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16 November 2006

Dr John Tamblyn
Chairman
Australian Energy Market Commission
Sydney

(02) 8296 7899

Our reference: 822/80049759

Number of pages - 11

Dear Dr Tamblyn

Please find attached letter to you dated 16 November 2006.

Yours faithfully

Paul O'Donnell, Partner
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Copy:
Mr Greg Jarvis, Origin Energy Electricity Limited (02) 9252 8622
Mr Dennis Barnes, Origin Energy Electricity Limited (02) 9252 8622
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16 November 2006

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box H166
AUSTRALIA SQUARE NSW 1215

Our reference: 822/80049759

Dear Dr Tamblyn

Derogation from the obligation to satisfy technical requirements under the National Electricity Rules

Person Requesting Participant Derogation

We act for Origin Energy Electricity Limited ("OEEL").

OEEL requests the making of a Participant Derogation.

The Proposed Participant Derogation

OEEL seeks a Participant Derogation under section 91(5) of the National Electricity Law (the **"NEL"**) to exempt OEEL, with respect to the Mt. Stuart power station, from complying with the operation of clause 2.2.1(e)(2) of the National Electricity Rules (the **"Rules"**) on the basis set out in the attachment to this letter. The Participant Derogation sought by OEEL is attached.

Issues to be addressed by the proposed Participant Derogation

The Mt. Stuart power station is a 288 MW liquid fuel, open cycle gas turbine power station situated in Townsville, North Queensland. The power station is owned by Origin Energy Mt. Stuart (**"Mt. Stuart"**), which is a general partnership between Origin Energy Mt. Stuart BV and Origin Energy Australia Holdings BV.

Under clause 2.2.1(a) of the Rules, a person must not engage in the activity of owning, controlling or operating a generating system that is connected to a transmission or distribution system, unless that person is registered with NEMMCO as a Generator (a **"Registered Participant"**). Previously, in accordance with clause 9.34.6 of the Rules, the Queensland Power Trading Corporation (**"Enertrade"**) was registered as the Generator in respect at the Mt. Stuart power station. However, this clause will cease to apply to the Mt. Stuart power station as from 1 January 2007.

Mt. Stuart intends to apply under clause 2.9.3 for an exemption from the requirement to register under the Rules on the basis that OEEL will be registered in its place as an intermediary. The effect of this is that OEEL will be deemed to be the owner, operator and controller of the Mt. Stuart power station for the purposes of the Rules and so is the Registered Participant seeking this derogation.

With respect to registration of the Mt. Stuart power station, as you may be aware, it is not possible for the power station, as with most other large scale turbine plants, to comply with the technical standards that are currently set out in Chapter 5 of the Rules.

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OEEL has discussed the issue with NEMMCO and NEMMCO has advised that it considers that NEMMCO cannot register Mt. Stuart or OEEL as the generator as a result of clause 2.2.1(e)(2) of the Rules. Clause 2.2.1(e)(2) of the Rules provides that:

> "(e) To be eligible for registration as a Generator, a person must:
> (2) satisfy NEMMCO that those Generating Units and the Connection Points for those Generating Units comply with the relevant technical requirements set out in Chapter 5."

NEMMCO takes the view that the inability to comply with the current technical standards means that it is unable to register Mt. Stuart as the "Generator" under the Rules in respect of the Mt. Stuart power station. Further, NEMMCO has advised that it considers that clause 2.9.3(d)(1) of the Rules means that the failure to meet the technical standards means OEEL cannot be registered as an intermediary in respect of the power station.

OEEL and Mt. Stuart consider there is doubt as to whether the interpretation adopted by NEMMCO is correct. However, OEEL and Mt. Stuart believe it is appropriate for the issue to be put beyond doubt through a participant derogation.

OEEL and Mt. Stuart understands NEMMCO has no objection to the derogation.

OEEL and Mt. Stuart also note that the need for the derogation may be removed through other Rule changes currently under consideration by the Australian Energy Market Commission (**"AEMC"**). However, given the importance of the Mt. Stuart power station to the reliability of supply in North Queensland, OEEL and Mt. Stuart thought it prudent to seek the derogation pending the outcome of the AEMC processes.

