



positive energy

Negotiated Customer Connection Contract – Embedded Generator (without construction)

ENERGEX Limited (**ENERGEX**)

[Click here to enter customer.](#) (**Customer**)

Planner: [Click here to enter planner.](#)

Site Name: [Click here to enter site name.](#)

Site Address: [Click here to enter site address](#)

Work Request: [Click here to enter WR](#)

Table of Contents

1.	Background	1
2.	Definitions and Interpretation	1
3.	Connection Terms and Conditions Applying to You	1
4.	Term of this Contract	1
5.	Scope of this Contract	3
6.	ENERGEX's Liability	6
7.	Customer's General Obligations	7
8.	Access to the Premises	11
9.	Interruption to supply	11
10.	Charges	14
11.	Security Deposit	17
12.	Disconnection of supply	18
13.	Reconnection after Disconnection	20
14.	Notices and Bills	21
15.	Privacy and Confidentiality	21
16.	Dispute Resolution	22
17.	Force Majeure	22
18.	Applicable Law	23
19.	General	23
20.	Goods and Services Tax Provisions	24
	Schedule 1 - Definitions and Interpretation	26
	Schedule 2 - Excluded Locations	31
	Schedule 3 - Contract Particulars	32
	Schedule 4 - Connection Point	33
	Schedule 5 - Operating Protocol	34
	Schedule 6 - Charges	36
	Schedule 7 – Early Termination Payment	37
	Schedule 8 – Generating System Specifications	39
	Schedule 9 – Technical Requirements	42
	Schedule 10 – Special Conditions	70
	Signing Page	71

Date

Parties

Name **ENERGEX Limited ABN 40 078 849 055 ("ENERGEX")**
 Notice details As stated in Item 1 of Schedule 3

Name **The Entity named in Item 2 of Schedule 3) ("Customer")**
 Notice details As stated in Item 3 of Schedule 3

1. Background

- (a) The Customer owns or operates the *Premises* which are located within the area serviced by ENERGEX's *supply network*.
- (b) ENERGEX has agreed to provide *Connection Services* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point* on the terms of this contract.
- (c) There is, or will be, a *Generating System* installed at the *Premises* which has a nameplate capacity below 5 MVA.
- (d) The Customer wishes to connect the *Generating System* to the Customer's *electrical installations* on the *Premises* such that electricity generated by the *Generating System* can be exported into ENERGEX's *supply network*.
- (e) The Customer wishes to receive a supply of electricity from ENERGEX's *supply network* to the Customer's *electrical installations* present on the *Premises* and supply electricity from the Customer's *electrical installations* present on the *Premises* to ENERGEX's *supply network*.

2. Definitions and Interpretation

Words appearing in bold italicised type *like this* are defined in Schedule 1 of this contract.

3. Connection Terms and Conditions Applying to You

This contract sets out the terms and conditions in relation to the provision by ENERGEX of *Connection Services* to the Customer with respect to the Customer's *electrical installations* present on the *Premises*.

4. Term of this Contract

4.1 When does this contract start?

This contract will start on the date the last of the parties sign this contract. ENERGEX'S obligation to provide each of *customer connection services* and *generator connection services* to the Customer with respect to the Customer's *electrical installations* present on the *Premises* starts on the relevant *Commencement Date*.

4.2 When this contract ends

- (a) Subject to clause 4.6, this contract ends on the earlier of the following to occur:
- (i) subject to paragraph (b), the end of the *notice period* commencing on the Customer or the *Customer's retailer* notifying ENERGEX (a "*termination notice*") that the Customer wishes the provision of the *Connection Services* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point* to be terminated (even if the Customer has vacated the *Premises* earlier); or
 - (ii) ten (10) *business days* after ENERGEX *disconnects* the Customer's *electrical installations* present on the *Premises* if the Customer has not:
 - (A) met the requirements for reconnection set out in this contract and the *Electricity Industry Code*; and
 - (B) made a request to the *Customer's retailer* to be reconnected, within that time.
- (b) Subject to clause 4.6, if the *Customer's retailer* gives a *termination notice* but the Customer does not give safe access to the *Premises* to conduct a final meter reading (where relevant), then ENERGEX'S obligation to provide *Connection Services* will not end under subparagraph (a)(i) until the earlier of:
- (i) the end of the *notice period* commencing on safe access being given; and
 - (ii) when the meter is read or the relevant *metering data* are obtained.

4.3 Termination of generator connection services

The obligations of ENERGEX to provide *generator connection services* ends on the end of the *notice period* commencing on the Customer notifying ENERGEX that the Customer wishes the provision of *generator connection services* to the Customer's *electrical installations* present on the *Premises* to be terminated.

4.4 Rights on the contract ending

The ending of this contract does not affect any rights or obligations which have accrued under this contract prior to that time.

4.5 Notice periods

- (a) For the purposes of clauses 4.2(a)(i) and 4.2(b) the *notice period* is thirty (30) *business days*.
- (b) In this clause 4.5, a "*business day*" does not include a *local holiday* in the district area where the *Premises* is located.
- (c) Provided the *generator connection services* have previously been terminated and ENERGEX's only obligation is to provide *customer connection services* then for the purpose of clause 4.2, *notice period* is dependent on the location or *feeder* type of the *Premises*. The table below sets out the relevant *notice periods*.

Premises Description	<i>Notice Period</i>
All premises other than <i>excluded locations</i>	Five (5) <i>business days</i>
Premises in <i>excluded locations</i>	Ten (10) <i>business days</i>

4.6 Customer's Undertaking

- (a) The Customer undertakes to ENERGEX that it will not register (nor consent or permit any other person to be so registered) as a Generator under the *National Electricity Rules*, with respect to the *Generating System*.
- (b) If registration contrary to clause 4.6(a) occurs, ENERGEX may:
 - (i) immediately terminate this contract by written notice to the Customer; and
 - (ii) *disconnect* the Customer's *electrical installations* present on the *Premises*.

5. Scope of this Contract

5.1 What is covered by this contract?

- (a) Subject to the *electricity legislation*, ENERGEX will provide the *customer connection services* to the Customer in accordance with this contract from the relevant *Commencement Date*.
- (b) Subject to the *electricity legislation*, ENERGEX will provide the *generator connection services* to the Customer in accordance with this contract from the relevant *Commencement Date*.
- (c) ENERGEX consents to the Customer having installed on its *Premises* the *Generating System* for interconnection with ENERGEX's *supply network* under clause 28 of the *Electricity Regulation 2006* (Qld), provided that the Customer complies with this contract. However, for the avoidance of doubt, nothing in this contract provides that the *Generating System* is to be taken to be connected to the *supply network* for the purposes of other provisions of *electricity legislation*.

5.2 What is not covered by this contract?

This contract does not cover:

- (a) the provision of *customer retail services* to the Customer's *Premises*, which will be governed by the Customer's *retail contract* with the *Customer's retailer*;
- (b) the arrangement for connecting the Customer to ENERGEX's *supply network* where augmentation of ENERGEX's *supply network* will be required in order to connect the Customer's *electrical installations* present on the *Premises*. In this situation the Customer may be required to pay ENERGEX a capital contribution towards the expansion of ENERGEX's *supply network*. This will be dealt with by a separate agreement between the Customer and ENERGEX;
- (c) the provision of any systems or equipment or communications apparatus that *AEMO* may require that the Customer purchases or obtains from *AEMO* or that is otherwise obtained,

operated or required for the purposes of market activity by the Customer, whether for bidding, rebidding, dispatch, real time remote monitoring or remote control;

- (d) the provision of consultation or design services or any check, audit, review or inspection of the *Premises* or *Facilities* at the *Premises*, the Customer's designs, high voltage network or low voltage network;
- (e) the testing or commissioning of the *Premises* or *Facilities* at the *Premises* or any relevant controls, governors, excitation control systems, or generator protection;
- (f) the calculation or approval of transmission loss factors;
- (g) the organisation or undertaking of or payment for any stability or similar system studies; and
- (h) the installation and operation of the *Generating System* and the connection of the *Generating System* to the Customer's *electrical installations* at the *Premises*, which the Customer acknowledges will be effected at its own cost and at its own risk.

5.3 Connection point

- (a) Subject to the *electricity legislation*, ENERGEX must provide, install and maintain equipment for the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point* in a manner which is safe and in accordance with the *electricity legislation*.
- (b) Notwithstanding anything else in this contract, ENERGEX's obligations extend from its *supply network* up to the *Connection Point*:
 - (i) for the delivery of electricity from ENERGEX's *supply network* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point*; and
 - (ii) for the receipt of electricity from the Customer's *electrical installations* present on the *Premises* at the *Connection Point* for distribution through ENERGEX's *supply network*.

5.4 Compliance with electricity legislation

ENERGEX must comply with applicable *electricity legislation* relating to the provision of *customer connection services* and *generator connection services* to the Customer's *electrical installations* present on the *Premises*.

5.5 Customer's Operation

Subject to the terms of this contract :

- (a) ENERGEX will provide *Connection Services*:
 - (i) to enable the supply of electricity from ENERGEX's *supply network* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point* up to, but not more than, the *Maximum Connection Capacity*; and

- (ii) to enable the supply of electricity from the Customer's *electrical installations* present on the *Premises* to ENERGEX's *supply network* at the *Connection Point* up to, but not more than, the *Maximum Connection Capacity*;
- (b) The Customer must operate the *Premises* and its *Facilities* at the *Premises*, or ensure that these items are operated, in a manner which limits:
 - (i) the supply of electricity from ENERGEX's *supply network* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point* up to, but not more than, the *Maximum Connection Capacity*; and
 - (ii) the supply of electricity from the Customer's *electrical installations* present on the *Premises* to ENERGEX's *supply network* at the *Connection Point* up to, but not more than, the *Maximum Connection Capacity*.

5.6 Maximum Connection Capacity

- (a) The Customer acknowledges that to transfer electricity through the *Connection Point* in excess of the *Maximum Connection Capacity* may require upgrades or physical works to ENERGEX's *supply network* and the *Connection Point*. The Customer must make a request to ENERGEX if the Customer anticipates that it will require *customer connection services* or *generator connection services* to enable the supply of electricity from the Customer's *electrical installations* present on the *Premises* to ENERGEX's *supply network* at the *Connection Point*, or the receipt of electricity from ENERGEX's *supply network* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point* in excess of the *Maximum Connection Capacity*.
- (b) ENERGEX will consider a request under clause 5.6(a) having regard to the capacity of ENERGEX's *supply network* and the *Connection Point*, the requirements of other users of ENERGEX's *supply network*, the forecasts provided by ENERGEX to *Powerlink Queensland* for demand requirements, and ENERGEX's obligations under the *Laws*. The Customer acknowledges and agrees that ENERGEX may, in its sole discretion, determine whether the *Maximum Connection Capacity* can be increased (and in what time-frame) and determine the requirements (including costs) needed to bring about any such increase.
- (c) If at any time electricity is transferred through the *Connection Point* (either the supply of electricity from the Customer's *electrical installations* present on the *Premises* to ENERGEX's *supply network* at the *Connection Point* or the receipt of electricity from ENERGEX's *supply network* to the Customer's *electrical installations* present on the *Premises* at the *Connection Point*) that exceeds the *Maximum Connection Capacity* then:
 - (i) ENERGEX may immediately *disconnect* the Customer's *electrical installations* present on the *Premises* from ENERGEX's *supply network*; and
 - (ii) the Customer will indemnify ENERGEX for any costs, loss, expenses or damages incurred or suffered by ENERGEX or a third party claiming through or against ENERGEX, as a result of the Customer supplying or receiving electricity at the

Connection Point exceeding the *Maximum Connection Capacity* including but not limited to any direct, indirect or consequential loss, whether or not foreseeable at the date of this contract.

5.7 Responsible Person

Both of ENERGEX and the Customer acknowledge that the person who is initially responsible for the provision of a metering installation (within the meaning of the *National Electricity Rules*) for the *Connection Point* is the person stated in Item 8 of Schedule 3). The Customer must notify ENERGEX of any change as to the *Responsible Person*.

6. ENERGEX's Liability

6.1 Operation of Laws

- (a) The *Competition and Consumer Act 2010* (Cth) and other *Laws* imply certain conditions, warranties and rights into contracts that cannot be excluded or limited.
- (b) Unless one of these *Laws* requires it, ENERGEX gives no condition, warranty or undertaking, and ENERGEX makes no representation to the Customer, about the condition or suitability of the *Connection Services* or electricity including its quality, fitness for purpose or safety, other than those set out in this contract.
- (c) Any *Liability* ENERGEX has to the Customer under these *Laws* that cannot be excluded but that can be limited is (at ENERGEX's option) limited to:
 - (i) providing equivalent goods or services to those provided under this contract; or
 - (ii) paying the Customer the cost of replacing the goods or services provided under this contract, or acquiring equivalent goods or services.

6.2 Non-exclusion

Sections 97 and 97A of the *Electricity Act* and 119 and 120 of the *National Electricity Law*, and any other limitations of *Liability* or immunities granted under *electricity legislation*, are not limited in their operation or application by anything contained in this contract.

6.3 Survival of this clause

This clause 6 will continue to apply after expiration or termination of this contract.

6.4 Limitation of ENERGEX's Liability

- (a) Each of ENERGEX and the Customer agree that, to the maximum extent permitted by the *Laws*:
 - (i) ENERGEX is not liable to the Customer (whether under contract, in tort, in equity, under statute or otherwise) for *Liability* brought against or incurred by the Customer arising out of any act or omission of ENERGEX in connection with this contract; and
 - (ii) the Customer releases ENERGEX from claims by the Customer in respect of any such *Liability*,

except to the extent that the *Liability* arises from acts or omissions of ENERGEX or ENERGEX's employees which constitute gross negligence or fraud.

- (b) ENERGEX and the Customer acknowledge that this is a contract for the provision of *Connection Services* and not an agreement for the sale of electricity.

6.5 No Consequential Loss

Subject to clause 5.6(c) and without prejudice to the Customer's obligations to pay any amounts which this contract states are to be paid by the Customer, despite any other provision of this contract, neither party is liable to the other (whether under contract, in tort, in equity, under statute or otherwise) for any *Liabilities* which are of an indirect, consequential or special nature, business interruption losses, loss of profits, loss of business opportunity or other forms of economic loss suffered by the other however arising (including but not limited to the default or sole or concurrent negligence of a party or its employees and whether or not foreseeable at the date of this contract).

7. Customer's General Obligations

7.1 Full information

The Customer must not mislead or deceive ENERGEX in relation to any information provided to ENERGEX.

7.2 Updating information

The Customer must inform ENERGEX as soon as possible if there is any:

- (a) change to the Customer's contact details; or
- (b) change materially affecting access to any metering equipment at the *Premises*.
- (c) proposed change in wiring or plant or equipment, including metering equipment, or any change to the operation of connected plant or equipment which may affect the quality, reliability, safety or metering of the connection or the transfer of electricity to or from the *Premises* or any other person;
- (d) permanent material changes to the electrical load or pattern of usage at the *Premises*. Examples of material changes include the installation of a large new air-conditioning plant, motor, welder or other new equipment that uses a large amount of power, or an increase in the size of a factory or manufacturing plant; or
- (e) change to the nominal capacity of the *Generating System* or the estimated export/import generation profile.

7.3 Customer's general obligations

The Customer must:

- (a) pay for the *Connection Services* to the Customer's *electrical installations* present on the *Premises* in accordance with this contract;
- (b) comply with applicable *electricity legislation* and other relevant instruments relating to the provision of *Connection Services* under this contract;

- (c) comply with ENERGEX's reasonable requirements in accordance with applicable *electricity legislation*;
- (d) if reasonably requested by ENERGEX including for any of the reasons set out in sub-paragraphs (f), (g), (h), (k), (l) and (m) of clause 12.2, arrange for the *Generating System* to be *disconnected* from the *Connection Point* within the time specified in that notice;
- (e) provide and maintain at the *Premises* space, equipment, access, facilities or anything else the Customer must provide for the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises*;
- (f) operate, or ensure the operation of, the *Facilities* and all equipment at the *Premises* in accordance with:
 - (i) *Good Electricity Industry Practice*;
 - (ii) applicable Australian Standards; and
 - (iii) this contract;
- (g) if the *Facilities* (or any part thereof) or the *Premises* are owned or operated by a third party, enter into appropriate back-to-back arrangements with that third party (including a connection contract under which the Customer agrees to provide services analogous to the *Connection Services* to that third party in relation to the point of connection between the *Generating System* and the Customer's *electrical equipment*), the terms of which must be in a form satisfactory to ENERGEX (in its sole discretion) and must ensure that:
 - (i) ENERGEX can properly exercise its rights set out in this contract, particularly in respect of access as set out in clause 8; and
 - (ii) if the *Generating System* is owned or operated by a third party, that the third party complies with the requirements of this contract in respect of the *Generating System* (the Customer acknowledging that it remains responsible to ENERGEX as to compliance with this contract); and
- (h) comply with Chapters 4, 5, 6 and 7 of the *National Electricity Rules* (as varied by Chapter 9 and incorporating the relevant definitions in Chapter 10) as if the Customer was registered as a "Customer" (within the meaning of the *National Electricity Rules*).

7.4 No interference

The Customer must not, and must take reasonable steps to ensure others do not:

- (a) illegally use electricity supplied to the Customer's *electrical installations* present on the *Premises*;
- (b) interfere or allow interference with any of ENERGEX's equipment which is at the *Premises* except as may be permitted by *Laws*;
- (c) use the electricity supplied to the Customer's *electrical installations* present on the *Premises*, generate electricity or allow the use of the *Facilities* in a manner which:
 - (i) unreasonably interferes with the connection or supply of electricity to another *customer*; or

- (ii) causes damage or interference to any third party;
- (d) allow *customer connection services* or *generator connection services* provided by ENERGEX to be used other than in accordance with this contract or the *electricity legislation*; or
- (e) tamper with, or permit tampering with, any meters or associated equipment.

