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| local black start procedure: Facility\_Name |
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| PREPARED BY: | Market Participant Name |
| DOCUMENT REF: | SMDXXXX |
| VERSION: | 1.0 |
| EFFECTIVE DATE: | dd Month 20YY |
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Version Release History

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| Version | Effective Date | Summary of Changes |
| 0.1 | dd Month YYYY | Updated template |
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# General information on the power station

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| 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) |
| 1A | Registered name of the Generator: |  |
| 1B | Name of the power station: |  |
| 1D | Address of the power station: |  |
| 1E | Primary and back up contact for matters relating to local black start procedures: |  |
| 1F | Substation where the generator/s connect to the power system. |  |
| 1G | Generating unit type:  (leave the correct type, and strikethrough or delete others) |  |
| 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): |  |

# Assessment of the situation and safe shut down of generating units

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| 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 | Who would the power station staff contact to get an assessment of the situation and the estimated time to receive external power ?  How would the power station staff contact this person/organisation ? |  |
| 2B | What organisation is responsible for restoring the power system in the vicinity of the power station ?  How would power station staff contact this organisation ? |  |
| 2C | Do staff need to be called out to manage the situation at the power station? If yes, how long will it take to get on-call / standby/ other staff to the power station site? |  |
| 2D | Is external supply required to safely shut down the generating units? |  |
| 2E | Are emergency diesels/ gas turbines installed at the power station sufficient to safely shut down the generating units? |  |
| 2F | How long will it take to safely shutdown, secure and make ready to restart the generating units? |  |
| 2G | 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? |  |
| 2H | Indicate how the time without external supply following a supply disruption affects the time to restart generating units. The required information may be provided in the following format. If external supply is made available within X hours, the generator can start in Y hours.  If the external supply is not made 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? |  |

# Restarting the generating units

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| 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) |
| 3A | Are there any unique/complex switching requirements to receive station auxiliary supply from the power system? |  |
| 3B | From where does the power station receive its external start up supply? |  |
| 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), that 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- line?  What ramp rates for loading and unloading are available?  Provide a generating unit MW loading capability curve, showing the size of load block as a function i.e. load block = f(unit active energy output).  Is there a requirement for the load block to be a discrete value or is there a tolerance range?  What are the main factors that dictate these increments? |  |
| 3H | 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. i.e. unit MVar capability = f(unit active energy output).  Include transformer energisation current capability. Indicate whether generator excitation can be controlled to minimise transformer magnetising current. |  |
| 3J | Provide the estimated electrical power requirements during various stages of the unit restart?  (provide a breakdown for individual units, an aggregate, and house load) |  |
| 3K | What is the minimum load requirement for stable operation of each generating unit? |  |
| 3L | What are the upper and lower values of the normal operating frequency band for each unit over which full rated output is available?  What are the extreme frequency bands for each unit where partial output is available? |  |
| 3M | Are there any special procedures to be followed in energising the transformers, any interlocks that must be by-passed etc.? |  |

# Use of TTHL capable generating units

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| 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) |
| 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 stabilising load blocks are required? (include details of time- frames) | N/A |
| 4D | Are there any other requirements for stable operation supplying house load, until the required load blocks are provided? |  |

# Restarting embedded generators

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| 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) |
| 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 | Do you have any operational arrangements [as detailed in the Electricity Transfer Access Contract (ETAC) 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?  If yes, please include relevant details |  |

# Restarting wind generators

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| 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) |
| 6A | How are the wind generating units started and connected to the power system under normal operating conditions? |  |
| 6B | Do you have any operational arrangements [as detailed in the Access Agreement or in any other agreement] regarding the starting and operation of wind generation in a black system condition or major supply disruption?  If yes, please include relevant details |  |

# Technical details associated with the power station

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| 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) |
| 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 |  |

# Technical details associated with TTHL capable generating units

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| 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) |
| 8A | What is the triggering mechanism 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? |  |
| 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? |  |

# Communication facilities

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| 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) |
| 9A | What communication facilities do you have to communicate with your on-call, standby and other staff? |  |
| 9B | What communication facilities do you have to communicate with  AEMO? |  |