If the AEMC make the Participant Derogation that is sought by OEEL, the performance standards specified in the derogation would be deemed to satisfy the requirements of clause 2.2.1(e)(2) in respect of the relevant technical requirements until 1 July 2007, whilst still satisfying the other requirements for registration.

How the proposed Participant Derogation meets the Market Objective

Clause 2.2.1(e)(2) was designed to ensure that generators that do not meet appropriate standards are not connected to the power system. This does not apply in the case of the Mt. Stuart power station, which is an existing plant that has already been connected to the power system and has operated for a number of years without incident. As mentioned above, the proposed performance standards have been discussed with NEMMCO and NEMMCO have indicated they are acceptable to it.

Further, given the grid support arrangements relating to the power station and the importance of the power station's capacity to the secure supply of electricity to North Queensland, it would not be consistent with the market objective for the Mt. Stuart Power Station to be forced to cease operation as from 1 January 2007, as will occur if these issues are not resolved.

In addition, the AEMC is currently reviewing enforcement and compliance with technical standards under the Rules. OEEL and Mt. Stuart consider that the treatment of the relevant rule change by the AEMC as a non-controversial and urgent rule change indicates an acceptance by the AEMC that it is potentially inconsistent with the market objective for existing power stations which have operated for many years without incident to be required to comply with strict technical standards which do not reflect the operation of the plant.

To ensure no adverse consequences from the derogation, the performance standards in the derogation have been drafted to reflect the operating ability of the plant and the derogation is limited in time to 1 July 2007.

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Given that the derogation will do no more than allow the continued operation of the power station and due to the urgency with which the issue must be resolved, OEEL requests that the AEMC treat the proposed Participant Derogation as a non-controversial and urgent Rule.

Please contact us if we can provide any further information regarding the proposed derogation or be of any other assistance.

Yours faithfully

Paul O'Donnell, Partner
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cc

Mr Greg Jarvis / Mr Dennis Barnes
Origin Energy Electricity Limited

Mr Brian Nelson
NEMMCO

Part [ ] - Derogation Granted to Origin Energy Electricity Limited with respect to Mt. Stuart

1 *Derogation*

(a) This *participant derogation* operates to exempt Origin Energy Electricity Limited with respect to the Mt. Stuart Power Station from the operation of clause 2.2.1(e)(2) of the Rules in the manner specified in paragraph (b).

(b) For the purpose of applying clause 2.2.1(e)(2) of the Rules to an application for registration submitted by Origin Energy Electricity Limited to NEMMCO while the derogation is in force, the *generating units* and the *connection points* for those *generating units* are deemed to satisfy the relevant technical requirements set out in Chapter 5 if capable of meeting the performance standards set out in paragraph 3.

(c) The *generating units* referred to in this derogation are the *generating units* at Mt. Stuart Power Station.

2 *End of Derogation*

The *participant derogation* applies until 1 July 2007.

3 *Performance Standards for the Mt. Stuart Power Stations*

1. INTRODUCTION

The *performance standards* described in this document are accepted by *NEMMCO* pursuant to clause 4.14 of the *Code*, in respect of the following *generating units*:

Registered *Generator*:	Origin Energy Electricity Limited ABN 33 071 052 287
Network Service Provider:	Queensland Electricity Transmission Corporation Limited Powerlink Queensland ABN: 82 078 849 233
Name of generating system:	*Mt Stuart Power Station*
Generating unit designations:	*MSTUART1* *MSTUART2*
Generating unit Rated MW (Generated) (PMAX)	*146 MW*
nameplate rating	*145.86 MW*
Generating unit Minimum Load (sent out) (PMIN)	*8 MW*
Connection point voltage:	*132 kV*

2. INTERPRETATION

In this document, italicised terms have the meaning given to them in the *Code* as at the *performance standards commencement date*.

3 THE PERFORMANCE STANDARDS

3.1 Reactive Power Capability (S5.2.5.1)

Each *synchronous generating unit*, while operating at any level of *active power* output, is capable of:

(1) supplying at the machine terminals an amount of *reactive power* of at least 90 MVAr; and

(2) absorbing the machine terminals an amount of reactive power of at least 48.0 MVAr.

