Service	The Service described in Schedule 5 and the expression includes all things which are: (a) incidental to the Service; and (b) reasonably necessary to provide the Service.
Service Can Be Called Upon	the Service is available to be provided by the Service Provider from the Facilities when dispatched by System Management in accordance with the terms of this Contract.

C5. Service to be provided

C5.1 Provision of the Service

(a) Subject to clauses C1.1(c) and C1.1(d), the Service Provider must use reasonable endeavours to ensure that the Service Can Be Called Upon at least 78% of the time and that at least one Facility is available at least 89% of the time (calculated as set out in Schedule 5).

(b) During the Term, when System Management issues an Operating Instruction to the Service Provider to provide the Service from the Facilities in accordance with this Contract, the Service Provider must in accordance with, and subject to, the terms and conditions set out in this Contract use reasonable endeavours to provide Western Power the Service from that Facility in accordance with that Operating Instruction.

(c) If, for whatever reason, the Service Provider is unable to provide the Service in accordance with this Contract, including as a result of unavailability of part of the Facilities, the Service Provider may (in its sole discretion) provide the Service to the extent it is practicable to make it available with such modification to the Service as the Service Provider considers (in its sole discretion) is required.

(d) The Parties acknowledge that the percentages of availability specified in clause C5.1(a) are based on the Facilities being called upon in a manner consistent with the Forecast Operating Parameters. To the extent that the Service Provider does not comply with clause C5.1(a) or C1.1(b) as a result of the Facilities being, or previously repeatedly being, called upon inconsistently with the Forecast Operating Parameters, the Service Provider will not be in breach of the obligation in clause C5.1(a) or C1.1(b) or Schedule 5.

C6 Market Registration

C6.1 Registration of Service Provider

During the Term, the Service Provider must be and remain registered in accordance with the Rules as a Market Generator or other relevant facility class.

C6.2 Registration of Facilities

During the Term, the Service Provider must ensure that each Facility is registered and remains registered in accordance with the Rules as applicable to the relevant facility class.

C6.3 Standing Data

(a) The Service Provider must:

(i) inform Western Power of any changes to the Standing Data for each Facility that materially affects the Service Provider's ability to provide the Service; and

(ii) notify Western Power of the change to the Standing Data referred to in clause C1.1(a)(i) as soon as reasonably practicable.

(b) The Parties acknowledge that section 3 of Schedule 5 sets out the relationship between the Standing Data for each Facility and the obligations under this Contract.

C9 Connection

(a) In respect of each Facility:

(i) at each and every time the Service is provided in accordance with this Contract, Western Power must provide the Facility with sufficient network access to the SWIS to allow the Service Provider to provide the Service in accordance with this Contract; and

(ii) at all times except those covered by clause C9(a)(i), the Parties acknowledge that the Facility does not have any network access to the SWIS.

(b) The Parties acknowledge that access to the SWIS pursuant to this Contract is limited to allow the Service Provider to provide the Services and transfer electricity into the SWIS solely for the purposes of complying with its obligations under this Contract. Western Power will not provide the Facilities with any access to the SWIS other than as set out in this Contract.

SCHEDULE 5 – SERVICE AND LIMITATIONS ON PROVISION OF THE SERVICE

1. NCS INFORMATION FOR AEMO

NCS Information for AEMO required under clause 5.3A.1 of the Rules:

(a) Identity of Market Participant: Electricity Generation and Retail Corporation (ABN 58 673 830 106)

(b) Identity of Facility(s) providing the Service: WEST_KALGOORLIE_GT2, WEST_KALGOORLIE_GT3

(c) Unique Identifier for this NCS: "NCSWKT0001"

(d) Period for the NCS: 3 years 9 months – Initial NCS Contract period runs from 1/10/2018 to 30/6/2022

(e) There is an option for an extension period which will run from 1/7/2022 until 30/9/2023

2. SERVICE REQUIREMENTS AND LIMITATIONS

(a) The **Service** is having Facilities available and capable of dispatch if called upon in accordance with this Contract:

(i) with the capabilities and technical limitations as set out in Sections 3.1 and 3.2 of this Schedule; and

(ii) that can meet the performance requirements set out at Section 4 of this Schedule.

(b) The calculation of "78% of the time" for the purposes of clause C5.1(a), is measured at the end of the Term of the Contract based on the number of days on which Service Can Be Called Upon divided by the number of days in the Term. Part or all of days on which:

(i) the Service Provider is waiting to perform a Test;

(ii) the Service Provider is waiting on Western Power's approval of Additional Costs under clause **Error! Reference source not found.**; and

(iii) any failure to perform or a delay in providing the Service is due to a breach by Western Power of this Contract,

are deemed to be days on which Service Can be Called Upon for the purposes of calculating "78% of the time".

