

Black Start Ancillary Service Schedule

1. Glossary and Interpretation

1.1 Glossary:

In this Ancillary Service Schedule, unless the context otherwise requires, the following definitions apply:

Black Start Equipment

means one or more diesel generators or auxiliary hydro plant capable of livening a Black Start Generating Unit isolated from the Grid;

Black Start Generating Unit

means a Generating Unit that is livened during a Black Start event, as specified in Appendix 1 under the field name "Unit ID";

Black Start Station

means a Generating Station at which one or more Black Start Generating Units is located, as specified in Appendix 1 under the field name "Station ID";

Equipment

means the Black Start Generating Units and Black Start Equipment;

Method

means a method for re-energising a Network Busbar(s) as part of the provision of Black Start, as specified in Appendix 2, or any other such method subsequently agreed by the parties and recorded in writing;

Monitoring Equipment

means equipment capable of measuring and recording the parameters listed in clause 7.4(a);

Network Busbar

means a Network busbar specified in Appendix 1;

Remote Synchronisation Breaker

means equipment used to synchronise two electrical islands;

Request

means a request to provide Black Start under this Ancillary Service Schedule made in accordance with clause 3.1;

Request Procedure

means a procedure for making Requests, as specified in Appendix 3, or any other such procedure subsequently agreed by the parties and recorded in writing; and

Test Switching Event

means switching that is carried out as part of the Test of the Black Start service.

1.2 Interpretation:

In this Ancillary Service Schedule, unless the context otherwise requires, references to appendices are references to appendices of this Ancillary Service Schedule.

2. Provision of Black Start

2.1 Provision of Black Start:

The Ancillary Service Agent must provide:

- (a) Black Start if Requested; and
 - (b) the Equipment and Monitoring Equipment,
- in accordance with this Contract.

3. Black Start Requests

3.1 Request Procedure:

If Black Start is required, the System Operator must:

- (a) request Black Start in accordance with the relevant Request Procedure; and
- (b) specify in its request the Method to be used to provide Black Start and the time and Network Busbar(s) at which Black Start is required.

3.2 Staff and Facilities Available to Meet Black Start Service Requests:

The Ancillary Service Agent must ensure that appropriate personnel and facilities are available to receive and comply with any Request. The Ancillary Service Agent must ensure that the personnel specified in Appendix 4 (or other personnel who are no less qualified) are trained in accordance with Good Industry Practice and can be contacted by the System Operator at the times and at the telephone and mobile numbers specified in Appendix 4.

4. Performance Standards

4.1 Equipment:

The Ancillary Service Agent must ensure that:

- (a) subject to clause 6.1, sufficient Equipment is available at all times during the term of this Ancillary Service Schedule to provide Black Start;
- (b) each item of Black Start Equipment when Requested starts without power being obtained from the Grid or any Local Network; and
- (c) each Black Start Generating Unit when Requested achieves the relevant response time to synchronous speed specified in Appendix 1.

4.2 Black Start service:

The Ancillary Service Agent must provide Black Start when Requested by:

- (a) starting a Black Start Generating Unit and raising it to synchronous speed without power being obtained from the Grid or any Local Network;

- (b) operating the Black Start Generating Unit at zero load synchronous speed for 15 minutes (or such shorter period as instructed by the System Operator);
- (c) having the Black Start Generating Unit switched on to the relevant de-energised Network Busbar(s);
- (d) starting any remaining Black Start Generating Units and synchronising to the Network Busbar(s) and progressively energising the Grid from those Network Busbar(s);
- (e) ensuring the Black Start Generating Units provide the Reactive Power capability specified in clause 8.23 of the Code;
- (f) subject to subclause 4.2(d), controlling Grid voltage as instructed by the System Operator; and
- (g) providing an emergency frequency regulation service by maintaining the Grid frequency between 49.25 Hertz and 50.75 Hertz, to the extent practicable.

4.3 Capability Data:

The Ancillary Service Agent must provide the System Operator with such data as the System Operator may reasonably require from time to time to enable the System Operator to model the Ancillary Service Agent's Black Start capability.