3.2 Quality of Electricity Generated (S5.2.5.2)

When operating *unsynchronised*, each *synchronous generating unit generates* a constant voltage level with balanced phase voltages and harmonic *voltage* distortion equal to or less than permitted in accordance with IEC34-1 "General Requirements for Rotating Electrical Machines".

3.3 Response to Disturbances (S5.2.5.3)

Each *generating unit* is capable of continuous uninterrupted operation during the occurrence of:

(1) *Power system frequency* at any level within the following ranges for the given duration:

Frequency range (Hz)	**Duration**
47 to 47.5	15 Seconds
47.5 to 49	2 minutes
51 to 51.5	2 minutes
49 to 49.5	8 minutes
50.5 to 51	8 minutes
49.5 to 50.5	Continuous

(2) The range of *connection point* voltage at any level within the following ranges for the given duration:

Voltage range	Duration
Nominal voltage +/- 10%	continuous

(3) The voltage variation conditions corresponding to any fault cleared by primary protection.

3.4 Partial Load Rejection (S5.2.5.4)

Each generating unit is capable of continuous uninterrupted operation during and following a loading level reduction from a fully loaded condition provided that the load reduction is less than 30 percent of the generating unit's nameplate rating and the load remains above 8 MW.

3.5 Protection From Power System Disturbances (S5.2.5.8)

The *generating units* may be automatically *disconnected* from the *power system* in response to abnormal conditions arising from the *power system*, provided that the relevant *protection system* or *control system* does not *disconnect* the *generating unit* for conditions under which it must continuously operate or must withstand under a provision of this document or the *Code*. Each *generating unit* has protection for the following conditions:

(1) *frequency* below 47 Hz for 0.1 seconds, below 47.5Hz for 15 seconds and above 51.5Hz for 0.1 seconds;

(2) sustained and uncontrollable stator current beyond 8000A for 3 seconds;

(3) stator voltage above the *generating unit's* stator voltage maximum rating (15.87kV for 2.4 seconds – trip level equivalent to 15% above the stator nominal voltage of 13.8kV);

(4) voltage to frequency ratio beyond the *generating unit's* magnetic flux based voltage to frequency rating (1.1 pu for 5 seconds);

(5) sustained harmonic voltage distortion at the generating unit's stator terminals beyond 20% of the stator nominal voltage for 0.5 seconds; and

(6) sustained negative phase sequence current at the generator terminals beyond 800A for 8 seconds.

Each *scheduled generating unit connected* to a *transmission system* has *facilities* to automatically and rapidly reduce its *generation* by at least half if the *frequency* at the *connection point* exceeds a level nominated by *NEMMCO* that is not less that the upper limit of the *operational frequency tolerance band*.

3.6 Protection That Impacts on Power System Security (S5.2.5.9)

Each *generating unit* has primary *protection systems* to disconnect from the *power system* any faulted element within the protection zones that include the *connection point*, the *generating unit* stator winding or any *plant connected* between them, within 140 ms at the 132 kV level and as necessary to prevent *plant* damage and meet stability requirements at lower voltage levels.

Each *generating unit* has primary *protection systems* that are duplicated or complementary, each independently able to disconnect the machine or generator transformer in the appropriate *fault clearance time* should faults occur within the relevant protection zones.

Breaker fail protection systems are provided to clear faults that are not cleared by the circuit breakers controlled by the primary protection system, within 460 ms.

3.7 Asynchronous Operation (S5.2.5.10)

Each *synchronous generating unit* has a pole slip *protection system* to promptly disconnect it in order to prevent pole slipping.

3.8 Frequency Control (S5.2.5.11)

For this requirement:

"*maximum operating level*" means 146 MW;

"*minimum operating level*" means 8 MW;

"*system frequency*" means the electrical frequency of the *transmission system* or *distribution system* to which the *generating unit* is *connected*;

"*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; and

In respect of each *scheduled generating unit*:

(1) its *active power* transfer to the *power system* will not increase in response to a rise in *system frequency*;

(2) its *active power* transfer to the *power system* will not decrease in response to a fall in *system frequency*; and

(3) any oscillatory behaviour in respect of its *active power* transfer to the *power system* (other than authorised power system stabiliser action) is damped with a damping ratio of more than 0.4.

