	

Section 7: Specific requirements of time critical major customer loads

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
7A	List the most significant time critical customer loads and the connection points (substations) of these loads directly supplied from your network. Indicate why it is critical to restore these loads within specific time frames. Indicate the MW consumption and critical timeframe for each of the load.	
7B	Indicate any special characteristics of these loads that should be taken into consideration in developing restoration procedures.	

Section 8: Operating arrangements between TNSPs, DNSPs and Generators

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
8A	If TNSPs/DNSPs are party to energy support agreement/s (refer Rule definition given in Appendix 1), include all the relevant details that could have an impact on restoration of supply within your network following a major supply failure.	
8B	Include a high level summary of interface operating arrangements between TNSPs and DNSPs to liaise progressive restoration of the power system following a major supply failure.	
8C	TNSPs: Indicate whether there are existing protocols requiring TNSP to operate/switch certain DNSP owned network equipment in normal operation as well as in emergencies. If the answer is Yes, briefly indicate in generic terms the locations/areas/voltages at which the protocol applies.	
8D	DNSPs: Provide a summary of operating arrangements in place for each of the embedded generation	

Section 9: Assess and prepare network to accept supply

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
9A	Briefly indicate how TNSP/DNSP would establish the scale of the supply disruption. List the other operational groups the TNSP/DNSP would communicate with for this purpose.	
9B	<p>TNSPs: Briefly indicate the steps followed in assessing the readiness of the transmission network to be energised following a major supply failure. This would include identifying the cause of the system failure where practicable, and assessing the transmission network to identify unaffected parts of the network that can be energised.</p> <p>DNSPs: Briefly indicate the steps followed in assessing the status of the distribution network.</p>	
9C	Indicate the factors considered in identifying critical substations to be manned. Provide the estimated times for on-call/other staff to arrive at critical substations (indicative average timeframes for urban and non-urban locations would be sufficient).	
9D	Provide a generic list of high level tasks (in priority order) performed using supervisory control (SCADA) and/or by staff called in to ensure the safety of equipment and to prepare substations to accept supply.	
9E	DNSPs: Indicate approximate lead times to arrange stabilising load	

Item	Information required	Include the information in this column (If the required information is not readily available, include the date that this information will be provided)
	<p>blocks (10-100MW blocks) in the early stages of restoration following black system condition.</p> <p>Comment on the ability of providing accurate discrete load blocks in the range 10-100MW.</p>	