5. Price

5.1 Availability Fees:

Subject to clauses 2 and 3.3(c) of Part A2: General Terms, the System Operator must pay to the Ancillary Service Agent the Availability Fee(s) each month for the term of this Ancillary Service Schedule. For the avoidance of doubt, the Availability Fee(s) are payable even if there are no Black Start events.

5.2 Reduction in Availability Fees:

If clause 3.3(c) of Part A2: General Terms applies to Black Start under this Ancillary Service Schedule, the following formula will be used to calculate the amount by which the Availability Fee for a Black Start Generating Unit or Black Start Station is to be reduced if the Ancillary Service Agent fails, or is unable, to meet a Performance Standard:

$$AP = AF \times (1 - [TP_{fail} \div TP_{max}])$$

where:

AP is the reduced Availability Fee for a month;

AF is the relevant Availability Fee that would have been payable for the month had clause 3.3(c) of Part A2: General Terms not applied;

TP_{fail} is the total number of Trading Periods in that month when clause 3.3(c) of Part A2: General Terms applied; and

TP_{max} is the total number of Trading Periods in that month.

5.3 Event Fees:

Subject to clauses 2 and 3.3(c) of Part A2: General Terms, in addition to the Availability Fee(s), the System Operator must pay to the Ancillary Service Agent the relevant Event Fee for Black Start Requested and provided each month in accordance with this Ancillary Service Schedule.

5.4 CPI Adjustment to Availability Fees and Event Fees:

If, as at 31 January 2027 and 31 January of each subsequent year during the term of this Ancillary Service Schedule, the percentage change in the annual average at the December quarter of the CPI is greater than 1.5%, then each Availability Fee and Event Fee is to be adjusted upwards in accordance with the following formula and will be payable for the next and subsequent months and events during the term of this Ancillary Service Schedule (subject to any further adjustments to the Availability Fee and Event Fee under this clause):

$$AEF_2 = AEF_1 \times (1 + [CPI_1 - 1.5\%])$$

where:

AEF₁ is the current Availability Fee or Event Fee;

AEF₂ is the new Availability Fee or Event Fee; and

CPI₁ is the percentage change in the annual average at the December quarter of the CPI.

For the avoidance of doubt, if the percentage change in the annual average at the December quarter of the CPI is less than or equal to 1.5%, there will be no adjustment to any Availability Fee or Event Fee.

6. Outages

6.1 Compliance with Performance Standards:

An Outage of Equipment will not be taken into account in assessing the Ancillary Service Agent's compliance with the Performance Standard in clause 4.1(a) (and will be an Allowed Outage) if:

- (a) the Ancillary Service Agent removes the Equipment from service for one of the reasons set out in clause 6.2; and
- (b) the Ancillary Service Agent otherwise complies with this clause 6 and its other obligations under this Contract in respect of the Outage.

6.2 Allowed Outages:

The Ancillary Service Agent may, at any time and in accordance with this clause 6, remove Equipment from service if, in the Ancillary Service Agent's reasonable opinion acting in accordance with Good Industry Practice, it is necessary to do so:

- (a) for maintenance of the Equipment;
- (b) to eliminate or mitigate a risk of injury to any person or damage to the Equipment; or
- (c) for a Test of the Equipment.

6.3 Co-ordination of Planned Outage:

Where an Outage that may compromise the Ancillary Service Agent's ability to provide Black Start in accordance with this Ancillary Service Schedule is planned or anticipated by the Ancillary Service Agent, the Ancillary Service Agent must:

- (a) consult with the System Operator on the timing of the Outage with the intention that the timing of the Outage must ensure that the System Operator can, at all times, comply with its Principal Performance Obligations;
- (b) unless the System Operator agrees in writing, notify the System Operator of the Outage, its expected start date, its expected duration and the programme of works for the Outage no later than:
 - (i) twelve weeks before the start of the Outage if the Outage is planned to be 12 hours or longer in duration; or
 - (ii) two weeks before the start of the Outage if the Outage is planned to be less than 12 hours in duration; and
- (c) if the expected start date, duration or programme of works for the Outage changes, provide the System Operator with as much advance warning as reasonably practicable of the revised expected start date, duration or programme of works for the Outage.