(c) The calculation of "89% of the time" for the purposes of clause C5.1(a), is measured for each Facility at the end of the Term of the Contract based on the number of days on which that relevant Facility is available divided by the number of days in the Term. Part or all of days on which:

(i) the Service Provider is waiting to perform a Test in respect of that Facility;

(ii) the Service Provider is waiting on Western Power's approval of Additional Costs under clause **Error! Reference source not found.** that relate to that Facility; and

(iii) any the failure to perform or a delay in providing the Service is due to a breach by Western Power of this Contract;

are deemed to be days on which the Facility is available for the purposes of calculating "89% of the time".

(d) The basis for the capabilities and technical limitations set out in sections 3.1 and 3.2 of this Schedule is the Forecast Operating Parameters listed in section 7 of this Schedule.

(e) The Service is not available and cannot be requested in circumstances other than those listed in Section 6 of this Schedule.

3. TECHNICAL REQUIREMENTS AND LIMITATIONS

The Facilities will operate in accordance with the Standing Data. However, where the information in this section 3.1 or 3.2 contradicts the Standing Data for the Facility, the information in section 3.1 or 3.2 (as applicable) takes precedence for the purposes of determining compliance with this Contract. The parties acknowledge that nothing in this section 3 affects any rights or obligations of the Service Provider to amend Standing Data from time to time.

3.1 West Kalgoorlie GT2

(a) The maximum sent out capacity of **WEST_KALGOORLIE_GT2** (with ambient conditions of 41 degrees Celsius) for the term is 34.25 MW and varies according to Standing Data.

(b) Under regional restart conditions, **WEST_KALGOORLIE_GT2** to operate at no load full speed until connecting distribution loads at Western Power's substations in the Eastern Goldfields region.

(c) Operating in islanded conditions **WEST_KALGOORLIE_GT2** can operate in a stable manner in the frequency band 49.0 Hz to 51 Hz. Operation outside of this frequency band will increase the likelihood of unstable operation.

(d) Under normal operating conditions and during isochronous operation, **WEST_KALGOORLIE_GT2** to be loaded at a minimum of 5 MW for stable operations.

(e) Under normal operating conditions and during isochronous operation, voltage at generator terminals of **WEST_KALGOORLIE_GT2** to be within the following parameters:

(i) Maximum voltage at generator terminals is 105% under continuous operation.

(ii) Minimum voltage at generator terminals is 95% under continuous operation.

(iii) Maximum voltage at generator terminals is 108% under intermittent operation and not recommended for extended operation.

(iv) Minimum voltage at generator terminals is 92% under intermittent operation and not recommended for extended operation.

(v) Maximum voltage on transformer 132kV terminals is 110% of 1 per unit voltage at generator terminals.

(vi) Minimum voltage on transformer 132kV terminals is 90% of 1 per unit voltage at generator terminals.

(f) Following a black start of the islanded network, the Facility to:

(i) accept an initial block load of up to 10 MW;

(ii) following the initial block load, subsequent block load additions should be no larger than 40% of the operating load of **WEST_KALGOORLIE_GT2**; and

(iii) the reduction in the loading on **WEST_KALGOORLIE_GT2** resulting from starting another generating unit should be no greater than 10 MW of the operating load.

(g) **WEST_KALGOORLIE_GT2** has the following threshold trip conditions:

(i) Sustained excessive low frequency at 47.5 Hz or below for 1 second.

(ii) Loss of synchronism for 5 seconds (Xm – 10.88 ohms, ⌀ = 68.52 ohms).

(iii) The Facility has a governor droop setting of 4% for each generator.

(iv) Generator overvoltage trip setting of 120% for 2 seconds.

(v) **WEST_KALGOORLIE_GT2** minimum load to prevent reverse power relay trip is as follows:

(A) Protection relay 1, 0.48 MW for 5 seconds.

(B) Protection relay 2, 1.34 MW for 5 seconds.

3.2 West Kalgoorlie GT3

(a) The maximum sent out capacity of **WEST_KALGOORLIE_GT3** (with ambient conditions of 41 degrees Celsius) is 19.3 MW and varies according to Standing Data.

(b) Under regional restart conditions, **WEST_KALGOORLIE_GT3** to operate at no load full speed until connecting distribution loads at Western Power's substations in Eastern Goldfields region.