7.5 Wrongful use

If the Customer has breached clause 7.4 of this contract, ENERGEX or the *Customer's retailer* may, in accordance with the *electricity legislation*:

- (a) estimate the amount of electricity so obtained and bill the Customer or take debt recovery action against the Customer for that amount;
- (b) undertake any necessary rectification work at the Customer's cost; and
- (c) arrange for the immediate *disconnection* of the Customer's *electrical installations* present on the *Premises*.

7.6 Operation of Facilities

- (a) The Customer must ensure that:
 - (i) the *Facilities* at its *Premises* are operated; and
 - (ii) outages, repairs and maintenance (both planned and unplanned) of the *Facilities* at its *Premises* are undertaken,
 in accordance with the operating protocol in Schedule 5). However, the Customer may depart from the operating protocol to meet its obligations under any *Laws*.
- (b) ENERGEX must ensure that:
 - (i) its *Facilities* used for the provision of *Connection Services* are operated; and
 - (ii) outages, repairs and maintenance (both planned and unplanned) of its *Facilities* used for the provision of *Connection Services* are undertaken,
 in accordance with the operating protocol in Schedule 5). However, ENERGEX may depart from the operating protocol to meet its obligations under any *Laws*.
- (c) The Customer must, if requested by ENERGEX and to the extent reasonably practicable, operate, or ensure the operation of, the *Facilities* at the *Premises* and the connection equipment in a manner which permits ENERGEX to comply with ENERGEX's obligations under the *National Electricity Rules*.
- (d) If ENERGEX reasonably considers that the operation of the *Facilities* at the *Premises* or the Customer's connection equipment is having or will have an adverse effect on the operation of ENERGEX's *supply network* or ENERGEX's equipment, the Customer must comply, or ensure compliance, with any reasonable directions given by ENERGEX to correct that interference or effect.

7.7 Planned Outages

- (a) For the purpose of fulfilling its obligations under the *Laws*, ENERGEX may undertake planned outages affecting the provision of *Connection Services* to the Customer.

- (b) If either party proposes to undertake a planned outage for any purpose it must, wherever possible, attempt to coordinate the timing of the activity with the other party. In circumstances where it is not possible to coordinate these activities, the party planning the activity must give the other party the following periods of notice:
- (i) if the outage will be of less than 24 hours duration – at least five (5) **business days**;
 - (ii) if the outage will be of more than 24 hours duration – at least ten (10) **business days**.

7.8 Operating Protocols

Where considered necessary, ENERGEX and the Customer may:

- (a) jointly develop and implement operating protocols for the interaction between the **Facilities** at the **Premises** and ENERGEX's **supply network** to deal with, among other things, switching procedures, safety, compliance with all **Laws** and satisfactory operation of those **Facilities** and ENERGEX's **supply network**. The minimum requirements for any such operating protocols are set out in Schedule 5).
- (b) develop and implement the operating protocols before the later of the connection of the **Generating System** to the Customer's **electrical installations** present on its **Premises** and the connection of the Customer's **electrical installations** present on the **Premises** to ENERGEX's **supply network** and must amend the operating protocols from time to time as appropriate.

7.9 Technical Requirements

- (a) The Customer **must** comply with the requirements set out in Schedule 9) (if any).
- (b) Upon request by ENERGEX, the Customer must, within forty (40) **business days** of the request, provide evidence to satisfy ENERGEX (acting reasonably) that the Customer is complying with any technical requirements contained in this contract (including the requirements contained in Schedule 9)).

7.10 Change to pattern of operation

If the pattern of operation of the **Facilities** or the **Premises** is such that it:

- (a) adversely impacts on ENERGEX's **supply network**; or
- (b) impacts on the safety of ENERGEX's employees, contractors or **customers**,

ENERGEX may request the Customer to modify, or ensure the modification of, the pattern of operation in a way directed by ENERGEX. If so requested, the Customer must comply promptly and at its own cost.

7.11 Testing

- (a) The Customer must ensure that ENERGEX can inspect and, where necessary, test the **Generating System** at any time to satisfy itself that the Customer is complying with its obligations under this contract.
- (b) Except in an **emergency**, or as otherwise permitted under the **Laws**, ENERGEX must give the Customer reasonable notice before exercising its rights under this clause.

- (c) Upon reasonable request by ENERGEX, the Customer must provide reasonable assistance to ENERGEX to carry out the actions referred to in this clause.

8. Access to the Premises

8.1 The Customer's obligations

The Customer must provide ENERGEX and ENERGEX's *Authorised Representatives* (together with all necessary equipment and space to locate relevant equipment and machinery), (or must ensure that ENERGEX and ENERGEX's *Authorised Representatives* are provided with) safe, convenient and unhindered access to the *Premises*, including taking appropriate action to prevent menacing or attack by animals at the *Premises*, at any reasonable time to:

- (a) read, test, maintain, inspect or alter any meter at the *Premises*;
- (b) calculate or measure electricity supplied or taken at the *Premises*;
- (c) check the accuracy of metered consumption at the *Premises*;
- (d) replace meters, control apparatus and other *electrical equipment* of ENERGEX;
- (e) connect or *disconnect* the Customer's *electrical installations* present on the *Premises*;
- (f) examine or inspect an *electrical installation* at the *Premises*;
- (g) inspect, make safe, operate, change, maintain, remove, repair or replace any of ENERGEX's works at the *Premises*;
- (h) undertake repairs, testing or maintenance of ENERGEX's *supply network*;
- (i) clear vegetation from *electric lines* and equipment owned by ENERGEX;
- (j) take action to decide the appropriate tariff or charging category for the *Premises*; and
- (k) perform services requested by the Customer or the *Customer's retailer*.

8.2 ENERGEX's obligations

ENERGEX and its *Authorised Representatives* seeking access to the *Premises* must:

- (a) comply with all relevant requirements under the *electricity legislation*;
- (b) carry or wear official identification; and
- (c) show the identification if requested.

9. Interruption to supply

9.1 Supply may be interrupted or limited

The Customer acknowledges that the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises* may be *interrupted* or limited in the circumstances set out in the *electricity legislation* or in accordance with the conditions of any applicable tariff, charging category or any applicable *notified prices* condition.

9.2 Interruptions

- (a) Subject to paragraph (b), ENERGEX must notify the Customer of a planned *interruption* at least two (2) *business days* prior to the planned *interruption* and that notice may be by mail, letterbox drop, press advertisement or other appropriate means.
- (b) For work that needs to be performed without delay to prevent, rectify or mitigate an *emergency*, ENERGEX must give the Customer whatever notice is reasonable in the circumstances.

9.3 Customer's right to information

- (a) At the Customer's request, ENERGEX must use its reasonable endeavours to provide an explanation for any:
 - (i) *interruption* to the supply of electricity to the Customer's *electrical installations* present on the *Premises*; or
 - (ii) supply of electricity to the Customer's *electrical installations* present on the *Premises* of a quality in breach of any relevant standards under *electricity legislation*.
- (b) If the Customer requests that the explanation be in writing, ENERGEX must, within ten (10) *business days* of receiving the request, give the Customer either:
 - (i) the written explanation; or
 - (ii) an estimate of the time it will take to provide a more detailed explanation where a longer period is reasonably required in the circumstances.

9.4 Emergencies

If the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises* is *interrupted* in or as a result of an *emergency*, ENERGEX must:

- (a) make information on the following available, by way of ENERGEX's 24 hour information service:
 - (i) the nature of the *emergency*; and
 - (ii) where reasonably possible, an estimate of the time when the supply of electricity will be restored; and
- (b) use all reasonable endeavours to restore the supply of electricity to the Customer's *electrical installations* present on the *Premises* as soon as possible.

9.5 No guarantee of supply

- (a) The Customer acknowledges and agrees that, due to a variety of factors that influence the generation, transmission, distribution and supply of electricity, there may from time to time be:
 - (i) *interruptions* to the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises*; or

- (ii) variations in the quality or frequency of electricity supply to or from the Customer's *electrical installations* present on the *Premises*.
- (b) The Customer must make its own assessment of whether the Customer needs (either at the time of entering into this contract or any time during its term) to:
 - (i) establish a back up electricity supply for the *Premises*; or
 - (ii) install equipment or systems to protect the *Facilities* at the *Premises* from *interruptions* to *Connection Services* or fluctuations in the quality or frequency of electricity supply to or from the Customer's *electrical installations* present on the *Premises*.
- (c) The Customer must ensure that a safe shutdown of the *Facilities* at the *Premises* can be conducted in the event of an *interruption* (whether planned or unplanned) to the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises*.

9.6 Network Constraints

ENERGEX is not in breach of this contract if it is unable due to a *Network Constraint* to provide *Connection Services* to the Customer's *electrical installations* present on the *Premises* as otherwise contemplated by this contract.

9.7 Single Credible Contingency Event

- (a) The Customer agrees that the existing and any future system for the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises* may not be designed or constructed to withstand a single *Credible Contingency Event* directly affecting the transfer of electricity through the *Connection Point*. As such, if a single *Credible Contingency Event* occurs, an *interruption* to connection and supply to and from ENERGEX's *supply network* may result.
- (b) If:
 - (i) Part 3 of Schedule 4) states that this clause 9.7(b) applies; and
 - (ii) there is a loss of any single *Network Element* affecting electricity supply to or from the Customer's *electrical installations* present on the *Premises*,

ENERGEX will use its reasonable endeavours (including by using any other available *Network Element*) to maintain electricity supply to or from (as relevant) the Customer's *electrical installations* present on the *Premises* to meet the Customer's requirements up to the *Maximum Connection Capacity*.

9.8 Abnormal Operating Conditions

- (a) The Customer agrees that the existing and any future systems for the provision of *Connection Services* to the Customer's *electrical installations* present on the *Premises* may not be designed or constructed to withstand *Abnormal Operating Conditions* on ENERGEX's *supply network*.
- (b) Subject to clause 9.8(c), non-performance by ENERGEX of its obligations under this contract as a result of *Abnormal Operating Conditions*:

- (i) is excused to the extent that such performance is prevented or delayed by the ***Abnormal Operating Conditions***; and
 - (ii) does not, to that extent, give rise to any ***Liability*** to any party (whether direct, indirect, consequential or special losses or damages of any kind) arising out of or in any way connected with that non-performance.
- (c) At ENERGEX's request the Customer must vary its demand for supply of electricity from the ***supply network*** to the Customer's ***electrical installations*** present on the ***Premises*** or modify its level of generation during any period of ***Abnormal Operating Conditions*** including without limitation, reducing the transfer of electricity at the ***Connection Point*** to nil.
- (d) If ENERGEX exercises its rights under clause 9.8(c), ENERGEX must use its reasonable endeavours to ensure that any requests by ENERGEX to vary the rate of transfer of electricity at the ***Connection Point*** are of minimum duration and consistent with the events arising.

10. Charges

10.1 Amount of Charges

The Customer must pay ENERGEX ***network charges*** and ***distribution non-network charges*** in accordance with clauses 10.2 to 10.7.

10.2 Determination of network charges and distribution non-network charges

- (a) The ***network charges*** and ***distribution non-network charges*** for a ***billing cycle*** will be the amount determined by ENERGEX from time to time in accordance with all applicable regulatory instruments (including any relevant processes set down in those instruments).
- (b) ENERGEX must notify the ***Customer's retailer*** of choice (or the Customer, if billing directly) whenever there is a change in the ***network charges*** or ***distribution non-network charges*** or a material change in the processes for their determination.
- (c) Examples of ***distribution non-network charges*** are ***disconnection*** fees, reconnection fees and meter test fees.
- (d) Subject to clause 10.2(e), in the event that there are any amounts payable in accordance with the ***National Electricity Rules*** by ENERGEX to the Customer in connection with the supply of electricity to ENERGEX's ***supply network*** by the Customer, then ENERGEX will pay such amounts to the Customer in accordance with the ***National Electricity Rules***.
- (e) For the avoidance of doubt, the parties agree that ENERGEX is not required to pay to the Customer any amounts under clause 5.5(h) of the ***National Electricity Rules*** as the Customer is not an ***Embedded Generator*** as defined in the ***National Electricity Rules***.

10.3 Charging categories

- (a) If there are any conditions that are relevant to any tariff or charging category which apply to the Customer for provision of ***Connection Services*** to the Customer's ***electrical***

installations present on the *Premises*, ENERGEX must advise the Customer or the *Customer's retailer* of those conditions.

- (b) The Customer must comply with any conditions referred to in paragraph (a).
- (c) If the Customer does not comply with the conditions referred to in paragraph (a), ENERGEX may change the tariff or charging category that applies to the Customer.

10.4 Billing

- (a) Subject to paragraph (c), ENERGEX must prepare and submit to the *Customer's retailer* of choice, a bill for *network charges* and *distribution non-network charges* on at least a quarterly basis or at other times agreed with the *Customer's retailer* of choice.
- (b) Subject to paragraph (c), the Customer must pay the *network charges* and *distribution non-network charges* to the *Customer's retailer* of choice. If the Customer pays *network charges* and *distribution non-network charges* to the *Customer's retailer* of choice, the Customer is taken to have paid that amount to ENERGEX.
- (c) Except for *distribution non-network charges*, ENERGEX cannot bill the Customer directly if the Customer is a *small customer* unless:
 - (i) the Customer is a *business customer*;
 - (ii) the Customer has one or more relevant premises or group of premises;
 - (iii) the Customer is a *small customer* in respect of one or more of those premises; and
 - (iv) the aggregate of the annual energy consumption level for those premises equals or exceeds 100 MWh of electricity per annum;
 and ENERGEX has agreed with the Customer in writing, by obtaining the Customer's *explicit informed consent*, that ENERGEX may bill the Customer directly for *network charges*.
- (d) If requested, each party must supply to the other such supporting material, data and information in respect of the statements that the other party reasonably requires.

10.5 Payment

If ENERGEX is billing the Customer directly, the Customer must:

- (a) pay the amount to the *bank* account nominated by ENERGEX from time to time; and
- (b) fax details of the payment to ENERGEX on the same day as the payment is made.

10.6 Billing disputes

- (a) If a bill is disputed by the Customer on a genuine basis, the Customer must:
 - (i) pay the greater of:
 - (A) the portion of the bill which the Customer does not dispute; or
 - (B) an amount equal to the average of the Customer's bills in the last twelve (12) months;

- (ii) provide ENERGETEX with a detailed statement of the Customer's objection to the disputed amount; and
- (iii) pay any further bills the Customer receives while the dispute is being resolved.
- (b) The parties must seek to resolve the dispute in good faith.
- (c) Within five (5) *business days* of the settlement of the dispute, any amount agreed or determined to be paid must be paid by the Customer.

10.7 Charge for dishonoured payments

If ENERGETEX is billing the Customer directly and a payment the Customer makes is dishonoured, and ENERGETEX incurs a fee as a result, the Customer must pay ENERGETEX an amount equal to the sum of:

- (a) any fee charged to ENERGETEX by its *bank*; and
- (b) a reasonable fee notified by ENERGETEX to cover its administration costs.

10.8 Contracted Demand

- (a) ENERGETEX and the Customer both acknowledge that the *Contracted Demand* is used, under the network pricing schedule current as at the date of execution of this contract, for the purposes of calculating the Capacity Charge as referenced in that schedule.
- (b) The *Contracted Demand* will, subject to the subsequent provisions of this clause 10.8, be the *Contracted Demand* set out in Schedule 3), Item 6.
- (c) The *Contracted Demand* will be amended:
 - (i) to the amount (if any) as agreed by each of ENERGETEX and the Customer from time to time;
 - (ii) at the election of and as determined by ENERGETEX as being the Customer's maximum demand at the *Connection Point* in any twelve (12) month period prior to ENERGETEX setting prices in a network pricing schedule for the following financial year; and
 - (iii) in such other manner and at such other times as permitted from time to time by applicable regulatory instruments (including any relevant processes set down in those instruments).

10.9 Indicative Charges

For the purposes of clause 10.2(a), attached as Schedule 6) is a summary of the *Charges* applicable for the *Premises* current as at entry into this contract. Schedule 6) (and any replacement given by ENERGETEX) being a summary only, the Customer agrees that the actual *Charges* payable to ENERGETEX will be determined in accordance with this contract.

10.10 Payments on Early Termination

- (a) The cost of the *ENERGETEX Works* is recovered by ENERGETEX from the Customer through the Customer's payment of the *Charges*.

- (b) If this contract is terminated for any reason before the date being the twentieth anniversary of the first *Commencement Date* to occur, then the Customer must pay to ENERGEX within thirty (30) days of ENERGEX giving the Customer an invoice for payment, an amount intended to compensate ENERGEX for the *ENERGEX Works* which have not been recovered from the Customer through the *Charges* (called the “*Early Repayment Amount*”) calculated in accordance with Schedule 7).

11. Security Deposit

11.1 Security deposit

- (a) ENERGEX may require the Customer to provide a *security deposit*.
- (b) Unless otherwise agreed:
- (i) the amount of a *security deposit* for a *customer* who is on a quarterly *billing cycle* is to be equal to 3 times the estimated quarterly bill; and
 - (ii) the amount of a *security deposit* for a *customer* who is on a monthly *billing cycle* must not be greater than 2.5 times the estimated monthly bill.
- (c) ENERGEX may, at its discretion, accept a *bank* guarantee as an alternative to a cash *security deposit* if the amount of *security deposit* requested is greater than \$500.
- (d) The Customer must provide the *security deposit*, any increase in the *security deposit* or, if a *bank* guarantee is permitted to be provided in place of a *security deposit*, the *bank* guarantee, within five (5) *business days* after ENERGEX requests such *security deposit*, increase or *bank* guarantee.

11.2 Increase in security deposit

Despite clause 11.1(b), ENERGEX may request an increase in an existing *security deposit* at any time, to ensure the *security deposit* held is sufficient to secure the Customer's current *Connection Services* usage taking into account the limits on *security deposits* under clause 11.1(b) as calculated using the average of the Customer's last three bills.