6.4 Consequence of failure to comply with notice requirements

(a) Purpose

The purpose of clause 6.3 is to facilitate the System Operator having sufficient time to take such steps as the System Operator deems necessary to ensure the System Operator can meet its Principal Performance Obligations.

(b) Failure to comply to notice requirements

For each planned Outage for which the Ancillary Service Agent fails to meet the notice requirements in clause 6.3, the Ancillary Service Agent is liable to the System Operator for an amount equal to one month's Availability Fee. Any liability of the Ancillary Service Agent to the System Operator under this subclause will be paid by adjusting the next or a subsequent invoice under clause 2.1 of Part A2: General Terms.

6.5 Unexpected Outages:

In the event of any unexpected Outage that may compromise the Ancillary Service Agent's ability to provide Black Start in accordance with this Ancillary Service Schedule, the Ancillary Service Agent must:

- (a) immediately report the unexpected Outage to the System Operator, including the expected time to rectify the unexpected Outage;
- (b) determine and rectify the cause of the unexpected Outage as soon as practicable;
- (c) use reasonable endeavours to continue to perform its obligations under this Ancillary Service Schedule; and

- (d) inform the System Operator upon completion of the Outage.

6.6 Termination for Excessive Maintenance:

If, in the System Operator's reasonable opinion, the number or duration of Outages of Equipment for maintenance is such that the Ancillary Service Agent's ability to provide Black Start in accordance with this Ancillary Service Schedule has been substantially detrimentally affected, the System Operator may, by giving one month's prior written notice to the Ancillary Service Agent, terminate this Ancillary Service Schedule.

6.7 Minimise Duration and Frequency of Outages:

The Ancillary Service Agent must use reasonable endeavours to minimise the duration and frequency of any Outages that affect the Ancillary Service Agent's ability to provide Black Start in accordance with this Ancillary Service Schedule.

7. Tests

7.1 Baseline Tests:

The Ancillary Service Agent must conduct:

- (a) a Test of each item of Black Start Equipment at least once every six weeks, unless:
 - (i) the item of Black Start Equipment has been generating at any time during that period; and
 - (ii) the Ancillary Service Agent has notified the System Operator of this before the end of the six week period via email; and
- (b) a Test of the Black Start service at any Network Busbar(s) nominated by the System Operator when required by the System Operator, provided that the System Operator may not require a Test under this clause more than once per rolling 12 month period. For the avoidance of doubt, a Test required by the System Operator under this clause is a Test under clause 4.1 of Part A2: General Terms and not under clause 4.3(a) of Part A2: General Terms.

NOTE: The System Operator intends to test each Ancillary Service Agent's capability once every two years

7.2 Test Requirements – Black Start Equipment:

A Test of Black Start Equipment must verify whether or not the Black Start Equipment can meet the Performance Standard in clause 4.1(b).

7.3 Test Requirements – Black Start service:

A Test of the Black Start service must:

- (a) involve a full shutdown of the relevant Black Start Station;
- (b) verify whether or not the Black Start service can be provided in accordance with the Performance Standards in clauses 4.1(b), 4.1(c) and 4.2 for the Network Busbar(s) nominated by the System Operator, or such lesser standards as the System Operator may determine in consultation with the Ancillary Service Agent; and

- (c) if requested by the System Operator, allow the System Operator to test the operation of a Remote Synchronisation Breaker.

7.4 Test Monitoring Requirements:

The Ancillary Service Agent must ensure that during a Test of the Black Start service the Monitoring Equipment accurately:

- (a) for the period set out in clause 7.4(c) measures and records for the Black Start Generating Units under Test:
 - (i) Active Power;
 - (ii) Active Power setpoint;
 - (iii) Reactive Power;
 - (iv) Generator speed;
 - (v) Generator terminal voltage;
 - (vi) Generator voltage setpoint; and
 - (vii) Gate position;
- (b) measures and records (in a time tagged manner) all parameters listed in subclause (a) over intervals no greater than 20 milliseconds; and
- (c) measures and records all parameters listed in subclause (a) during the period:
 - (i) commencing not less than six seconds prior to the Test Switching Event; and
 - (ii) ending not less than sixty seconds after the response to the Test Switching Event has stabilised to a steady state following the Test Switching Event.