(c) Under normal operating conditions and during isochronous operation, **WEST_KALGOORLIE_GT3** to be loaded at a minimum of 5 MW for stable operations.

(d) Operating in islanded conditions **WEST_KALGOORLIE_GT3** can operate in the frequency band 49.0 Hz to 51 Hz. Operation outside of this frequency band will increase the likelihood of unstable operation.

(e) Under normal operating conditions and during isochronous operation, voltage at generator terminals of **WEST_KALGOORLIE_GT3** to be within;

(i) Maximum voltage at generator terminals is 105% under continuous operation

(ii) Minimum voltage at generator terminals is 95% under continuous operation.

(iii) Maximum voltage at generator terminals is 108% under intermittent operation and not recommended for extended operation.

(iv) Minimum voltage at generator terminals is 92% under intermittent operation and not recommended for extended operation.

(v) Maximum voltage on transformer 132kV terminals is 114% of 1 per unit voltage at generator terminals.

(vi) Minimum voltage on transformer 132kV terminals is 86% of 1 per unit voltage at generator terminals.

(f) **WEST_KALGOORLIE_GT3** has the following threshold trip conditions:

(i) Loss of synchronism for 1 second (Xm – 1.6 ohms, ⌀ = 32 ohms).

(ii) The Facility has a governor droop setting of 4%.

(iii) Generator overvoltage trip setting of 120% for 1 second.

(iv) **WEST_KALGOORLIE_GT3** minimum load to prevent reverse power relay trip is as follows:

(A) Protection relay 1, 1.5 MW for 1 seconds.

4. SERVICE AND PERFORMANCE

4.1 Performance Requirements

(a) The Service Provider must provide the Service in accordance with the following Performance Requirements:

(i) **WEST_KALGOORLIE_GT3** must be able to be connected to the dead bus at West Kalgoorlie 132 kV at full speed no load within 15 minutes after AEMO issues a Black-Start start-up command for regional restart or testing purposes.

(ii) Both Facilities must be able to operate in isochronous and droop control mode.

(b) Facility functionality and operational requirements and limitations

(i) Service Provider must maintain their communication system which interfaces with Western Power's SCADA and protection systems.

5. DISPATCH PROTOCOLS

5.1 Dispatch of Service

(a) During the Term, Western Power will decide on the need to call on the Service in accordance with this Contract based on the restoration time and the consequences of the event or for testing purposes in response to the circumstance outlined in section 6.2(a) only and is otherwise not entitled to call on the Service.

(b) Western Power will request AEMO to call on the Facilities to provide Service in accordance with this Contract.

6. SCOPE OF SERVICE

6.1 Circumstances in which Facilities dispatched

(a) Section 6.2 below details the circumstances in which the Service is able to be called upon and in which Western Power may request AEMO to call on the Service in each Service Period (and the provision of the Service by the Service Provider being in accordance with clause C5.1). The Service is not available and cannot be requested in circumstances outside those detailed in section 6.2.

6.2 Service Period

(a) Both Facilities can be requested to provide the Services during planned/unplanned (pre and post contingency conditions) outages of the 220kV transmission line between Muja and West Kalgoorlie.

(b) Both Facilities can be requested to provide Services under post contingent conditions following regional restart after a blackout of the 220kV transmission line to West Kalgoorlie.

(c) Both Facilities can be requested to provide the Services under pre-contingency conditions during planned outages for:

(i) 220 kV bus bar and associated terminal station works for the 220kV transmission line from Muja to West Kalgoorlie.

(ii) SVC works associated with the 220kV transmission line between Muja and West Kalgoorlie

7. FORECAST OPERATING PARAMETERS

Table 1 provides indicative forecast operating parameters.

Table 1: Indicative Operating Parameters

Financial year ending	30/06/2019	30/06/2020	30/06/2021	30/06/2022	30/06/2023
Eastern Goldfield					
Total unplanned operating hours	15 hours	15 hours	15 hours	15 hours	15 hours
Total unplanned MWh	675 MWh	675 MWh	675 MWh	675 MWh	675 MWh
Number of unplanned events	2.0 x	2.0 x	2.0 x	2.0 x	2.0 x
Total planned operating hours	105 hours	105 hours	45 hours	45 hours	45 hours
Total planned MWh	4,725 MWh	4,725 MWh	2,205 MWh	2,205 MWh	2,205 MWh
Number of planned events	10.0 x	10.0 x	10.0 x	10.0 x	10.0 x