11.3 Interest on security deposit

- (a) Where ENERGEX has received a *security deposit* from the Customer, ENERGEX will pay interest, if any, to the Customer, on the deposit at the *contract interest rate*.
- (b) Any interest accrued on the *security deposit* will be credited to the Customer's account when the *security deposit* is returned to the Customer.

11.4 Use of security deposit

- (a) ENERGEX may use the Customer's *security deposit* and interest which has accrued on it to offset any amount owed by the Customer to ENERGEX, if the Customer:
- (i) fails to pay an amount owing resulting in the *disconnection* of the Customer's *electrical installations* present on the *Premises*; or
 - (ii) defaults on a final bill issued by ENERGEX when the Customer vacates the *Premises* or asks that the Customer's *electrical installations* present on the *Premises* be *disconnected*.

- (b) Within five (5) *business days* of using the *security deposit*, ENERGEX will advise the Customer why and when it was used and of the Customer's obligations to provide a further *security deposit*. Nothing in this clause 11.4 permits ENERGEX to require the Customer's total *security deposit* to exceed the amount referred to in clause 11.1.

11.5 Obligation to return a security deposit

Where the Customer has been required to pay a *security deposit* and the Customer ceases to purchase *Connection Services* from ENERGEX at the *Premises* and a final reading of the meter for that *Premises* is completed or the Customer ceases to be billed directly by ENERGEX, ENERGEX must within ten (10) *business days* pay the *security deposit* and any interest to the Customer, or, on the Customer's written instructions, to another person.

11.6 Return of bank guarantee

Where ENERGEX has accepted a *bank* guarantee from the Customer in lieu of a *security deposit*, ENERGEX must return the *bank* guarantee within ten (10) *business days* of the Customer satisfying the conditions referred to in clause 11.5.

11.7 Identification in ENERGEX's accounts

ENERGEX must be able to separately identify *security deposits* in ENERGEX's company accounts and the value of *security deposits* which ENERGEX holds for the Customer.

12. Disconnection of supply

12.1 When can ENERGEX arrange for disconnection?

- (a) Subject to paragraph (b), ENERGEX may *disconnect* the Customer's *electrical installations* present on the *Premises* only in accordance with this clause 12.
- (b) The Customer acknowledges that ENERGEX and other authorised people have various rights and obligations to *disconnect* or arrange the *disconnection* of the Customer's *electrical installations* present on the *Premises* in the circumstances set out in the *electricity legislation*.

12.2 ENERGEX's rights to disconnect

ENERGEX may *disconnect* the Customer's *electrical installations* present on the *Premises*:

- (a) if the *Customer's retailer* informs ENERGEX that they have a right to arrange for the Customer's *disconnection* under their contract with the Customer and requests that ENERGEX arrange such *disconnection*;
- (b) if the *Customer* does not arrange for *disconnection* of the *Generating System* within the time specified in the notice issued under clause 7.3(d);
- (c) if, in breach of clause 7.4, the electricity or services provided to the Customer, or ENERGEX's equipment at the *Premises*, are wrongfully used or tampered with;
- (d) the Customer refuses or fails to pay ENERGEX following a request by ENERGEX for:
- (i) a payment due to ENERGEX under this contract in respect of *ENERGEX Works*;
- or

- (ii) a capital contribution towards the costs incurred, or to be incurred, by ENERGEX in extending, or increasing the capacity of, ENERGEX's *supply network* to provide *Connection Services* to the Customer's *electrical installations* present on the *Premises*;
- (e) if the Customer fails to give ENERGEX safe access in accordance with clause 8 or any other requirement under the *electricity legislation*;
- (f) for reasons of health and safety;
- (g) in an *emergency*;
- (h) if required to do so at the direction of State or Federal Police;
- (i) if the Customer has provided false information to ENERGEX or the *Customer's retailer* (in circumstances where the Customer would not have been entitled to be connected if the false information had not been provided);
- (j) if the Customer does not provide and maintain space, equipment, access, facilities or anything else the Customer must provide for the *Connection Services* under the *electricity legislation* or this contract;
- (k) if ENERGEX is otherwise permitted by *electricity legislation* to *disconnect* the Customer's *electrical installations* present on the *Premises*;
- (l) if any *Authorisation* required to be held with respect to the *Facilities* at the *Premises* or their operation or the provision of services by means of those *Facilities*, is not held;
- (m) to enable ENERGEX to undertake planned outages provided that reasonable notice has been given by ENERGEX to the Customer.

12.3 ENERGEX's rights after disconnection

The *disconnection* of the Customer's *electrical installations* present on the *Premises* does not limit or waive any of the parties' rights and obligations under this contract arising before *disconnection*, including any of the Customer's obligations to pay amounts to ENERGEX or the *Customer's retailer*.

12.4 Disconnection fee

If the Customer has not complied with a *disconnection warning* and ENERGEX arrives at the *Premises* to *disconnect* the Customer's *electrical installations* present on the *Premises* but does not do so because the Customer has rectified the matter referred to in the *disconnection warning* to ENERGEX's satisfaction, the Customer must pay ENERGEX a reasonable fee for the attendance at the *Premises*.

12.5 Unpaid bills

- (a) If the Customer has failed to pay a bill by the due date, ENERGEX may send the Customer a reminder notice which:
 - (i) gives the Customer at least five (5) *business days* after it is sent to make payment; and

- (ii) warns the Customer that ENERGEX may **disconnect** the Customer's **electrical installations** present on the **Premises** if payment is not made.
- (b) ENERGEX may send a **disconnection warning** if the Customer fails to make a payment in accordance with the reminder notice.
- (c) If the Customer fails to comply with the **disconnection warning** within five (5) **business days** after its receipt, ENERGEX may **disconnect** the Customer's **electrical installations** present on the **Premises** unless the amount due is less than the amount approved by the **QCA**.

12.6 Failure to pay a security deposit

- (a) ENERGEX may send the Customer a **disconnection warning** if ENERGEX is entitled to require a **security deposit** from the Customer, ENERGEX requests a **security deposit** and the Customer fails to pay a **security deposit**. The **disconnection warning** must give the Customer at least a further five (5) **business days** after its receipt to make payment.
- (b) If the Customer fails to make payment by the date specified in the **disconnection warning** ENERGEX may **disconnect** the Customer's **electrical installations** present on the **Premises**.

12.7 No exclusion of Electricity Act

ENERGEX and the Customer acknowledge that the provisions of this contract do not vary or exclude the operation of section 40E of the **Electricity Act**. The rights and remedies of ENERGEX set out in this contract are in addition to and not in replacement of those under any **Laws**, at common law or in equity.

12.8 Automatic disconnection

The Customer acknowledges that ENERGEX may install and operate equipment which may automatically **disconnect** the Customer's **electrical installations** present on the **Premises** from the **supply network** in order to protect the **supply network** or for safety reasons.

13. Reconnection after Disconnection

13.1 The Customer's and ENERGEX's obligations

ENERGEX must reconnect the Customer's **electrical installations** present on the **Premises** in accordance with clause 13.2 if:

- (a) **disconnection** results from the Customer's act, or omission, under this contract or otherwise; and
- (b) within ten (10) **business days** of the **disconnection**:
 - (i) the Customer has rectified the matter which led to the **disconnection** of the Customer's **electrical installations** present on the **Premises**, including complying with any requirements set out in the Customer's contract with the **Customer's retailer**; and
 - (ii) the **Customer's retailer** makes a request to ENERGEX for reconnection.

13.2 Time for reconnection

If, at the time of the request for reconnection:

- (a) the Customer has paid the relevant reconnection fee;
- (b) the Customer has complied with ENERGEX's requirements (including, if applicable, the payment of a *security deposit*);
- (c) the necessary electrical infrastructure to make the reconnection remains in place; and
- (d) the Customer provides safe access to the *Premises*,

ENERGEX must reconnect the Customer's *electrical installations* present on the *Premises* within ten (10) *business days*, unless the Customer requests a later time.

13.3 Wrongful disconnection

- (a) This clause 13.3 applies if ENERGEX *disconnects* the Customer's *electrical installations* present on the *Premises* where ENERGEX (or a person requesting ENERGEX to do so) did not have a right to do so.
- (b) ENERGEX must, without charge to the Customer, reconnect the Customer's *electrical installations* present on the *Premises* as soon as reasonably possible.

14. Notices and Bills

- (a) Unless this contract says otherwise (for example, where phone calls are allowed), all notices must be sent in writing. ENERGEX can send the Customer notices to the *Premises* or the Customer's contact address.
- (b) A notice or bill is deemed to have been received by a party:
 - (i) on the date it is handed to the party, left at the party's *Premises* (in the Customer's case) or one of ENERGEX's offices (which excludes depots) (in ENERGEX's case) or successfully faxed to the party (which occurs when the sender receives a transmission report to that effect);
 - (ii) on the date two (2) *business days* after ENERGEX posts it to the *Premises* or contact address or the Customer posts it to ENERGEX; or
 - (iii) where use of email has been agreed between the Customer and ENERGEX, on the date of transmission unless the sender receives notice that delivery did not occur or has been delayed.

15. Privacy and Confidentiality

15.1 Privacy of information

Subject to clause 15.2 of this contract ENERGEX must keep information about the Customer and any owner of the *Generating System* confidential in accordance with the *Privacy Act 1988* (Cth).

15.2 Disclosure

ENERGEX may, however, disclose information about the Customer or any owner of the *Generating System*:

- (a) if required or permitted by the *Laws* to do so;
- (b) if ENERGEX is required or permitted by ENERGEX's *distribution authority* to do so, such as to a law enforcement agency;
- (c) where disclosure is made to ENERGEX's shareholding minister, economic and jurisdictional regulators;
- (d) where the Customer or the owner of the *Generating System* (respectively) gives ENERGEX written consent; or
- (e) to the *Customer's retailer* or a metering provider to the extent that the information is for the purposes of or in connection with providing *customer retail services* or meter reading.

15.3 Access to information

- (a) If the Customer requests it, ENERGEX must provide the Customer with details of the information held on the Customer in relation to *Connection Services* at no charge.
- (b) If the Customer requests it, ENERGEX must provide the Customer with time of use *metering data* (where it is available to ENERGEX). Despite clause 15.3(a), ENERGEX may charge the Customer a reasonable fee for providing this data.

16. Dispute Resolution

16.1 Disputes

If a dispute arises between the parties the party claiming that a dispute has arisen must notify the other party of the existence and the nature of the dispute. If the dispute is not resolved within ten (10) *business days* of such notice being given, either party may refer the dispute to a mediator in accordance with clause 16.2 (without prejudice to any of a party's other rights (including, without limitation, to seek urgent interlocutory relief)).

16.2 Mediation

If either party refers a dispute to a mediator:

- (a) the parties must act in good faith in the appointment of the mediator; and
- (b) the cost of the mediator will be shared equally between the parties (unless otherwise agreed).

16.3 Ombudsman Scheme

Nothing in this contract limits a party's right to refer a dispute to the Energy Ombudsman under the *Energy Ombudsman Act 2006* (Qld).

17. Force Majeure

17.1 Effect of force majeure event

If, but for this clause 17, either party would breach this contract due to the occurrence of a *force majeure event*:

- (a) the obligations of a party under this contract, other than an obligation to pay money (including, in ENERGEX's case, a payment for failure to meet a guaranteed service

level), are suspended to the extent to which they are affected by the *force majeure event* for so long as the *force majeure event* continues; and

- (b) the affected party must use its reasonable endeavours to give the other prompt notice of that fact including full particulars of the *force majeure event*, an estimate of its likely duration, the obligations affected by it and the extent of its effects on those obligations and the steps taken to remove, overcome or minimise those effects.

17.2 Deemed prompt notice

For the purposes of this clause 17, if the effects of a *force majeure event* are widespread ENERGEX will be deemed to have given the Customer prompt notice if ENERGEX makes the necessary information available by way of a 24 hour telephone service within 30 minutes of being advised of the *force majeure event* or otherwise as soon as practicable.

17.3 Obligation to overcome

Either party relying on this clause 17 by claiming a *force majeure event* must use its reasonable endeavours to remove, overcome or minimize the effects of that *force majeure event* as quickly as practicable.

17.4 Settlement of industrial disputes

Nothing in this clause 17 will require a party to settle an industrial dispute which constitutes a *force majeure event* in any manner other than the manner preferred by that party.

18. Applicable Law

- (a) ENERGEX, as the Customer's *distribution entity*, and the Customer, as ENERGEX's *customer*, agree to comply with any applicable requirements of any industry codes issued under the *Electricity Act* from time to time.
- (b) The laws of Queensland govern this contract.
- (c) This contract does not affect the rights and remedies of ENERGEX under any *Laws*.

19. General

19.1 ENERGEX's obligations

Some obligations placed on ENERGEX under this contract may be carried out by another person. If an obligation is placed on ENERGEX to do something under this contract, then:

- (a) ENERGEX is deemed to have complied with the obligation if another person does it; and
- (b) if the obligation is not complied with, ENERGEX is still liable to the Customer for the failure to comply with this contract.

19.2 Ending of one contract does not affect the other

To avoid doubt, if the Customer is a party to both this contract and a *retail contract*, the ending of one contract does not affect the other contract.

19.3 Amending this contract

This contract may only be amended from time to time by an agreement signed by both of ENERGEN and the Customer.

19.4 Assignment

A party may not assign or otherwise deal with its rights under this contract or allow any interest in them to arise or be varied in each case, without the consent of the other party.

19.5 Contributory negligence

A party's ("first party") **Liability** to another party for loss or damage of any kind arising out of this contract or in connection with the relationship established by it is reduced to the extent (if any) that the other causes or contributes to the loss or damage. This reduction applies whether the first party's **Liability** is in contract, tort (including negligence), under any statute or otherwise.

19.6 Special Conditions

Each of us agree that the Special Conditions set out in Schedule 10) (if any):

- (a) form part of this contract; and
- (b) override other provisions of this contract to the extent of any inconsistency with them.

20. Goods and Services Tax Provisions

20.1 Goods and Services Tax

Any Consideration to be paid or provided for any supply made under or in connection with this Contract, unless expressly described in this Contract as including GST, does not include an amount on account of GST.

Despite any other provision in this Contract, if a party ('Supplier') makes a Taxable Supply under or in connection with this Contract on which GST is imposed:

- (a) the GST exclusive Consideration otherwise payable or to be provided for that Taxable Supply under this Contract but for the application of this clause is increased by, and the recipient of the supply ('Recipient') must also pay to the Supplier, an amount equal to the GST payable by the Supplier on that Taxable Supply; and
- (b) the amount by which the GST exclusive consideration is increased must be paid to the Supplier by the Recipient without set off, deduction or requirement for demand, at the same time as the GST exclusive consideration is payable or to be provided. However, the Recipient need not pay any amount referable to GST unless they have received a valid Tax Invoice (or a valid Adjustment Note) for that Taxable Supply.

20.2 Reimbursements

If a payment to a party under or in connection with this Contract is a reimbursement or indemnification, calculated by reference to a loss, cost or expense incurred by that party, then the payment must be reduced by the amount of any Input Tax Credit to which that party is entitled for that loss, cost or expense. That party is assumed to be entitled to a full Input Tax Credit unless it proves, before the date on which the payment must be made, that its entitlement is otherwise.

20.3 Adjustment Events

If, at any time, an Adjustment Event arises in respect of any Taxable Supply made by a Supplier under the Contract, a corresponding adjustment must be made between the parties in respect of any amount paid pursuant to clause 20.1. Payments to give effect to the adjustment must be made between the parties and the Supplier must issue a valid Adjustment Note in relation to the Adjustment Event.

20.4 GST Group

If a party is a member of a GST Group, references to GST which the party must pay and to Input Tax Credits to which the party is entitled, include GST which the representative member of the GST Group must pay and Input Tax Credits to which the representative member of the group is entitled.

20.5 Non Monetary Consideration

If a supply made under this Contract is a Taxable Supply made for non-monetary consideration then:

- (a) the Supplier must provide the Recipient with a valid Tax Invoice which states the GST inclusive market value of the non-monetary consideration; and
- (b) for the avoidance of doubt any non-monetary consideration payable under or in connection with this Contract is GST inclusive.

20.6 Definitions

Words or expressions used in this clause which are defined in the *A New Tax System (Goods and Services Tax) Act 1999* (Cth) and related imposition and amending Acts have the same meaning in this clause.

20.7 Survival

This clause will continue to apply after expiration or termination of this Contract.

Schedule 1) - Definitions and Interpretation

1. Dictionary

In this contract unless the contrary intention appears:

Abnormal Operating Conditions means conditions posing material added risks to the stability or security of the **power system**, including, without limitation, severe weather conditions, lightning storms and bush fires.

AEMO means Australian Energy Market Operator and its successors.

Australian Standard means a document of that name issued by Standards Australia Limited as amended and updated from time to time.

Authorisation means:

- (a) any consent, declaration, approval, exemption, waiver or other authorisation required under any **Laws**; and
- (b) where anything could be prohibited or restricted under any **Laws** until the expiry of a specified period without an action being taken by a third party (including a government authority), the expiry of that period without that action being taken.

Authorised Representative means employees or contractors of ENERGEX engaged from time to time in connection with the provision of **Connection Services**.

bank means an authorised deposit taking institution within the meaning of the *Banking Act 1959* (Cth).

billing cycle means the regular recurrent period for which ENERGEX charges for **Connection Services**.

business customer means a **customer** who is not a **residential customer**.

business day means a day other than a Saturday, a Sunday or a Queensland wide public holiday (as appointed under the *Holidays Act 1983* (Qld)).

CBD feeder means a feeder supplying predominantly commercial high rise buildings, supplied by a predominantly underground **supply network** containing significant interconnection and redundancy when compared to urban areas.

Charges means the charges payable by the Customer for the provision of the **Connection Services** under this contract, as determined by ENERGEX from time to time in accordance with all applicable regulatory instruments (including any relevant processes set down in those instruments) and this contract.

Commencement Date means for **customer connection services** and **generator connection services**, the date(s) specified as such in Schedule 3, Item 4.