Each *scheduled generating unit* is capable of automatically reducing its output:

(1) whenever the *system frequency* exceeds the upper limit of the *normal operating frequency band*;

(2) by an amount that is at least the smallest of:

(i) twenty percent of its *maximum operating level* times the percentage frequency difference between *system frequency* and the upper limit of the *normal operating frequency band*;

(ii) ten percent of its *maximum operating level*; and

(iii) subject to the *frequency* recovering gradually, the difference between the *generating unit's pre-disturbance level* and *minimum operating level*, but zero if the difference is negative.

Each *scheduled generating unit* is capable of automatically increasing its output:

(1) whenever the *system frequency* falls below the lower limit of the *normal operating frequency band*;

(2) by the amount that is at least the smallest of:

(i) twenty percent of its *maximum operating level* times the percentage frequency difference between the lower limit of the *normal operating frequency band* and *system frequency*;

(ii) five percent of its *maximum operating level*; and

(iii) subject to the *frequency* recovering gradually, one third of the difference between the *generating unit's maximum operating level* and *pre-disturbance level*, but zero if the difference is negative.

3.9 Stability (S5.2.5.12)

Each *generating unit* has plant capabilities and *control systems*, including, but not limited to inertia, and power system stabilisers, sufficient to:

(1) not cause any inter-regional or intra-regional power transfer capability based on:

(i) transient stability;

(ii) oscillatory stability; or

(iii) voltage stability,

to be reduced below the level that would apply if the *generating unit* were *disconnected*;

(2) not cause instability that would adversely impact on other *Code Participants*.

Each generating unit satisfies the requirements for short circuit ratio in IEC 60034-3 as the relevant a plant standard.

3.10 Excitation Control System (S5.2.5.13)

Each *generating unit* is adequately damped and will not remain in oscillation with respect to the remainder of the *power system* with a frequency of oscillation more than 2.5 Hz or less than 0.1 Hz.

As evidence of adequate damping performance, the *excitation control system* performance is as follows:

Performance Item	Notes	Performance standard	Units
Time for field voltage to rise from rated voltage to minimum excitation ceiling voltage following the application of a short duration impulse to the voltage reference.	1	0.5 maximum	s
Minimum excitation ceiling voltage.		1.4 minimum	pu
Settling time with the *generating unit unsynchronised* following a disturbance equivalent to a 5 percent step change in the sensed *generating unit* terminal voltage.	2	2.5 maximum	s
Settling time with the *generating unit synchronised* following a disturbance equivalent to a 2.5 percent step change in the sensed *generating unit* terminal voltage (met at all operating points within the *generating unit* capability).	2	5.0 maximum	s
Settling time following any disturbance which causes an excitation limiter to operate	2	7.5 maximum	s

Notes:

1. Rated field voltage is that voltage required to give nominal *generating unit* terminal voltage when the *generating unit* is operating at its maximum continuous *nameplate rating*. Rise time is the time taken for the field voltage to rise from 10 percent to 90 percent of the increment value.

2. Settling time is the time for the *generating unit* terminal voltage to settle to and remain within a band of the final value plus or minus 10 percent of the increment value.

3.11 Remote Monitoring (S5.2.6.1)

Each *generating unit* has *remote monitoring equipment* to transmit to *NEMMCO's control centres* in real time, the following quantities that *NEMMCO* reasonably requires to discharge its *market* and *power system security* functions:

(a) Status Indications:

(1) *generating unit* circuit breaker open/closed (double pole), and

(b) Analogue Values:

(1) *generating unit* gross *active power*;

(2) *generating unit* gross *reactive power*;

(3) *generating unit* stator *voltage*;

(4) *generating unit* stator *voltage* setpoint;

(5) *generating unit transformer tap position.*

3.12 Auxiliary Transformers (S5.2.8)

Not applicable.

3.13 Fault Level (S5.2.9)

Each *generating unit* limits its contribution to the fault current on the *connected network* to:

(1) Maximum 3 phase short circuit in-feed including in-feeds from *generating units* calculated of AS 3851 (1991): symmetrical 2 kA.

(2) The total in-feed at the instant of fault when induction motors can contribute to the in-feed: 2 kA.