The Ancillary Service Agent must ensure the data recorded by the Monitoring Equipment under this clause is held by the Ancillary Service Agent for a period of not less than 24 months.

7.5 Test After Failure:

If:

- (a) the Ancillary Service Agent fails to meet a Performance Standard or comply with a Request; and
- (b) the System Operator requests a Test of the relevant Equipment within 20 Business Days of becoming aware of the failure by the Ancillary Service Agent,

then, despite clause 4.5 of Part A2: General Terms, the Ancillary Service Agent must meet the costs incurred by the Ancillary Service Agent in conducting the Test regardless of whether or not the results from the Test show that the Ancillary Service Agent is able to meet the relevant Performance Standards.

7.6 Test after changes to Black Start Equipment:

The Ancillary Service Agent must conduct a Test of the Black Start Equipment following any change to the Black Start Equipment that may impact its Black Start

performance. The Ancillary Service Agent must promptly (and in any event within 10 Business Days) notify the System Operator if the Ancillary Service Agent intends to make, or has made, a change to the Black Start Equipment that may impact its Black Start performance, regardless of whether the Ancillary Service Agent believes that such impact is of high consequence or likelihood.

7.7 Provision of data for compliance

Within 15 Business Days of completing a Test, the Ancillary Service Agent must provide the System Operator with the corresponding Test data and verification of meeting the relevant Performance Standards.

7.8 Breach of this clause 7

If the System Operator believes the Ancillary Service Agent has not complied with this clause 7, the System Operator may make a claim under clause 3.3 of Part A2: General Terms as if the Ancillary Service Agent had failed to meet a Performance Standard.

8. Additional Services

8.1 Reasonable Endeavours to Provide:

The Ancillary Service Agent acknowledges that the System Operator may require additional services from the Ancillary Service Agent to re-energise the Grid or prevent Grid de-energisation (over and above the specific Black Start service the Ancillary Service Agent is required to provide under this Ancillary Service Schedule). If the System Operator requests such additional services (which may include control, protection or communication services, or the provision of Black Start from additional Black Start Generating Units), the Ancillary Service Agent must use reasonable endeavours to provide such additional services.

8.2 Invoicing and Payment:

The System Operator must pay the Ancillary Service Agent for the reasonable costs incurred by the Ancillary Service Agent in providing the additional services referred to in clause 8.1, which will be invoiced and paid in accordance with clause 2 of Part A2: General Terms.

9. Limitation of Liability

9.1 Limitation of Liability:

If there is a default by either party of any obligation under this Ancillary Service Schedule (other than non-payment of any amounts due), that party and its Associated Persons will only be liable to the other party up to a combined maximum liability for any single event or related series of events of [\$] [\$ figure will be inserted reflecting the lesser of 5% of the total amount of the expected annual Availability Fees and Event Fees payable under this Ancillary Service Schedule or \$100,000] with a combined maximum liability in any 12 month period of [\$] [\$ figure will be inserted reflecting the lesser of 20% of the total amount of the expected Availability Fees and Event Fees payable under this Ancillary Service Schedule or \$300,000], irrespective of the number of events.

9.2 Suspension of Liability:

The Ancillary Service Agent will have no liability to the System Operator in respect of the Ancillary Service Agent's obligations under this Ancillary Service Schedule to be performed during any period the System Operator is in default under this Contract in relation to Black Start.

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Appendix 1 – Capability

Station ID	Unit ID	Black Start Equipment	Automatic time to synchronous speed (minutes)	Manual time to synchronous speed (minutes)	Manual time to synchronous speed from stationary (minutes)	Network Busbar(s) able to be re-energised (eg TBK1101)	Availability Fee (\$ per month)	Event fee (\$ per event)

Appendix 2 - Methods

Network Busbar(s) able to be re-energised (e.g. TBK 1101)	Method for re-energising Network Busbar(s)

Appendix 3 - Request Procedures

Network Busbar(s) able to be re-energised (e.g. TBK 1101)	Request Procedure for Black Start at Network Busbar(s)

Appendix 4 - Contact Details of Personnel Capable of Carrying out Black Start Requests

Station ID	Name and Designation	Hours Available	Telephone number	Mobile Number