Connection Point means the point of connection of the Customer's **electrical installations** present on the **Premises** to ENERGEX's **supply network**, as stated or shown in Schedule 4), Part 1.

Connection Services means **customer connection services** and **generator connection services**.

Contracted Demand has the meaning given in clause 10.

contract interest rate means, for any year, the **bank** bill swap rate for one year, as reported in the Australian Financial Review Money and Bond Market section on the first Friday of December of the previous year less one full percentage or such other rate approved by the *QCA*.

Credible Contingency Event has the meaning given to it in the *National Electricity Rules*.

customer means a person who receives, or wants to receive, a supply of electricity from an electricity entity or special approval holder, and includes a relevant body corporate.

customer connection services, for the Customer's **electrical installations** present on the **Premises**, means:

- (a) the connection of the Customer's **electrical installations** present on the **Premises** to ENERGEN's **supply network** at the **Connection Point** to allow the transfer of electricity from ENERGEN's **supply network** to the Customer's **electrical installations** present on the **Premises**; and
- (b) the supply of electricity from ENERGEN's **supply network** to the Customer's **electrical installations** present on the **Premises** at the **Connection Point**.

customer retail services means the sale of electricity to the **Premises**.

Customer's retailer means the **retail entity** who sells electricity to the Customer.

disconnect means to disconnect, or arrange the disconnection of, the Customer's **electrical installations** present on the **Premises** from the **supply network**, but does not include an **interruption**.

disconnection warning means a notice in writing issued in accordance with clause 12.

distribution area for a **distribution entity** is the area specified in its **distribution authority** as its distribution area.

distribution authority means an authority issued under the *Electricity Act* that authorises its holder to supply electricity using a **supply network** within its **distribution area**.

distribution entity means an entity that holds a **distribution authority**.

distribution non-network charges means ENERGEN's charges published in ENERGEN's price list that:

- (a) are referable to a specific request by the Customer or the **Customer's retailer**; or
- (b) are referable to a requirement under **electricity legislation**,

and do not include **network charges**.

electric line means a wire or conductor or associated equipment used for transmitting, transforming, or supplying electricity at a voltage greater than extra low voltage.

electrical equipment is any apparatus, appliance, cable, conductor, fitting, insulator, material, meter or wire:

- (a) used for controlling, generating, supplying, transforming or transmitting electricity at a voltage greater than extra low voltage;
- (b) operated by electricity at a voltage greater than extra low voltage; or
- (c) that is, or that forms part of, a cathodic protection system.

electrical installation means a group of items of **electrical equipment**.

Electricity Act means the *Electricity Act 1994* (Qld).

Electricity Industry Code means the Electricity Industry Code made under the *Electricity Act*.

electricity legislation means the *Electricity Act, Electrical Safety Act 2002* (Qld), the *Electricity - National Scheme (Queensland) Act 1997* (Qld) and regulations, standards, codes, protocols and rules made under those Acts.

Embedded Generator has the meaning given to that term in the *National Electricity Rules*.

emergency means an emergency due to the actual or imminent occurrence of an event which in any way endangers or threatens to endanger the safety or health of any person, or normal operation of the supply network or transmission grid, in the state of Queensland or which destroys or damages, or threatens to destroy or damage, any property in the state of Queensland.

ENERGEX means ENERGEX Limited (ACN 078 849 055).

ENERGEX Works means the construction works performed by ENERGEX or on ENERGEX's behalf that are necessary to enable ENERGEX to provide the *Connection Services*.

Energy Ombudsman means the Energy Ombudsman established by the *Energy Ombudsman Act 2006* (Qld).

excluded location means the locations specified in Schedule 2).

explicit informed consent is the consent provided by a *customer* where:

- (a) the *customer* provides express conscious agreement;
- (b) the relevant *retail entity* has fully and adequately disclosed all matters relevant to that *customer*, including each specific purpose for which the consent will be used; and
- (c) all disclosures referred to in paragraph (b) are truthful and have been provided in plain English.

Facilities means the *electrical installations* owned or operated by the parties which, in the case of the Customer, is deemed to include the *Generating System*, and includes associated connection equipment owned by the parties.

force majeure event means an event affecting the ability of a party to perform its obligations under the contract which is outside the control of that party.

Generating System means the generating plant and associated systems detailed in Schedule 8.

generator connection services, for the *Premises*, means:

- (a) the connection of the Customer's *electrical installations* present on the *Premises* to ENERGEX's *supply network* at the *Connection Point* to allow the transfer of electricity (being electricity generated by the *Generating System* and transferred to the *Connection Point* through the Customer's *electrical installations* present on the *Premises*) from the Customer's *Connection Point* to ENERGEX's *supply network*; and
- (b) the receipt of electricity (being electricity generated by the *Generating System* and transferred to the *Connection Point* through the Customer's *electrical installations* present on the *Premises*) at the *Connection Point* into ENERGEX's *supply network*.

Good Electricity Industry Practice means the exercise of that degree of skill, diligence, prudence and foresight that could reasonably be expected from a significant proportion of operators of *Facilities* similar to those at the *Premises* taking into account the size, age and technological status of those *Facilities* and any other relevant factors.

interruption means any temporary unavailability of electricity supplied to a *customer* associated with an outage of the *supply network* including outages affecting a single premises, but does not include *disconnection*.

isolated feeder means a feeder which is not connected to the national grid.

Laws means any legally binding law, legislation, statute, act, rule, order or regulation which is enacted, issued or promulgated by the State of Queensland, the Commonwealth of Australia or any relevant local authority, including without limitation, the **electricity legislation**.

Liability means any cost, expense, loss, damage, obligation, claim, action, penalty, fine, impost, tax, charge or other liability.

local holiday means a show holiday or special holiday appointed for a particular district under the *Holidays Act 1983* (Qld).

long rural feeder means a feeder which is not a **CBD feeder**, **urban feeder** or **isolated feeder** with a total feeder route length greater than 200 km.

market customer for a **Premises**, means a **customer** prescribed under a regulation to be a **market customer** for the **Premises**.

Maximum Connection Capacity means the maximum connection capacity stated in Item 7 of Schedule 3).

metering data has the meaning given that term in the **National Electricity Rules**.

MWh means megawatt hours.

National Electricity Law has the meaning given under the *Electricity – National Scheme (Queensland) Act 1997* (Qld).

National Electricity Rules means the rules made under the **National Electricity Law** applied as the law of Queensland.

negotiated connection contract is a contract entered into under section 40DC of the **Electricity Act** for the provision of **customer connection services** to a premises.

negotiated retail contract is a contract entered into under section 55A of the **Electricity Act** for the provision of **customer retail services** to a premises.

network charges means charges of a **distribution entity** for:

- (a) distribution use of system charges for the use of a **supply network** of ENERGEX; and
- (b) any transmission use of system charges payable by ENERGEX for use of a transmission grid to which ENERGEX's **supply network** is connected.

Network Constraints has the meaning given to it in the **National Electricity Rules**.

Network Elements means the network elements stated or shown (if any) in Schedule 4).

non-market customer means any **customer** who is not a **market customer**.

notice period has the meaning given in clause 4.5.

notified prices are the prices under section 90 of the **Electricity Act** that a **retail entity** may charge **non-market customers** on a **standard retail contract** or **standard large customer retail contract** to provide the following:

- (a) **customer retail services**; and
- (b) other goods and services prescribed under a regulation to the **Electricity Act**.

power system has the meaning given to it in the **National Electricity Rules**.

Powerlink Queensland means Queensland Electricity Transmission Corporation Limited ACN 078 849 233.

Premises means the address specified in Schedule 3) Item 5 at which *customer retail services* or *Connection Services* (as the context requires) are provided to the Customer.

QCA means the Queensland Competition Authority established under the *Queensland Competition Authority Act 1997* (Qld).

Responsible Person has the meaning given to in the *National Electricity Rules*.

residential customer means a *customer* who acquires electricity for domestic use.

retail authority means an authority issued under the *Electricity Act* that authorises its holder to provide *customer retail services*.

retail contract means a *standard retail contract*, *standard large customer retail contract*, or *negotiated retail contract*.

retail entity means an entity that holds a *retail authority*.

security deposit means an amount of money or other arrangement acceptable to ENERGEX as a security against the Customer defaulting on a bill as set out in Item 9 of Schedule 3). To avoid doubt, a security deposit does not include an insurance levy whereby the Customer makes a non-refundable payment that is used to insure against the Customer's non-payment.

short rural feeder means a feeder with a total feeder route length less than 200 km, and which is not a *CBD feeder*, *urban feeder* or *isolated feeder*.

small customer, for premises, means a *customer* prescribed under a regulation to the *Electricity Act* to be a *small customer* for the *Premises*.

standard large customer retail contract means a *retail contract* taken, under section 51(3) of the *Electricity Act*, to have been entered into between a *customer* and a *retail entity* the terms of which contract are only those terms provided for under sections 52 to 55 of the *Electricity Act*.

standard retail contract means a *retail contract* taken, under section 51(2) of the *Electricity Act*, to have been entered into between a *small customer* and a *retail entity* the terms of which contract are only the terms provided for under section 52 of the *Electricity Act*.

supply network means a system, or part of a system, of *electric lines*, substations and associated equipment, other than a transmission grid, for distributing electricity to *customers*, whether or not generating plant is connected to it.

termination notice has the meaning given in clause 4.2.

urban feeder means a feeder with annual actual maximum demand per total feeder route length greater than 0.3 MVA/km and which is not a *CBD feeder*, *short rural feeder*, *long rural feeder* or an *isolated feeder*.

Other grammatical forms of words defined in the dictionary are taken to have a corresponding meaning.

2. Interpretation

Clause 10.1.2 of the *Electricity Industry Code* applies to this contract with the exception that references to the *Electricity Industry Code* are replaced by references to this contract.

Schedule 2) - Excluded Locations

Suburb	Postcode	Suburb	Postcode
Amity	4183	Running Creek	4287
Dunwich	4183	Avoca	4306
Herring Lagoon	4183	Linville	4306
North Stradbroke Island	4183	Moore	4306
Point Lookout	4183	Mt Stanley	4306
Coochiemudlo Island	4184	Cambroon	4552
Karragarra Island	4184	Boreen Point	4565
Lamb Island	4184	Cooroibah	4565
Macleay Island	4184	Cooroibah Heights	4565
Russell Island	4184	Cootharaba	4565
Beechmont	4211	North Shore	4565
Natural Bridge	4211	Ringtail Creek	4565
Numinbah	4211	Teewah	4565
Numinbah Valley	4211	Anderleigh	4570
Austinville	4213	Curra	4570
Springbrook	4213	Goomboorian	4570
South Stradbroke Island	4216	Kia Ora	4570
Pine Creek	4275	Neerdie	4570
Witheren	4275	Rossmount	4570
Allenvie	4285	Toolara Forest	4570
Woodhill	4285	Wallu	4570
Barney View	4287	Cooloola Cove	4580
Mt Lindesay	4287	Tin Can Bay	4580
Palen Creek	4287	Rainbow Beach	4581
Rathdowney	4287	Inskip	4581

Schedule 3) - Contract Particulars

1.	ENERGEX Address for Notices	26 Reddacliff Street, Newstead, Queensland, 4006 Facsimile: + 61 7 3664 9828 Attention: Network Agreements Manager
2.	Customer	Click here to enter customer entity name and A.B.N.
3.	Customer's Address for Notices	Address Click here to enter customer postal address. Phone Click here to enter customer phone. Attention Click here to enter customer contact.
4.	Commencement Date	On the signing of this contract by both parties.
5.	Customer's Premises	Premises located at insert street address of generating system.
5A.	Address of Generating System.	Enter Address
6.	Contracted Demand	Enter data kW/MW
7.	Maximum Connection Capacity	Enter Data kVA/MVA
8.	Responsible Person	Insert name of company who is the Responsible Person.
9.	Security Deposit	Insert amount.

Schedule 4) - Connection Point

Part 1 - Connection Point

[Click here to enter schematic.](#)

Part 2 - Network Elements

[Click here to enter elements.](#)

Part 3 – N-1 Reliability Applies (refer clause 9.7(b))

[Yes or No?](#)

Schedule 5) - Operating Protocol

1. ENERGEX and the Customer agree that the purpose of this Operating Protocol is to ensure:
 - (a) compliance with all **Laws**;
 - (b) the personal safety of the representatives of ENERGEX and the Customer;
 - (c) the personal safety of the general public; and
 - (d) satisfactory operation of the **Premises** and the **supply network**.
2. ENERGEX's contact for the day-to-day management of operational matters, including planned and unplanned outages is:

Title: Network Access Inquiries
Address: Level 2.1/2, 26 Reddacliff Street, Newstead Queensland 4006
Telephone: (07) 3664 5015
Facsimile: (07) 3664 9809
Email: nat2@energex.com.au

Alternate:

Title: Network Access Manager
Address: Level 2.1/2, 26 Reddacliff Street, Newstead Queensland 4006
Telephone: (07) 3664 5146
Facsimile: (07) 3664 9824
Email: warwickargent@energex.com.au

3. The Customer's contact for the day-to-day management of operational matters, including planned and unplanned outages is:

Title: [Click here to enter details.](#)
Address: [Click here to enter details.](#)
Telephone: [Click here to enter details.](#)
Facsimile: [Click here to enter details.](#)
Email: [Click here to enter details.](#)

Alternate:

Title: [Click here to enter details.](#)
Address: [Click here to enter details.](#)
Telephone: [Click here to enter details.](#)
Facsimile: [Click here to enter details.](#)
Email: [Click here to enter details.](#)

4. The parties agree that:
- (a) each year, they will determine a plan for outages/maintenance for the next 12 months;
 - (b) minimum periods to notify of commencement of planned outages shall be two (2) **business days** in advance;
 - (c) each is obliged to notify the other of unplanned outages as soon as reasonably practicable;
 - (d) the following shall be the order of priority for methods of providing notification:
 - (i) Emergency: Telephone or Mobile Telephone to 1st Contact Officer
Telephone or Mobile Telephone to Alternate Contact Officer
 - (ii) Other: Telephone or Mobile Telephone to 1st Contact Officer
Email to 1st Contact Officer
Write to 1st Contact Officer
Facsimile to 1st Contact Officer
 - (e) they will work together, and keep each other informed of their plans to rectify any systemic problems which cause repeated momentary outages or voltage fluctuations.

Schedule 6) - Charges

[Click here to enter charges.](#)

Schedule 7) – Early Termination Payment

1. Early Repayment Calculation

The '*Early Repayment Amount*' payable under clause 10.10 is calculated in accordance with the following formula:

$$\text{ERA} = [(\text{RC} - \text{RV}) \times \frac{\text{RM}}{\text{TM}}] + \text{NSPC}$$

where:

RC is \$ [Click here to enter amount.](#) (being the estimated cost (as at the *Commencement Date* for *customer connection services*) of the *ENERGEX Works*, escalated annually by CPI on and from the first anniversary of that *Commencement Date*. CPI means the Consumer Price Index (All Groups) for Brisbane as first published for a quarter by the Australian Bureau of Statistics, provided that if that index is no longer published:

- (a) then CPI will be another index which the parties agree to adopt; or
- (b) if the parties do not agree on another index, CPI will be the index nominated by the Australian Government Statistician as the index which is closest in its scope and operation to the Consumer Price Index (All Groups) for Brisbane.

RV is the part of RC attributable to the component (if any) of the *ENERGEX Works* that can be used by ENERGEX as the basis for determining *network charges* payable by other *customers* as at the date that this contract terminates as determined by ENERGEX.

RM is 240 less the number of months (including parts of months) from the *Commencement Date* for *customer connection services* to (and including) the month in which this contract is terminated.

TM is 240.

NSPC means the total of the following:

- (a) the reasonable costs to recover installed and reusable components of the *ENERGEX Works* that are dedicated to the Customer;
- (b) the reasonable costs to re-install those reusable components to ENERGEX's *supply network* which costs are attributable to the discontinuation of the *ENERGEX Works* or the *disconnection* of the *Premises*;
- (c) the reasonable costs to recover and dispose of unusable components of the *ENERGEX Works* that are dedicated to the Customer; and
- (d) the reasonable costs incurred by ENERGEX to reconfigure ENERGEX's *supply network*, which costs are attributable to the discontinuation of the *ENERGEX Works* or the *disconnection* of the *Premises*.

If the above formula produces a result which is either zero or a negative number, there will be no amount payable by the Customer and no amount payable by ENERGEX to the Customer.

2. Assumptions and Adjustments

The parties acknowledge that the formula in clause 1 of this Schedule calculating the Early Repayment Amount has been agreed on the assumption that:

- (a) ENERGEX will recover the cost of various capital works relevant to the provision of the **Connection Services** to the Customer through the **Charges** over the first 20 years of providing **Connection Services**;
- (b) the recovery of the capital cost will occur on a linear basis (that is, there will not be a variable rate of recovery at different times during the first twenty years of the term of this contract) after the first **Commencement Date** to occur; and
- (c) no additional capital works have been constructed by ENERGEX at the request of the Customer after the **Commencement Date** in connection with the provision of **Connection Services** or other services to the Customer.

If either or both of the following events happen:

- (a) the regulatory regime changes so that:
 - (i) the time period for recovery of the cost of the **ENERGEX Works** is not the period set out in clause 10.10; or
 - (ii) the recovery of capital costs does not occur on a linear basis; or
- (b) additional capital works are constructed by ENERGEX at the request of the Customer after the **Commencement Date** in connection with the provision of **Connection Services** or other services to the Customer,

the **Early Repayment Amount** will be an amount reasonably determined by ENERGEX using a methodology similar to the formula in clause 1 of this Schedule and which:

- (c) compensates ENERGEX for the cost of **ENERGEX Works** or additional capital works in the manner intended by the parties to this contract;
- (d) takes into account any changes in the regulatory regime;
- (e) takes into account any additional capital works that have been constructed by ENERGEX at the request of the Customer after the **Commencement Date** in connection with the provision of **Connection Services** or other services to the Customer; and
- (f) places the parties in the same financial position (as far as reasonably practicable) that they otherwise would have been in but for the regulatory change or the incurring of the additional costs (as the case may be).

Schedule 8) – Generating System Specifications

Generating System

The generating units specified below are installed at the *Premises*.

The parties agree that this Schedule will be reviewed from time to time to ensure that the data is up to date, relevant, representative of the operating arrangements and consistent with the requirements of this contract.

1. Forecasts Load

Forecast peak 2014/15 demand	Click here to enter details.
Forecast 2014/15 energy	Click here to enter details.

2. Operational Issues

Owner of <i>Generating System</i>	Click here to enter details.
Operator of <i>Generating System</i>	Click here to enter details.
Generator attendant	Click here to enter details.
Remote control capability	Click here to enter details.
Generator attendant's contact phone number	Click here to enter details.
HV equipment operator	Click here to enter details.
Equipment operator's contact phone number	Click here to enter details.

3. Equipment Data

(a) Individual Generating Unit Data

NOTE: All Impedances on 100 MV.A Base

Number of Units	Click here to enter details.	
Power source	Click here to enter details.	
Type	Click here to enter details.	
Nominal rating (MW)	Click here to enter details.	
Nominal terminal voltage (kV)	Click here to enter details.	
Neutral earthing	Click here to enter details.	
Positive sequence transient impedance	Click here to enter details.	
Positive sequence subtransient impedance	Click here to enter details.	
AVR type	Click here to enter details.	

Governor type	Click here to enter details.	
Minimum load (MW)	Click here to enter details.	
Maximum load (MW)	Click here to enter details.	
Start up load (kW)	Click here to enter details.	
Rated reactive output at max load (MVA _r)	Click here to enter details.	
(minimum and maximum loads are net outputs)	Click here to enter details.	

(b) Individual Generator Transformer Data

Number of Units	Click here to enter details.	
Voltage ratio	Click here to enter details.	
Rating	Click here to enter details.	
Connection	Click here to enter details.	
On load tap changer range	Click here to enter details.	
Higher voltage neutral earth	Click here to enter details.	
Lower voltage neutral earth	Click here to enter details.	
Positive sequence impedance	Click here to enter details.	
Zero sequence impedance	Click here to enter details.	

(c) Individual Large Motor Data

NOTE: All High Voltage Motors Larger than 500 kW

Application	Click here to enter details.	
Type	Click here to enter details.	
Rating	Click here to enter details.	
Voltage	Click here to enter details.	
Starting method	Click here to enter details.	
Subtransient reactance	Click here to enter details.	
Lock rotor current	Click here to enter details.	
Transient reactance	Click here to enter details.	
Full load current	Click here to enter details.	
Speed	Click here to enter details.	
Power factor	Click here to enter details.	
Brand/model	Click here to enter details.	

(d) Individual Details Other Significant Disturbing Loads

Click here to enter details.	
Click here to enter details.	
Click here to enter details.	
Click here to enter details.	
Click here to enter details.	
Click here to enter details.	
Click here to enter details.	

(e) Individual Details of Interconnection Switchgear

Application	Click here to enter details.
Voltage (kV)	Click here to enter details.
Type	Click here to enter details.
Rating (A)	Click here to enter details.
Symmetrical interruption capacity (kA)	Click here to enter details.
CB's withdrawal	Click here to enter details.
Integral earth fitted	Click here to enter details.

(f) Individual Details of Large Capacitor

NOTE: All HV Capacitors Larger than 500 kvar

Capacitor application	Click here to enter details.
Voltage (kV)	Click here to enter details.
Rating (Mvar)	Click here to enter details.
Duty cycle	Click here to enter details.
Inrush current limiting equipment	Click here to enter details.
AFLC frequency detuning equipment	Click here to enter details.

Schedule 9) – Technical Requirements

1. **Definitions and Interpretation**

In this Schedule:

- (a) words and expressions used in this Schedule which are defined in the **National Electricity Rules** shall have the same meanings as are respectively assigned to them in the **National Electricity Rules**;
- (b) references to sections, Chapters and provisions are references to the respective sections, Chapters and provisions of the **National Electricity Rules**, unless otherwise indicated.

2. **Requirement to provide information (Rule S5.2.4)**

- (a) On request by ENERGEX, the Generator must promptly, in relation to the **generating system**, provide all data specified in schedule 5.5 of the Rules.
- (b) If the **generating system** is comprised of **generating units** with a combined **nameplate rating** of 30MW or more, the Generator (or, if another entity is required to register as the **Generator** under the Rules, that entity), by the earlier of:
 - (i) the day on which an **application to connect** is made under section 5.3.4(a) of the Rules;
 - (ii) the day on which amendments to **performance standards** are submitted under section 4.14(p) or section 5.3.9(b) of the Rules;
 - (iii) three months before commissioning of the **generating system** or planned alteration to the **generating system**; or
 - (iv) 5 **business days** before commissioning of the **generating system** alteration that is repairing **plant** after a **plant** failure, if **plant** performance after the alteration will differ from performance prior to the **plant** failure,
 must provide:
 - (v) to ENERGEX the following information about the **control systems** of the **generating system**:
 - (A) a set of functional block diagrams, including all functions between feedback signals and **generating system** output;
 - (B) the parameters of each functional block, including all settings, gains, time constants, delays, deadbands and limits; and
 - (C) the characteristics of non-linear elements,
 with sufficient detail for ENERGEX and AEMO to perform load flow and dynamic simulation studies;
 - (vi) to ENERGEX, a **releasable user guide**.
- (c) The information provided under paragraph (b) must:
 - (i) encompass all **control systems** that respond to **voltage** or **frequency** disturbances on the **power system**, and which are either integral to the **generating units** or otherwise part of

- the *generating system*, including those applying to *reactive power* equipment that forms part of the *generating system*; and
- (ii) conform with the applicable models developed in accordance with the *Generating System Model Guidelines*, or an alternative model agreed with *AEMO* to be necessary to adequately represent the *generating plant* to carry out load flow and dynamic simulations.
- (d) The Generator must provide to ENERGETX information that updates the information provided under sub-paragraph (b)(v):
- (i) within 3 months after commissioning tests or other tests undertaken in accordance with section 5.7.3 of the *National Electricity Rules* are completed;
 - (ii) when the Generator becomes aware that the information is incomplete, inaccurate or out of date; or
 - (iii) on request by ENERGETX, where ENERGETX considers that the information is incomplete, inaccurate or out of date.
- (e) The Generator is only required to provide new information under paragraph (d) to the extent that it is different to the information previously provided under paragraph (b).

3. Technical matters to be coordinated (Rule S5.2.3)

- (a) The Generator and ENERGETX must use all reasonable endeavours to agree upon relevant technical matters in respect of each new or altered *connection* of the *generating system* to the ENERGETX *network* including:
- (i) design at the *connection point*;
 - (ii) physical layout adjacent to the *connection point*;
 - (iii) primary protection and backup protection (clause 4);
 - (iv) control characteristics (clause 4);
 - (v) communications *facilities* (clause 5);
 - (vi) insulation co-ordination and lightning protection (paragraph (b));
 - (vii) fault levels and fault clearance (clause 7);
 - (viii) switching and *isolation* facilities (clause 7);
 - (ix) interlocking and *synchronising* arrangements; and
 - (x) *metering installations*.
- (b) The Generator must ensure that in designing the *generating system's* electrical *plant*, including any *substation* for the *connection* of the *generating system* to the ENERGETX *network*, to operate at the same *nominal voltage* as at the *connection point*:
- (i) the *plant* complies with the relevant *Australian Standards* unless a provision of the Rules allows or requires otherwise;
 - (ii) the earthing of the *plant* complies with the ENA EG1-2006: Substation Earthing Guide to reduce step and touch potentials to safe levels;
 - (iii) the *plant* is capable of withstanding, without damage the *voltage* impulse levels specified in this Agreement;

- (iv) the insulation levels of the *plant* are coordinated with the insulation levels of the ENERGEX *network* as specified in this Agreement; and
 - (v) safety provisions in respect of the *plant* comply with requirements applicable to the *participating jurisdiction* in which the *generating system* is located, as notified by ENERGEX.
- (c) If no relevant *Australian Standard* exists for the purposes of sub-paragraph (b)(i), the Generator must agree with ENERGEX for the Generator to comply with another relevant standard.

4. Technical requirements (Rule S5.2.5)

4.1 Reactive power capability (Rule S5.2.5.1)

[Note: select one of the following options]

[**OPTION 1** – the *automatic access standard*, being:

- (a) A *generating system* operating at:
 - (i) any level of *active power* output; and
 - (ii) any *voltage* at the *connection point* within the limits established under clause S5.1a.4 of the *National Electricity Rules* without a *contingency event*,

must be capable of supplying and absorbing continuously at its *connection point* an amount of *reactive power* of at least the amount equal to the product of the *rated active power* of the *generating system* and 0.395.]

[**OPTION 2** – the *minimum access standard*, being:

- (b) No capability is required to supply or absorb *reactive power* at the *connection point*.]

[**OPTION 3** – the *negotiated access standard*, being:

- (c) [Note: Determined on a case by case basis, but must be no less than the minimum access standard. Refer to S5.2.5.1(c), (d) and (e) for requirements regarding the conduct of negotiations]
- (d) The *rated active power* value of the Generator's *generating system* is [*].
- (e) [Note: include this paragraph only where there is a need to set out the methodology] The methodology for calculating the *rated active power* value of the Generator's *generating system* is: [*]
- (f) Where the Generator's *generating system* is not supplying or absorbing *reactive power* under an *ancillary services agreement*, the power factor requirements of such consumption of *energy* will be determined in accordance with [clause 3.2 of Schedule [*] [(Customer Performance Standards and Technical Requirements)] of this Agreement / clause S5.3.5 of the *National Electricity Rules*] as if the Generator were a *Market Customer*.

4.2 Quality of electricity generated (Rule S5.2.5.2)

- (g) For the purposes of this clause 0, if the Generator's *generating system* is a *synchronous generating unit*, AS 1359.101 and IEC 60034-1 are *plant standards* for harmonic *voltage* distortion.

[Note: select one of the following options]

[**OPTION 1** – the *automatic access standard*, being:

- (h) When generating and when not generating, the Generator's *generating system* must not produce at any of its *connection points* for *generation*:
- (i) *voltage* fluctuation greater than the limits allocated by ENERGEX under clause S5.1.5(a) of the *National Electricity Rules*;
 - (ii) harmonic *voltage* distortion greater than the emission limits specified by a *plant standard* under paragraph (g) or allocated by ENERGEX under clause S5.1.6(a) of the *National Electricity Rules*; and
 - (iii) *voltage* unbalance greater than the limits allocated by ENERGEX in accordance with clause S5.1.7(c) of the *National Electricity Rules*.]

[OPTION 2 – the *minimum access standard*, being:

- (i) When generating and when not generating, the Generator's *generating system* must not produce at any of its *connection points* for *generation*:
 - (i) voltage fluctuations greater than limits determined under clause S5.1.5(b) of the *National Electricity Rules*;
 - (ii) harmonic voltage distortion more than the lesser of the emission limits determined by ENERGEX under clause S5.1.6(b) of the *National Electricity Rules* and specified by a plant standard under paragraph (g); and
 - (iii) voltage unbalance more than limits determined under clause S5.1.7(c) of the *National Electricity Rules*.]

[OPTION 3 – the *negotiated access standard*, being:

- (j) [Note: Determined on a case by case basis, but must be no less than the minimum access standard. Any negotiated access standard must not, however, prevent ENERGEX meeting the *system standards* or its contractual obligations to existing *Network Users*]]

4.3 Generating unit response to frequency disturbances (Rule S5.2.5.3)

- (k) For the purposes of this clause 0:
 - (i) **normal operating frequency band, operational frequency tolerance band, or extreme frequency excursion tolerance limits** are references to the widest range specified for those terms for any condition (including an “island” condition) in the *frequency operating standards* that apply to the region in which the *generating unit* is located.
 - (ii) *stabilisation time* and *recovery time* mean the longest times allowable for system *frequency* to remain outside the operational frequency tolerance band and the normal operating frequency band, respectively, for any condition (including an “island” condition) in the *frequency operating standards* that apply to the region in which the *generating unit* is located.
 - (iii) *transient frequency limit* and *transient frequency time* mean the values of 47.5 Hz and 9 seconds respectively, or such other values determined by the *Reliability Panel*.

[Note: select one of the following options]

[OPTION 1 – the *automatic access standard*, being:

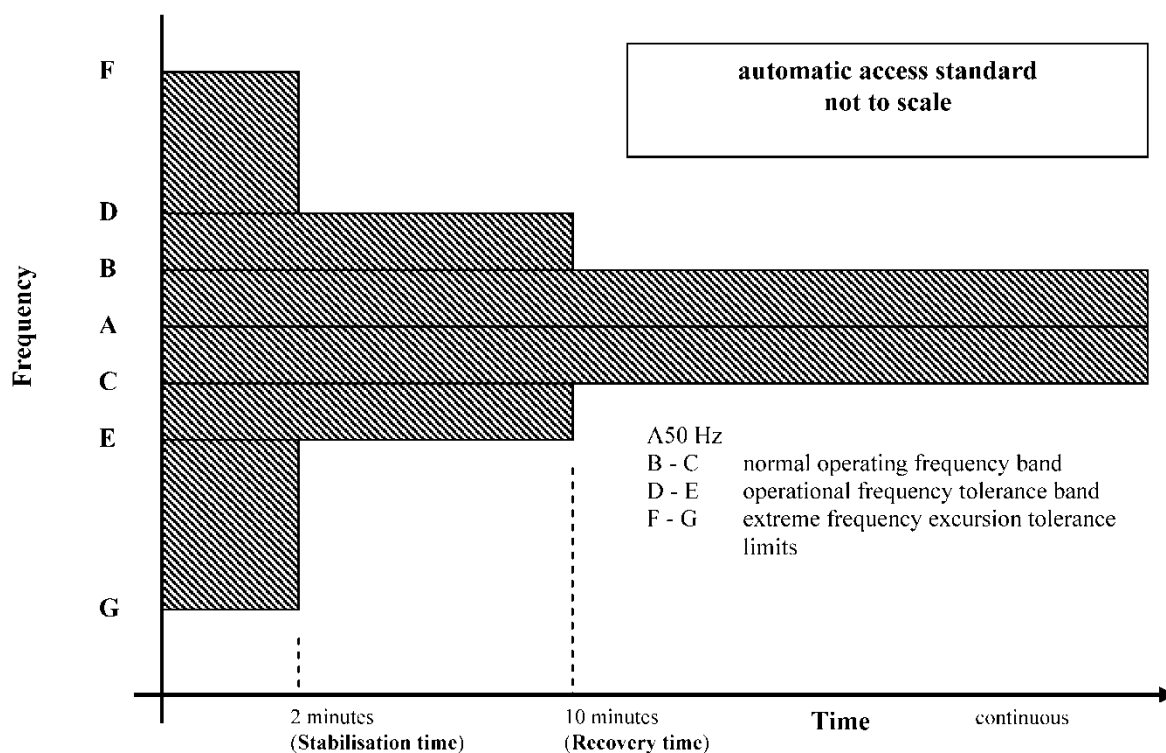
- (l) A *generating system* and each of its *generating units* must be capable of continuous uninterrupted operation for frequencies in the following ranges:

- (i) the lower bound of the extreme frequency excursion tolerance limits to the lower bound of the operational frequency tolerance band for at least the stabilisation time;
- (ii) the lower bound of the operational frequency tolerance band to the lower bound of the normal operating frequency band, for at least the recovery time including any time spent in the range under subparagraph (i);
- (iii) the normal operating frequency band for an indefinite period;
- (iv) the upper bound of the normal operating frequency band to the upper bound of the operational frequency tolerance band, for at least the recovery time including any time spent in the range under subparagraph (v); and
- (v) the upper bound of the operational frequency tolerance band to the upper bound of the extreme frequency excursion tolerance limits for at least the stabilisation time,

unless the rate of change of *frequency* is outside the range of -4 Hz to 4 Hz per second for more than 0.25 seconds or such other range as determined by the *Reliability Panel* from time to time.

Note:

The automatic access standard is illustrated in the following diagram. To the extent of any inconsistency between the diagram and paragraph (l), paragraph (l) prevails.]



[**OPTION 2** – the *minimum access standard*, being:

- (m) The Generator's *generating system* and each of its *generating units* must be capable of *continuous uninterrupted operation* for *frequencies* in the following ranges:
 - (i) the lower bound of the extreme frequency excursion tolerance limits to the transient frequency limit for at least the transient frequency time;

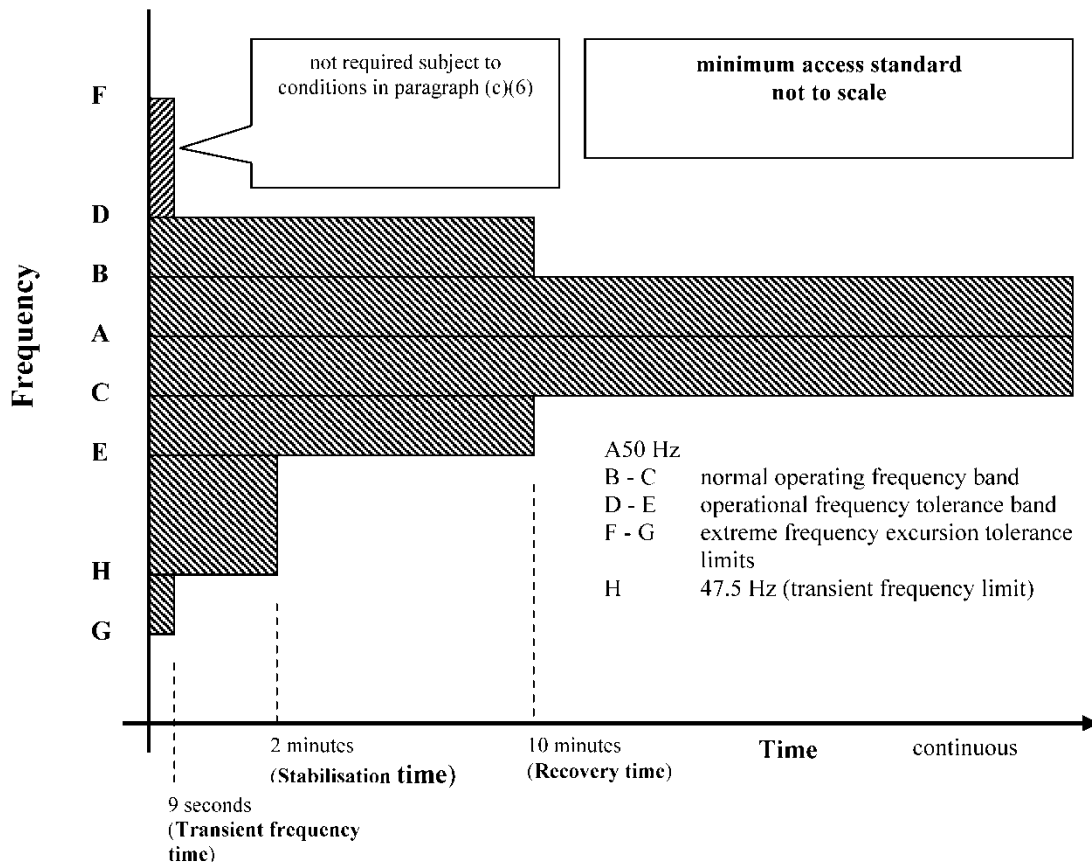
- (ii) the transient frequency limit to the lower bound of the operational frequency tolerance band for at least the stabilisation time;
- (iii) the lower bound of the operational frequency tolerance band to the lower bound of the normal operating frequency band for at least the recovery time including any time spent in the ranges under subparagraphs (i) and (ii);
- (iv) the normal operating frequency band for an indefinite period;
- (v) the upper bound of the normal operating frequency band to the upper bound of the operational frequency tolerance band for at least the recovery time including any time spent in the ranges under subparagraph (vi) unless the *generating system* has a *protection system* to trip a *generating unit* if the *frequency* exceeds a level agreed with *AEMO*; and
- (vi) if the Generator's *generating system*:
 - (A) is 30 MW or more; and
 - (B) does not have a *protection system* to trip the *generating unit* if the *frequency* exceeds a level agreed with *AEMO*,

the upper bound of the operational frequency tolerance band to the upper bound of the extreme frequency excursion tolerance limits (including an “island” condition) for at least the transient frequency time,

unless the rate of change of *frequency* is outside the range of -1 Hz to 1 Hz per second for more than one second or such other range as determined by the *Reliability Panel* from time to time.

Note:

The minimum access standard is illustrated in the following diagram. To the extent of any inconsistency between the diagram and paragraph (m), paragraph (m) prevails.]



[OPTION 3 – the *negotiated access standard*, being:

- (n) [Note: Determined on a case by case basis, but must be no less than the **minimum access standard**. ENERGEX may only accept a **negotiated access standard** provided ENERGEX and *AEMO* agree on the following:
- (i) the *negotiated access standard* is as close as practicable to the *automatic access standard* while respecting the need to protect the *plant* from damage;
 - (ii) the *frequency* would be unlikely to fall below the lower bound of the operational frequency tolerance band as a result of over-frequency tripping of *generating units*; and
 - (iii) there would be no material adverse impact on quality of *supply* to other *Network Users* or *power system security*.]

4.4 Generating system response to voltage disturbances (Rule S5.2.5.4)

[Note: select one of the following options. However, the access standard selected must include any operational arrangements necessary to ensure the Generator's *generating system* and each of its *generating units* will meet its agreed performance levels under abnormal *network* or *generating system* conditions]

[OPTION 1 – the *automatic access standard*, being:

- (o) The Generator's *generating system* and each of its *generating units* must be capable of *continuous uninterrupted operation* where a *power system* disturbance causes the *voltage* at the *connection point* to vary within the following ranges:
- (i) *voltages* over 110% for the durations permitted under clause S5.1a.4 of the *National Electricity Rules*;

- (ii) 90% to 110% of *normal voltage* continuously;
- (iii) 80% to 90% of *normal voltage* for a period of at least 10 seconds; and
- (iv) 70% to 80% of *normal voltage* for a period of at least 2 seconds.]

[**OPTION 2** – the *minimum access standard*, being:

- (p) The Generator's *generating system* including all operating *generating units* must be capable of *continuous uninterrupted operation* where a *power system* disturbance causes the *voltage* at the *connection point* to vary in the range of 90% to 110% of *normal voltage*, provided that the ratio of *voltage* to *frequency* (as measured at the *connection point* and expressed as percentage of *normal voltage* and a percentage of 50 Hz) does not exceed:
 - (i) a value of 1.15 for more than two minutes; or
 - (ii) a value of 1.10 for more than 10 minutes.]

[**OPTION 3** – the *negotiated access standard*, being:

- (q) [Note: Determined on a case by case basis, but must be no less than the **automatic access standard** except where, after taking into account:
 - (i) the expected performance of existing *networks* and *considered projects*;
 - (ii) the expected performance of existing *generating plant* and other relevant projects; and
 - (iii) any corresponding *performance standard* (or where no *performance standard* has been registered, the *access standard*) that allows *generating plant* to trip for *voltage* excursions in ranges specified under the *automatic access standards*,

ENERGEX and *AEMO* agree that:

- (iv) the *negotiated access standard* is as close as practicable to the *automatic access standard* while respecting the need to protect the *plant* from damage;
- (v) the *generating plant* that would be tripped as a result of any *voltage* excursion within levels specified by the *automatic access standard*, is not more than 100 MW or a greater limit based on what *AEMO* and the *Network Service Provider* both consider to be reasonable in the circumstances; and
- (vi) there would be no material adverse impact on the quality of *supply* to other *Network Users* or *power system security*.]

4.5 Generating system response to disturbances following contingency events(Rule S5.2.5.5)

- (r) In this clause 0 a fault includes:
 - (i) a fault of the relevant type having a metallic conducting path; and
 - (ii) a fault of the relevant type resulting from reclosure onto a fault by the operation of *automatic reclose equipment*.

[Note: select one of the following options. However, the *access standard* must include any operational arrangements to ensure the *generating system* including all operating *generating units* will meet its agreed performance levels under abnormal *network* or *generating system conditions*.]

[**OPTION 1** – the *automatic access standard*, being:

- (s) The Generator's *generating system* and each of its *generating units* must remain in *continuous uninterrupted operation* for a disturbance caused by an event that is:

- (i) a **credible contingency event** other than a fault referred to in subparagraph (iv);
- (ii) a three phase fault in a **transmission system** cleared by all relevant primary **protection systems**;
- (iii) a two phase to ground, phase to phase or phase to ground fault in a **transmission system** cleared in:
 - (A) the longest time expected to be taken for a relevant **breaker fail protection system** to clear the fault; or
 - (B) if a **protection system** referred to in subparagraph (A) is not installed, the greater of the time specified in column 4 of Table S5.1a.2 (or if none is specified, 430 milliseconds) and the longest time expected to be taken for all relevant primary **protection systems** to clear the fault; and
- (iv) a three phase, two phase to ground, phase to phase or phase to ground fault in a **distribution network** cleared in:
 - (A) the longest time expected to be taken for the **breaker fail protection system** to clear the fault; or
 - (B) if a **protection system** referred to in subparagraph (A) is not installed, the greater of 430 milliseconds and the longest time expected to be taken for all relevant primary **protection systems** to clear the fault,

provided that the event is not one that would **disconnect** the **generating unit** from the **power system** by removing **network elements** from service; and
- (t) subject to any changed **power system** conditions or energy source availability beyond the **Generator's** reasonable control, a **generating system** and each of its **generating units**, in respect of the types of fault described in subparagraphs (s)(ii) - (s)(iv), must supply to or absorb from the **network**:
 - (i) to assist the maintenance of **power system voltages** during the application of the fault, capacitive reactive current of at least the greater of its pre-disturbance reactive current and 4% of the maximum continuous current of the **generating system** including all operating **generating units** (in the absence of a disturbance) for each 1% reduction (from its pre-fault level) of **connection point voltage** during the fault;
 - (ii) after **disconnection** of the faulted element, **reactive power** sufficient to ensure that the **connection point voltage** is within the range for **continuous uninterrupted operation** under clause 0; and
 - (iii) from 100 milliseconds after **disconnection** of the faulted element, **active power** of at least 95% of the level existing just prior to the fault.]

Table S5.1a.2

Nominal voltage at fault location(kV)	Time(milliseconds)		
	Column 1	Column 2	Column 3
400kV and above	80	100	175
at least 250kV but less than 400kV	100	120	250
more than 100kV but less than 250kV	120	220	430

Nominal voltage at fault location(kV)	Time(millisecond)		
	Column 1	Column 2	Column 3
less than or equal 100 kV	As necessary to prevent <i>plant</i> damage and meet stability requirements		

[**OPTION 2** – the minimum access standard, being:

- (u) The Generator's *generating system* and each of its *generating units* must remain in *continuous uninterrupted operation* for the disturbance caused by an event that is:
 - (i) a *credible contingency event* other than a fault referred to in subparagraph (iii);
 - (ii) a single phase to ground, phase to phase or two phase to ground fault in a *transmission system* cleared in the longest time expected to be taken for all relevant primary *protection systems* to clear the fault unless *AEMO* and *ENERGEX* agree that:
 - (A) the total reduction of *generation* in the *power system* due to that fault would not exceed 100 MW;
 - (B) there is unlikely to be an adverse impact on quality of *supply* to other *Network Users*; and
 - (C) there is unlikely to be a material adverse impact on *power system security*; and
 - (iii) a single phase to ground, phase to phase or two phase to ground fault in a *distribution network*, cleared in the longest time expected to be taken for all relevant primary *protection systems* to clear the fault, unless *AEMO* and *ENERGEX* agree that:
 - (A) the total reduction of *generation* in the *power system* due to that fault would not exceed 100 MW;
 - (B) there is unlikely to be a material adverse impact on quality of *supply* to other *Network Users*; and
 - (C) there is unlikely to be a material adverse impact on *power system security*, provided that the event is not one that would *disconnect* the *generating unit* from the *power system* by removing *network elements* from service; and
- (v) subject to any changed *power system* conditions or energy source availability beyond the Generator's reasonable control after *disconnection* of the faulted element, each *generating system* must, in respect of the types of fault described in subparagraphs (u)(ii) and (u)(iii), deliver to the *network*, *active power* and supply or absorb leading or lagging *reactive power*, sufficient to ensure that the *connection point voltage* is within the range for *continuous uninterrupted operation* agreed under clause 0.]

[**OPTION 3** – the *negotiated access standard*, being:

- (w) [Note: Determined on a case by case basis, but must be no less than the minimum access standard. Note that *ENERGEX* and *AEMO*, in assessing negotiated access standards under this clause 0 must take into account the following:
 - (i) the expected performance of:
 - (A) existing *networks* and *considered projects*;
 - (B) existing *generating plant* and other relevant projects; and

- (C) **control systems** and **protection systems**, including auxiliary systems and **automatic reclose equipment**; and
- (ii) the expected range of **power system** operating conditions.
- (x) A proposed **negotiated access standard** may be accepted if the **connection** of the **plant** at the proposed access level would not cause other generating **plant** or **loads** to trip as a result of an event, when they would otherwise not have tripped for the same event.]

4.6 Quality of electricity generated and continuous uninterrupted operation (Rule S5.2.5.6)

The Generator must not **disconnect** its **generating system** including each of its operating **generating units** and **reactive plant**, from the **power system** as a result of **voltage** fluctuation, harmonic **voltage** distortion and **voltage** unbalance conditions at the **connection point** within the levels specified in clauses S5.1a.5, S5.1a.6 and S5.1a.7 of the **National Electricity Rules**.

4.7 Partial load rejection (Rule S5.2.5.7)

- (y) For the purposes of this clause 0 **minimum load** means minimum **sent out generation** for continuous stable operation.
- (z) This clause 0 does not apply to an **asynchronous generating unit**.

[Note: select one of the following options. The access standard must, however, record the actual partial load rejection performance.]

[**OPTION 1** – the **automatic access standard**, being:

- (aa) The Generator's **generating unit** must be capable of **continuous uninterrupted operation** during and following a **power system load** reduction of 30% from its predisturbance level or equivalent impact from separation of part of the **power system** in less than 10 seconds, provided that the **loading level** remains above minimum load.]

[**OPTION 2** – the **minimum access standard**, being:

- (bb) The Generator's **generating unit** must be capable of **continuous uninterrupted operation** during and following a **power system load** reduction of 5% or equivalent impact from separation of part of the **power system** in less than 10 seconds provided that the loading level remains above minimum load.]

[**OPTION 3** – the **negotiated access standard**, being:

- (cc) [Note: Determined on a case by case basis, but must be no less than the minimum access standard. Please note that under S5.2.5.7(e), the negotiation of access standards will require AEMO involvement.]]

4.8 Protection of generating systems from power system disturbances (Rule S5.2.5.8)

[Note: select one of the following options. The access standard must, however, include specification of conditions for which the **generating unit** or **generating system** must trip and must not trip.]

[**OPTION 1** – the **minimum access standard**, being:

- (dd) subject to paragraph (ee) and paragraph (ii), if the Generator's **generating system** or any of its **generating units** is required by the Generator or ENERGEX to be automatically **disconnected** from the **power system** in response to abnormal conditions arising from the **power system**, the relevant **protection system** or **control system** must not **disconnect** the **generating system** for:
 - (i) conditions for which it must remain in **continuous uninterrupted operation**; or

- (ii) conditions it must withstand under the *National Electricity Rules*; and
- (ee) If the Generator's *generating system* has a *nameplate rating* of 30MW or more, or is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, and is *connected* to a *transmission system* must have *facilities* to automatically and rapidly reduce its *generation*:
 - (i) by at least half, if the *frequency* at the *connection point* exceeds a level nominated by *AEMO* (not less than the upper limit of the *operational frequency tolerance band*) and the duration above this *frequency* exceeds a value nominated by *AEMO* where the reduction may be achieved:
 - (A) by reducing the output of the *generating system* within 3 seconds, and holding the output at the reduced level until the *frequency* returns to within the *normal operating frequency band*; or
 - (B) by disconnecting the *generating system* from the *power system* within 1 second; or
 - (ii) in proportion to the difference between the *frequency* at the *connection point* and a level nominated by *AEMO* (not less than the upper limit of the *operational frequency tolerance band*), such that the *generation* is reduced by at least half, within 3 seconds of the *frequency* reaching the upper limit of the *extreme frequency excursion tolerance limits*.]

[OPTION 2 – the *negotiated access standard*, being:

- (ff) [Note: Determined on a case by case basis, but must be no less than the minimum access standard.]]
- (gg) *AEMO* or the *Network Service Provider* may require that an *access standard* include a requirement for the *generating system* to be automatically *disconnected* by a local or remote control scheme whenever the part of the *network* to which it is *connected* has been *disconnected* from the *national grid*, forming an island that *supplies* a *Customer*.
- (hh) The *access standard* must include specification of conditions for which the *generating unit* or *generating system* must trip and must not trip.
- (ii) Notwithstanding clauses 0, 0, 0, 0 and 0, the Generator's *generating system* may be automatically *disconnected* from the *power system* under any of the following conditions:
 - (i) in accordance with an *ancillary services agreement* between the Generator and *AEMO*;
 - (ii) where a *load* that is not part of the *generating system* has the same *connection point* as the *generating system* and *AEMO* and ENERGETX agree that the *disconnection* would in effect be under-frequency *load shedding*;
 - (iii) where the *generating system* is automatically *disconnected* under paragraph (dd) [the minimum access standard] or clause 0;
 - (iv) where the Generator's *generating system* is automatically *disconnected* under clause 0 due to a failure of the *generating plant*; or
 - (v) in accordance with an agreement between the Generator and ENERGETX (including an agreement in relation to an emergency control scheme under clause S5.1.8 of the

National Electricity Rules) to provide a service that *AEMO* agrees is necessary to maintain or restore *power system security* in the event of a specified *contingency event*.

- (jj) ENERGEN is not liable for any loss or damage incurred by the Generator or any other person as a consequence of a fault on either the *power system*, or within the Generator's *facility*.

4.9 Protection systems that impact on power system security (Rule S5.2.5.9)

[Note: select one of the following options.]

[**OPTION 1** – the *automatic access standard*, being:

- (kk) Subject to clauses S5.1.9(k) and S5.1.9(l) of the *National Electricity Rules*, primary *protection systems* must be provided to *disconnect* from the *power system* any faulted element in a *generating system* and in protection zones that include the *connection point* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1) of the *National Electricity Rules*;
- (ll) Each primary *protection system* must have sufficient redundancy to ensure that a faulted element within its protection zone is *disconnected* from the *power system* within the applicable *fault clearance time* with any single protection element (including any communications *facility* upon which that *protection system* depends) out of service; and
- (mm) *breaker fail protection systems* must be provided to clear faults that are not cleared by the circuit breakers controlled by the primary *protection system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(1) of the *National Electricity Rules*.
- (nn) In relation to an *access standard* under this paragraphs (kk),(ll) and (mm), the Generator must provide redundancy in the primary *protection systems* under paragraph (ll) and provide *breaker fail protection systems* under paragraph (mm) if *AEMO* or ENERGEN consider that a lack of these *facilities* could result in:
- (i) a material adverse impact on *power system security* or quality of *supply* to other *Network Users*; or
 - (ii) a reduction in inter-regional or intra-regional power transfer capability, through any mechanism including:
 - (iii) consequential tripping of, or damage to, other *network* equipment or *facilities* of other *Network Users*, that would have a *power system security* impact; or
 - (iv) instability that would not be detected by other *protection systems* in the *network*.]

[**OPTION 2** – the *minimum access standard*, being:

- (oo) Subject to clauses S5.1.9(k) and S5.1.9(l) of the *National Electricity Rules*, *protection systems* must be provided to *disconnect* from the *power system* any faulted element within a *generating system* and in protection zones that include the *connection point* within the applicable *fault clearance time* determined under clause S5.1.9(a)(2) of the *National Electricity Rules*; and
- (pp) if a *fault clearance time* determined under clause S5.1.9(a)(2) of the *National Electricity Rules* for a protection zone is less than 10 seconds, a *breaker fail protection system* must be provided to clear from the *power system* any fault within that protection zone that is not cleared by the circuit breakers controlled by the primary *protection system* within the applicable *fault clearance time* determined under clause S5.1.9(a)(3) of the *National Electricity Rules*.]

[**OPTION 2** – the *negotiated access standard*, being:

- (qq) [Note: Determined on a case by case basis, but must be no less than the minimum access standard.]]
- (rr) ENERGEX and the Generator must cooperate in the design and implementation of *protection systems* to comply with this clause 0, including cooperation on:
- (i) the use of *current transformer* and *voltage transformer* secondary circuits (or equivalent) of one party by the *protection system* of the other;
 - (ii) tripping of one party's circuit breakers by a *protection system* of the other party; and
 - (iii) co-ordination of *protection system* settings to ensure inter-operation.
- (ss) The *protection system* design referred to in paragraph [(kk) / (mm)] must:
- (i) be coordinated with other *protection systems*;
 - (ii) avoid consequential *disconnection* of other *Network Users' facilities*; and
 - (iii) take into account existing obligations of ENERGEX under *connection agreements* with other *Network Users*.

4.10 Protection to trip plant for unstable operation (Rule S5.2.5.10)

[Note: select one of the following options.]

[OPTION 1 – the *automatic access standard*, being:

If the Generator's *generating system* is

- (tt) a *synchronous generating unit*, it must have a *protection system* to *disconnect* it promptly when a condition that would lead to pole slipping is detected in order to prevent pole slipping or other conditions where a *generating unit* causes *active power, reactive power* or *voltage* at the *connection point* to become unstable as assessed in accordance with the *power system* stability guidelines under clause 4.3.4(h) of the *National Electricity Rules*; and
- (uu) an *asynchronous generating unit*, it must have a *protection system* to *disconnect* it promptly for conditions where the *active power, reactive power* or *voltage* at the *connection point* becomes unstable as assessed in accordance with the guidelines for *power system* stability under clause 4.3.4(h) of the *National Electricity Rules*.]

[OPTION 2 – the *minimum access standard*, being:

- (vv) A *generating unit* of the Generator must not cause a *voltage* disturbance at the *connection point* due to sustained unstable behaviour of more than the maximum level specified in Table 7 of *Australian Standard AS/NZS 61000.3.7:2001*.]

[OPTION 3 – the *negotiated access standard*, being:

- (ww) [Note: Determined on a case by case basis and set out here, but must be no less than the minimum access standard.
- (xx) If ENERGEX and the Generator agree, a *protection system* may also trip any other part of the *generating system* in order to cease the instability.
- (yy) Notwithstanding paragraph (xx), a *protection system* must be provided in the *access standard* to trip the affected *generating unit* where:
- (i) ENERGEX considers it necessary to prevent consequential tripping of, or damage to, other *generating units, network* equipment or other *Network Users' facilities*, or

- (ii) *AEMO* considers it necessary to prevent unstable operation having an adverse impact on *power system security*.]

4.11 Frequency control (Rule S5.2.5.11)

- (zz) For the purpose of this clause 0:
- (i) *maximum operating level* means in relation to:
- (A) a *non-scheduled generating unit*, the maximum *sent out generation* consistent with its *nameplate rating*;
- (B) a *scheduled generating unit* or *semi-scheduled generating unit*, the maximum *sent out generation*;
- (C) a *non-scheduled generating system*, the combined maximum *sent out generation* consistent with the *nameplate ratings* of its in-service *generating units*; and
- (D) a *scheduled generating system* or *semi-scheduled generating system*, the combined maximum *sent out generation* of its in-service *generating units*.
- (ii) *minimum operating level* means in relation to:
- (A) a *non-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation;
- (B) a *scheduled generating unit* or *semi-scheduled generating unit*, its minimum *sent out generation* for continuous stable operation consistent with its *registered bid and offer data*;
- (C) a *non-scheduled generating system*, the combined *minimum operating level* of its in-service *generating units*; and
- (D) a *scheduled generating system* or *semi-scheduled generating system*, the combined minimum *sent out generation* of its in-service *generating units*, consistent with its *registered bid and offer data*.
- (iii) *pre-disturbance level* means in relation to a *generating unit* and a *frequency* disturbance, the *generating unit's* level of output just before the *system frequency* first exceeds the upper or lower limit of the *normal operating frequency band* during the *frequency* disturbance.
- (iv) *system frequency* means the *frequency* of the *transmission system* or *distribution system* to which the *generating unit* or *generating system* is *connected*.

[Note: select one of the following options.]

[**OPTION 1** – the *automatic access standard*, being:

- (aaa) The Generator's *generating system's active power* transfer to the *power system* must not:
- (i) increase in response to a rise in system frequency; or
- (ii) decrease in response to a fall in system frequency;
- (bbb) The Generator's *generating system* must be capable of automatically reducing its *active power* transfer to the *power system*:
- (i) whenever the system frequency exceeds the upper limit of the *normal operating frequency band*;

- (ii) by an amount that equals or exceeds the least of:
 - (A) 20% of its maximum operating level times the *frequency* difference between system frequency and the upper limit of the *normal operating frequency band*;
 - (B) 10% of its maximum operating level; and
 - (C) the difference between the Generator's *generating unit's* pre-disturbance level and minimum operating level, but zero if the difference is negative; and
- (iii) sufficiently rapidly for the Generator to be in a position to offer measurable amounts of lower services to the *spot market* for *market ancillary services*; and
- (ccc) The Generator's *generating system* must be capable of automatically increasing its *active power* transfer to the *power system*:
 - (i) whenever the system frequency falls below the lower limit of the *normal operating frequency band*;
 - (ii) by the amount that equals or exceeds the least of:
 - (A) 20% of its maximum operating level times the percentage *frequency* difference between the lower limit of the *normal operating frequency band* and system frequency;
 - (B) 5% of its maximum operating level; and
 - (C) one third of the difference between the Generator's *generating unit's* maximum operating level and pre-disturbance level, but zero if the difference is negative; and
 - (iii) sufficiently rapidly for the Generator to be in a position to offer measurable amounts of raise services to the *spot market* for *market ancillary services*.]

[**OPTION 2** – the *minimum access standard*, being:

- (ddd) The Generator's *generating system* under relatively stable input energy, *active power* transfer to the *power system* must not:
 - (i) increase in response to a rise in system frequency; and
 - (ii) decrease more than 2% per Hz in response to a fall in system frequency.]

[**OPTION 3** – the *negotiated access standard*, being:

[Note: Determined on a case by case basis and set out here, but must be no less than the minimum access standard.

- (eee) If the Generator proposes a negotiated access standard with respect to paragraph 4(ddd)(ii), the Generator must demonstrate to *AEMO* that the proposed increase and decrease in *active power* transfer to the *power system* are as close as practicable to the *automatic access standard* for that *plant*.
- (fff) The *negotiated access standard* must record the agreed values for maximum operating level and minimum operating level, and where relevant the method of determining the values and the values for the Generator's *generating system* must take into account its in-service *generating units*.]
- (ggg) Each *control system* used to satisfy this clause 0 must be *adequately damped*.

- (hhh) The amount of a relevant *market ancillary service* for which the *plant* may be registered must not exceed the amount that would be consistent with the *performance standard* registered in respect of this requirement.

4.12 Impact on network capability (Rule S5.2.5.12)

[Note: select one of the following options.

If ENERGEX considers that *power transfer capabilities* of its *network* would be increased through provision of additional *control system facilities* to a *generating system* (such as a *power system* stabiliser), ENERGEX may negotiate with the Generator for the provision of such additional *control system facilities* as a commercial arrangement.]

[**OPTION 1** – the *automatic access standard*, being:

- (iii) The Generator's *generating system* must have *plant* capabilities and *control systems* that are sufficient so that when *connected* it does not reduce any *inter-regional* or *intra-regional power transfer capability* below the level that would apply if the Generator's *generating system* were not *connected*.]

[**OPTION 2** – the *minimum access standard*, being:

- (jjj) The Generator's *generating system* must have *plant* capabilities, *control systems* and operational arrangements sufficient to ensure there is no reduction in:
- (i) the ability to *supply Customer load* as a result of a reduction in *power transfer capability*; and
 - (ii) *power transfer capabilities* into a region by more than the combined *sent out generation* of its *generating units*.]

[**OPTION 3** – the *negotiated access standard*, being:

[Note: Determined on a case by case basis and set out here, but must be no less than the minimum access standard.

- (kkk) In carrying out assessments of proposed *negotiated access standards* under this clause 0, ENERGEX and *AEMO* must take into account:
- (i) the expected performance of:
 - (A) existing *networks* and *considered projects*;
 - (B) existing *generating plant* and other relevant projects; and
 - (C) *control systems* and *protection systems*, including *automatic reclose equipment*; and
 - (ii) the expected range of *power system* operating conditions.
- (lll) The *negotiated access standard* under this clause 0 must :
- (i) include:
 - (A) *control systems* to minimise any reduction in *power transfer capabilities*; and
 - (B) operational arrangements, including curtailment of the Generator's *generating system's* output if necessary to ensure that the *generating plant* is operated in a way that meets at least the *minimum access standard* under abnormal *network* and *generating system* conditions, so that *power system security* can be maintained; and

- (ii) detail the *plant* capabilities, *control systems* and operational arrangements that will be maintained by the Generator, notwithstanding that change to the *power system*, but not changes to the *generating system*, may reduce the efficacy of the *plant* capabilities, *control systems* and operational arrangements over time.]]

4.13 Voltage and reactive power control (Rule S5.2.5.13)

(mmm) For the purpose of this clause 0:

- (i) *rise time* means in relation to a step response test or simulation of a *control system*, the time taken for an output quantity to rise from 10% to 90% of the maximum change induced in that quantity by a step change of an input quantity.
- (ii) *settling time* means in relation to a step response test or simulation of a *control system*, the time measured from initiation of a step change in an input quantity to the time when the magnitude of error between the output quantity and its final settling value remains less than 10% of:
 - (A) if the sustained change in the quantity is less than half of the maximum change in that output quantity, the maximum change induced in that output quantity; or
 - (B) the sustained change induced in that output quantity.
- (iii) *static excitation system* means in relation to a *synchronous generating unit*, an *excitation control system* that does not use rotating machinery to produce the field current.

(nnn) A limiting device provided under this clause 0 must:

- (i) not detract from the performance of any *power system* stabiliser; and
- (ii) be co-ordinated with all *protection systems*.

(ooo) The assessment of impact of the *generating units* on *power system* stability and damping of *power system* oscillations shall be in accordance with the guidelines for *power system* stability established by AEMO (in consultation with *Registered Participants*) under clause 4.3.4(h) of the *National Electricity Rules*.

[Note: select one of the following options.

ENERGEX may require that the design and operation of the control systems of a *generating unit* or *generating system* be coordinated with the existing *voltage control systems* of ENERGEX and of other *Network Users*, in order to avoid or manage interactions that would adversely impact on ENERGEX and other *Network Users*. Any such requirements imposed by ENERGEX must be recorded in the *access standard*.]

[**OPTION 1** – the *automatic access standard*, being:

(ppp) The Generator's *generating system* must have *plant* capabilities and *control systems* sufficient to ensure that:

- (i) *power system* oscillations, for the frequencies of oscillation of the *generating unit* against any other *generating unit*, are *adequately damped*;
- (ii) operation of the *generating system* does not degrade the damping of any critical mode of oscillation of the *power system*; and
- (iii) operation of the *generating system* does not cause instability (including hunting of *tap-changing transformer control systems*) that would adversely impact other *Registered Participants*;

- (qqq) a **control system** must have:
- (i) for the purposes of disturbance monitoring and testing, permanently installed and operational, monitoring and recording **facilities** for key variables including each input and output; and
 - (ii) **facilities** for testing the **control system** sufficient to establish its dynamic operational characteristics;
- (rrr) a synchronous **generating system** must have an **excitation control system** that:
- (i) regulates **voltage** at the **connection point** or another agreed location in the **power system** (including within the **generating system**) to within 0.5% of the setpoint;
 - (ii) is able to operate the stator continuously at 105% of **nominal voltage** with **rated active power** output;
 - (iii) regulates **voltage** in a manner that helps to support **network voltages** during faults and does not prevent ENERGEX from achieving the requirements of clause S5.1a.3 (System Stability) and clause S5.1a.4 (Power Frequency Voltage) of the **National Electricity Rules**;
 - (iv) allows the **voltage** setpoint to be continuously controllable in the range of at least 95% to 105% of **normal voltage** at the **connection point** or the agreed location, without reliance on a **tap-changing transformer**;
 - (v) has limiting devices to ensure that a **voltage** disturbance does not cause the **generating unit** to trip at the limits of its operating capability;
 - (vi) has an excitation ceiling **voltage** of at least:
 - (A) for a static excitation system, 2.3 times; or
 - (B) for other **excitation control systems**, 1.5 times,
 the excitation required to achieve **generation** at the **nameplate rating** for rated **power factor**, rated speed and **nominal voltage**;
 - (vii) has settling **times** for a step change of **voltage** setpoint or **voltage** at the location agreed under sub-paragraph (i) of:
 - (A) generated **voltage** less than 2.5 seconds for a 5% **voltage** disturbance with the **generating unit** not **synchronised**;
 - (B) **active power, reactive power** and **voltage** less than 5.0 seconds for a 5% **voltage** disturbance with the **generating unit synchronised**, from an operating point where the **voltage** disturbance would not cause any limiting device to operate; and
 - (C) in respect of each limiting device, **active power, reactive power** and **voltage** less than 7.5 seconds for a 5% **voltage** disturbance with the **generating unit synchronised**, when operating into a limiting device from an operating point where a **voltage** disturbance of 2.5% would just cause the limiting device to operate;
 - (viii) is able to increase field **voltage** from rated field **voltage** to the excitation ceiling **voltage** in less than:
 - (A) 0.05 second for a static excitation system; or

- (B) 0.5 second for other *excitation control systems*;
- (ix) has a *power system* stabiliser with sufficient flexibility to enable damping performance to be maximised, with characteristics as described in paragraph (tt); and
- (x) has reactive current compensation settable for boost or droop; and
- (sss) a *generating system*, other than one comprised of *synchronous generating units*, must have a *voltage control system* that:
 - (i) regulates *voltage* at the *connection point* or an agreed location in the *power system* (including within the *generating system*) to within 0.5% of its setpoint;
 - (ii) regulates *voltage* in a manner that helps to support *network voltages* during faults and does not prevent ENERGEX from achieving the requirements of clause S5.1a.3 (System Stability) and clause S5.1a.4 (Power Frequency Voltage) of the *National Electricity Rules*;
 - (iii) allows the *voltage* setpoint to be continuously controllable in the range of at least 95% to 105% of *normal voltage* at the *connection point* or agreed location in the *power system*, without reliance on a *tap changing transformer*;
 - (iv) has limiting devices to ensure that a *voltage* disturbance does not cause the *generating unit* to trip at the limits of its operating capability;
 - (v) with the *generating system connected* to the *power system*, has settling *times* for *active power*, *reactive power* and *voltage* due to a step change of *voltage* setpoint or *voltage* at the location agreed under clause sub-paragraph (i), of less than:
 - (A) 5.0 seconds for a 5% *voltage* disturbance with the *generating system connected* to the *power system*, from an operating point where the *voltage* disturbance would not cause any limiting device to operate; and
 - (B) 7.5 seconds for a 5% *voltage* disturbance with the *generating system connected* to the *power system*, when operating into any limiting device from an operating point where a *voltage* disturbance of 2.5% would just cause the limiting device to operate;
 - (vi) has *reactive power* rise time, for a 5% step change in the *voltage* setpoint, of less than 2 seconds;
 - (vii) has a *power system* stabiliser with sufficient flexibility to enable damping performance to be maximised, with characteristics as described in paragraph (tt); and
 - (viii) has reactive current compensation.
- (tt) A *power system* stabiliser provided under this clause 0 must have:
 - (i) for a *synchronous generating unit*, measurements of rotor speed and *active power* output of the *generating unit* as inputs, and otherwise, measurements of *power system frequency* and *active power* output of the *generating unit* as inputs;
 - (ii) two washout filters for each input, with ability to bypass one of them if necessary;
 - (iii) sufficient (and not less than two) lead-lag transfer function blocks (or equivalent number of complex poles and zeros) with adjustable gain and time-constants, to compensate fully for the phase lags due to the *generating plant*;

- (iv) an output limiter, which for a *synchronous generating unit* is continually adjustable over the range of –10% to +10% of stator *voltage*;
- (v) monitoring and recording *facilities* for key variables including inputs, output and the inputs to the lead-lag transfer function blocks; and
- (vi) *facilities* to permit testing of the *power system* stabiliser in isolation from the *power system* by injection of test signals, sufficient to establish the transfer function of the *power system* stabiliser.]

[**OPTION 2** – the *minimum access standard*, being:

- (uuu) The Generator's *generating system* must have *plant* capabilities and *control systems*, including, if appropriate, a *power system* stabiliser, sufficient to ensure that:
 - (i) *power system* oscillations, for the frequencies of oscillation of the *generating unit* against any other *generating unit*, are *adequately damped*;
 - (ii) operation of the *generating unit* does not degrade:
 - (A) any mode of oscillation that is within 0.3 nepers per second of being unstable, by more than 0.01 nepers per second; and
 - (B) any other mode of oscillation to within 0.29 nepers per second of being unstable; and
 - (iii) operation of the *generating unit* does not cause instability (including hunting of *tap-changing transformer control systems*) that would adversely impact other *Registered Participants*;
- (vvv) if the Generator's *generating system* is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, it must have *facilities* for testing its *control systems* sufficient to establish their dynamic operational characteristics;
- (www) the Generator's *generating unit* or *generating system* must have *facilities*:
 - (i) where the *connection point nominal voltage* is 100 kV or more, to regulate *voltage* in a manner that does not prevent ENERGEX from achieving the requirements of clause S5.1a.3 (System Stability) and clause S5.1a.4 (Power Frequency Voltage) of the *National Electricity Rules*; or
 - (ii) where the *connection point nominal voltage* is less than 100 kV, to regulate *voltage* or *reactive power* or *power factor* in a manner that does not prevent ENERGEX from achieving the requirements of clause S5.1a.3 (System Stability) and clause S5.1a.4 (Power Frequency Voltage) of the *National Electricity Rules*,
 and sufficient to achieve the performance agreed in respect of clauses 0, 0, 0, 0, 0, 0 and 0;
- (xxx) a *synchronous generating unit*, that is part of a *generating system* comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, must have an *excitation control system* that:
 - (i) regulates *voltage*, *power factor* or *reactive power* as agreed with ENERGEX and *AEMO*;
 - (ii) has excitation ceiling *voltage* of at least 1.5 times the excitation required to achieve *generation* at the *nameplate rating* for rated *power factor*, rated speed and *nominal voltage*;

- (iii) subject to co-ordination under sub-paragraph (i), has a settling *time* of less than 5.0 seconds for a 5% *voltage* disturbance with the *generating unit* synchronised, from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and
 - (iv) has over and under excitation limiting devices sufficient to ensure that a *voltage* disturbance does not cause the *generating unit* to trip at the limits of its operating capability; and
- (yyy) if the Generator's *generating system* is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more and which are *asynchronous generating units*, must have a *control system* that:
- (i) regulates *voltage, power factor* or *reactive power* as agreed with ENERGEX and *AEMO*;
 - (ii) subject to co-ordination under sub-paragraph (i), has a settling *time* less than 7.5 seconds for a 5% *voltage* disturbance with the *generating unit* electrically connected to the *power system* from an operating point where such a *voltage* disturbance would not cause any limiting device to operate; and
 - (iii) has limiting devices to ensure that a *voltage* disturbance would not cause the *generating unit* to trip at the limits of its operating capability.]

[**OPTION 3** – the *negotiated access standard*, being:

[Note: Determined on a case by case basis and set out here.

- (zzz) If a *generating system* cannot meet the *automatic access standard*, the Generator must demonstrate to ENERGEX why that standard could not be reasonably achieved and propose a *negotiated access standard*.
- (aaaa) The *negotiated access standard* proposed by the Generator under paragraph (zzz) must be the highest level that the *generating system* can reasonably achieve, including by installation of additional dynamic *reactive power* equipment, and through optimising its *control systems*.]]
- (bbbb) General requirements
 - (i) A limiting device provided under paragraphs (b) and (c) must:
 - (A) not detract from the performance of any *power system* stabiliser; and
 - (B) be co-ordinated with all *protection systems*.
 - (ii) Energex may require that the design and operation of the *control systems* of a *generating unit* or *generating system* be coordinated with the existing *voltage* control systems of Energex and of other *Network Users*, in order to avoid or manage interactions that would adversely impact on Energex and other *Network Users*.
 - (iii) Any requirements imposed by Energex under paragraph (i) must be recorded in the *access standard*.
 - (iv) The assessment of impact of the *generating units* on *power system* stability and damping of *power system* oscillations shall be in accordance with the guidelines for *power system* stability established under clause 4.3.4(h).

4.14 Active power control (Rule S5.2.5.14)

(cccc) Each *control system* used to satisfy the requirements of paragraph [(dddd) [OPTION 1]/ (eeee) [OPTION 2]] must be *adequately damped*.

[Note: select one of the following options.]

[OPTION 1 – the *automatic access standard*, being:

(dddd) If the Generator's *generating system* is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, it must have an *active power control system* capable of:

- (i) for a *scheduled generating unit* or a *scheduled generating system*:
 - (A) maintaining and changing its *active power* output in accordance with its *dispatch instructions*; and
 - (B) ramping its *active power* output linearly from one level of *dispatch* to another;
- (ii) subject to energy source availability, for a *non-scheduled generating unit* or *non-scheduled generating system*:
 - (A) automatically reducing or increasing its *active power* output within 5 minutes, at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*, subject to sub-paragraph (C);
 - (B) automatically limiting its *active power* output, to below the level specified in sub-paragraph (A); and
 - (C) not changing its *active power* output within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*; and
- (iii) subject to energy source availability, for a *semi-scheduled generating unit* or a *semi-scheduled generating system*:
 - (A) automatically reducing or increasing its *active power* output within 5 minutes at a constant rate, to or below the level specified in an instruction electronically issued by a *control centre*;
 - (B) automatically limiting its *active power* output, to or below the level specified in sub-paragraph (A);
 - (C) not changing its *active power* output within 5 minutes by more than the raise and lower amounts specified in an instruction electronically issued by a *control centre*; and
 - (D) ramping its *active power* output linearly from one level of *dispatch* to another.]

[OPTION 2 – the *minimum access standard*, being:

(eeee) If the Generator's *generating system* is comprised of *generating units* with a combined *nameplate rating* of 30 MW or more, it must have an *active power control system* capable of:

- (i) for a *scheduled generating unit* or a *scheduled generating system*, maintaining and changing its *active power* output in accordance with its *dispatch instructions*;
- (ii) for a *non-scheduled generating system*:

- (A) reducing its **active power** output, within 5 minutes, to or below the level required to manage **network** flows that is specified in a verbal instruction issued by the **control centre**;
 - (B) limiting its **active power** output, to or below the level specified in subparagraph (A);
 - (C) subject to energy source availability, ensuring that the change of **active power** output in a 5 minute period does not exceed a value specified in a verbal instruction issued by the **control centre**; and
 - (D) being upgraded to receive electronic instructions from the **control centre** and fully implement them within 5 minutes; and
- (iii) for a **semi-scheduled generating unit** or a **semi-scheduled generating system**, maintaining and changing its **active power** output in accordance with its **dispatch instructions**.]

[OPTION 3 – the **negotiated access standard**, being:

[Note: Determined on a case by case basis and set out here.

- (ffff) The **negotiated access standard** may provide that if the number or frequency of verbal instructions becomes difficult for a **control centre** to manage, **AEMO** may require the Generator to upgrade its **facilities** to receive electronic instructions and fully implement them within 5 minutes.
- (gggg) The **negotiated access standard** must document to **AEMO**'s satisfaction any operational arrangements necessary to manage **network** flows that may include a requirement for the Generator's **generating system** to be operated in a manner that prevents its output changing within 5 minutes by more than an amount specified by a **control centre**.]

5. Monitoring and control requirements (Rule S5.2.6)

5.1 Remote Monitoring (Rule S5.2.6.1)

[Note: select one of the following options.]

[OPTION 1 – the **automatic access standard** being:

[Note: if the Generator's plant is a **scheduled generating unit**; **scheduled generating system**; **non-scheduled generating unit** with a **nameplate rating** of 30 MW or more; **non-scheduled generating system** with a combined **nameplate rating** of 30 MW or more; **semi-scheduled generating unit**; or **semi-scheduled generating system**, the following paragraph applies:

- (a) The Generator's [insert relevant defined term from Note above] must have **remote monitoring equipment** to transmit to **AEMO's control centres** in real time in accordance with clause 4.11 of the **National Electricity Rules** the quantities that **AEMO** reasonably requires to discharge its **market** and **power system security** functions set out in Chapters 3 and 4 of the **National Electricity Rules**.]

[Note: the quantities referred to in paragraph (a) that **AEMO** may request are set out in clause S5.2.6.1(b) of the **National Electricity Rules**]

[OPTION 2 – the **minimum access standard**, being:

[Note: if the Generator's plant is a *scheduled generating unit*; *scheduled generating system*; *non-scheduled generating system* with a combined *nameplate rating* of 30 MW or more; *semi-scheduled generating unit*; or *semi-scheduled generating system*, the following paragraph applies:

- (b) The Generator's [insert relevant defined term from Note above] must have *remote monitoring equipment* to transmit to *AEMO's control centres* in real time:
- (i) the *active power* output of the [*generating unit* / *generating system* [as applicable]];
 - (ii) [if *connected* to a *transmission system*, the *reactive power* output of the [*generating unit* / *generating system* [as applicable]]]; and
 - (iii) [if a wind farm type of *generating system*:
 - (A) number of units operating;
 - (B) wind speed; and
 - (C) wind direction],

in accordance with clause 4.11 of the *National Electricity Rules*.]

[**OPTION 3** – the *negotiated access standard*, being:

[Note: Determined on a case by case basis and set out here.]]

5.2 Communications equipment (Rule S5.2.6.2)

[Note: select one of the following options.]

[**OPTION 1** – the *automatic access standard* being:

- (c) The Generator must:
- (i) provide and maintain two separate telephone *facilities* using independent telecommunications service providers, for the purposes of operational communications between the Generator's responsible operator notified to *AEMO* under clause 4.11.3(a) of the *National Electricity Rules* and *AEMO's control centre*; and
 - (ii) provide electricity supplies for *remote monitoring equipment* and *remote control equipment* installed in relation to its *generating system* capable of keeping such equipment available for at least 3 hours following total loss of *supply* at the *connection point* for the relevant *generating unit*.]

[**OPTION 2** – the *minimum access standard*, being:

- (d) The Generator must:
- (i) provide and maintain a telephone facility for the purposes of operational communications between the Generator's responsible operator notified to *AEMO* under clause 4.11.3(a) of the *National Electricity Rules* and *AEMO's control centre*; and
 - (ii) provide electricity supplies for *remote monitoring equipment* and *remote control equipment* installed in relation to its *generating system* capable of keeping such equipment available for at least 1 hour following total loss of *supply* at the *connection point* for the relevant *generating unit*.]

[**OPTION 3** – the *negotiated access standard*, being:

[Note: Determined on a case by case basis and set out here.

ENERGEX or **AEMO** may, acting reasonably, require that the **negotiated access standard** include a requirement that a back-up telephone facility be independent of commercial telephone service providers. In such cases, ENERGEX must provide and maintain the separate facility on a cost-recovery basis only through the charge for **connection**.]

The **negotiated access standard** must include the following:

- (e) The Generator must provide communications paths (with appropriate redundancy) from the **remote monitoring equipment** or **remote control equipment** installed for each of its **generating systems** as appropriate, to a interface for communication purposes in a location reasonably acceptable to ENERGEX at the relevant **generation** facility.
- (f) Communications systems between the interface for communication purposes under paragraph (e) and the **control centre** must be the responsibility of ENERGEX unless otherwise agreed by the Generator and ENERGEX.
- (g) The Generator must provide accommodation and secure power supplies for communications **facilities** provided by ENERGEX under this clause 0.

6. Power station auxiliary supplies (Rule S5.2.7)

Where a **generating system** of the Generator takes its auxiliary supplies via a **connection point** through which its **generation** is not transferred to the **network**, the **access standards** are those established under [Schedule [*] [(Customer Performance Standards and Technical Requirements)] of this Agreement / clause S5.3.5 of the **National Electricity Rules**] as if the Generator were a **Market Customer**.

7. Fault current (Rule S5.2.8)

[Note: select one of the following options.]

[OPTION 1 – the **automatic access standard** being:

- (a) The contribution of the Generator's **generating system** to the fault current on the **connecting network** through its **connection point** must not exceed the contribution level that will ensure that the total fault current can be safely interrupted by the circuit breakers of the **connecting network** and safely carried by the **connecting network** for the duration of the applicable **breaker fail protection system fault clearance times**, as specified for the relevant **connection point** by ENERGEX;
- (b) A **generating system's connected plant** must be capable of withstanding fault current through the **connection point** up to the higher of:
 - (i) [*]; and

[Note: insert the level, being the highest expected single phase and three phase fault levels at the **connection point** with the **generating system** not connected, notified by ENERGEX to **AEMO** in accordance with clause S5.2.4(e1)(1) of the **National Electricity Rules**]

 - (ii) the highest level of current at the **connection point** that can be safely interrupted by the circuit breakers of the **connecting network** and safely carried by the **connecting network** for the duration of the applicable **breaker fail protection system fault clearance times**, as specified by ENERGEX; and
- (c) a circuit breaker provided to isolate a **generating unit** or **generating system** from the **network** must be capable of breaking, without damage or restrike, the maximum fault currents that could

reasonably be expected to flow through the circuit breaker for any fault in the **network** or in the **generating unit** or **generating system**, as specified in the **connection agreement**.]

[**OPTION 2** – the **minimum access standard**, being:

- (d) The Generator's **generating system** does not need to limit fault current contribution;
- (e) The **generating system's connected plant** must be capable of withstanding fault current through the **connection point** up to [*]; and

[Note: insert the level, being the highest expected single phase and three phase fault levels at the **connection point** with the **generating system** not connected, notified by ENERGEX to **AEMO** in accordance with clause S5.2.4(e1)(1) of the **National Electricity Rules**]

- (f) a circuit breaker provided to isolate a **generating unit** or **generating system** from the **network** must be capable of breaking, without damage or restrike, the maximum fault currents that could reasonably be expected to flow through the circuit breaker for any fault in the **network** or in the **generating unit** or **generating system**, as specified in this Agreement.]

[**OPTION 3** – the **negotiated access standard**, being:

[Note: Determined on a case by case basis and set out here.]

- (g) In negotiating a **negotiated access standard**, the Rules require ENERGEX to consider alternative **network** configurations in the determination of the applicable fault current level and must prefer those options that maintain an equivalent level of service to other **Network Users** and which, in the opinion of the Generator, impose the least obligation on the Generator.
- (h) In carrying out assessments of proposed **negotiated access standards** under this clause 7, ENERGEX must take into account, without limitation:
 - (i) the expected performance of existing **networks** and **considered projects**;
 - (ii) the expected performance of existing **generating plant** and other relevant projects; and
 - (iii) the expected range of **power system** operating conditions.]

8. Generator Technical Conditions

8.1 Settings of protection and control systems (Rule S5.2.2)

- (a) The Generator must only apply settings to a *control system* or a *protection system* that are necessary to comply with performance requirements of this Schedule if the settings have been approved in writing by ENERGEX and, if the requirement is one that would involve *AEMO*, also by *AEMO*. The Generator *must* not allow its *generating unit* to *supply* of electricity to the *power system* without such prior approval.
- (b) If the Generator seeks approval from ENERGEX to apply or change a setting, approval must not be withheld unless ENERGEX or, if the requirement is one that would involve *AEMO*, *AEMO* reasonably determines that the changed setting would cause the *generating unit* to not comply with the relevant *performance standard* or cause an *inter-regional or intra-regional power transfer capability* to be reduced.
- (c) ENERGEX must consult with the Generator and may request in writing that a setting be applied in accordance with a determination made in circumstances where ENERGEX or, if the technical requirement is one that would involve *AEMO*, *AEMO* reasonably determines that a setting of a *control system* or *protection system* of the *generating unit* needs to change to comply with the relevant *performance standard* or to maintain or restore an *inter-regional* or *intra-regional power transfer capability*. ENERGEX may also request a test to verify the performance of the relevant *plant* with the new setting.
- (d) If ENERGEX issues a request contemplated by paragraph (c) to the Generator, the Generator must arrange for the notified setting to be applied as requested and for a test to be conducted as requested. After the test, the Generator must, on request, provide both *AEMO* and ENERGEX with a report of a requested test, including evidence of its success or failure. Such a report is *confidential information*.
- (e) The Generator must not change a setting requested by ENERGEX without its prior written agreement. If ENERGEX requires the Generator to change a setting within 18 months of a previous request, ENERGEX must pay the Generator its reasonable costs of changing the setting and conducting the tests as requested.

Schedule 10) – Special Conditions

[Click here to enter details.](#)

Signing Page

EXECUTED as an agreement

Signed for and on behalf of **ENERGEX Limited** by its duly authorised representative in the presence of

<hr/> Signature of witness	←	<hr/> Signature of representative	←
<hr/> Name of witness (print)		<hr/> Name of representative (print)	

Option 1: [No Common Seal]

Executed in accordance with section 127 of the *Corporations Act 2001* by [* **Limited**]:

<hr/> Director Signature	<hr/> Director/Secretary Signature
<hr/> Print Name	<hr/> Print Name

Option 2: [No Common Seal / Sole Director/Secretary]

Executed in accordance with section 127 of the *Corporations Act 2001* by [* **Limited**] in the presence of:

<hr/> Witness Signature	<hr/> Sole Director and Sole Secretary Signature
<hr/> Print Name	<hr/> Print Name

Option 3: [With Common Seal]

The Common Seal of [*** Limited**] was affixed in the presence of:

Director Signature

Director/Secretary Signature

Print Name

Print Name

Option 4: [With Common Seal / Sole Director/Secretary]

The Common Seal of [*** Limited**] was affixed in the presence of:

Witness Signature

Sole Director and Sole Secretary Signature

Print Name

Print Name

Option 5: [Authorised Representative]

Signed for [*** Limited**] by its authorised representative in the presence of:

Authorised Representative Signature

Witness Signature

Print Name

Print Name

Position

Option 6: [Individual]

Signed by [*] in the presence of:

Witness Signature

Signature

Print Name

Option 7: [Power of Attorney]

Each attorney executing this Agreement states that he or she has no notice of revocation or suspension of his or her power of attorney.

Signed for [* **Limited**] by its attorney [under power of attorney|registered book [*]
No [*]|dated [*]] in the presence of:

Witness Signature

Attorney Signature

Print Name

Print Name

Option 8: [Partner]

Signed for and on behalf of [*] by [*] in the presence of:

Witness Signature

Partner Signature

Print Name

Print Name