



Hon Geoff Wilson MP
Member for Ferny Grove



**Queensland
Government**

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Minister for Mines and Energy

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Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Dear Dr Tamblyn

Queensland Generator Technical Performance Standards Derogations

Attached is a proposal to delete, from the National Electricity Rules (NER), most of the generator technical performance jurisdictional derogations which presently apply to some Queensland electricity generating units.

Should you have any queries in relation to this matter please contact Mr George Vidas of the Department of Mines and Energy on telephone (07) 3405 6142 or by email at george.vidas@dme.qld.gov.au.

Yours sincerely

GEOFF WILSON MP
Minister for Mines and Energy

PROPOSAL TO DELETE QUEENSLAND GENERATOR TECHNICAL PERFORMANCE STANDARDS DEROGATIONS

The format of this proposal is in accordance with the January 2008 Guidelines published on the Australian Energy Market Commission (AEMC) website.

THE NAME AND ADDRESS OF THE PERSON MAKING THE REQUEST

The Honourable Geoff Wilson MP
Minister for Mines and Energy
Queensland Government
Level 17
61 Mary St
BRISBANE QLD 4000

IF THE PROPOSAL IS IN RELATION TO A DEROGATION, IS IT A JURISDICTIONAL DEROGATION OR A PARTICIPANT DEROGATION?

The proposal is in relation to a jurisdictional derogation.

SHORT DESCRIPTION OF THE PROPOSED RULE CHANGE

Chapter 9, Part E of version 18 of the NER includes several jurisdictional technical performance derogations which apply to some generating units in Queensland. This proposal details the reasons why most of these generator technical performance derogations are no longer required and details the particular clauses in Chapter 9, Part E which should be deleted.

The listing of the NER derogation clauses to be amended and the power stations to be deleted from these clauses are listed below.

NEM Generator	Generating Units requiring Deletion of Generator Technical Performance Derogations	NER Derogation Clauses to be Amended
Stanwell Corporation	Barron Gorge 1&2	9.37.21
	Kareeya 1-4	9.37.21
	Stanwell 1-4	9.37.10; 9.37.19; 9.37.20; 9.37.21
CS Energy	Callide "A" 1-4	9.37.10; 9.37.20; 9.37.21
	Callide "B" 1&2	9.37.10; 9.37.19; 9.37.20; 9.37.21
	Swanbank "A" 1-6	9.37.20; 9.37.21
	Swanbank "B" 1-4	9.37.10; 9.37.20; 9.37.21
Tarong Energy	Tarong 1-4	9.37.10; 9.37.19; 9.37.20; 9.37.21
	Wivenhoe	9.37.21
Origin Energy	Mount Stuart 1&2	9.37.10

Details of the proposed rule changes are shown at the end of this proposal.

NATURE AND SCOPE OF THE ISSUE CONCERNING THE EXISTING RULES

In November 2007, Mr Steve Edwell, Chairman, Australian Energy Regulator (AER) requested the Queensland Government to delete the technical performance derogations in the National Electricity Rules (NER) which apply to some Queensland power stations. The applicable parts of this letter are reproduced below for your information.

“The Australian Energy Regulator (AER) recently published its investigation report into the events of 16 January 2007 when bushfires in the north east of Victoria resulted in widespread load shedding. That report examined the compliance of registered market participants and the National Electricity Market Management Company (NEMMCO) with the National Electricity Rules (NER).

The report highlighted the importance of generators ensuring that the technical performance obligations under the rules are satisfied, particularly during a power system disturbance. A new regime of technical performance standards for generators was recently introduced into the NER. These standards established explicit compliance obligations on market participants with respect to the technical performance of plant and required generators to register the actual capability of their plant with NEMMCO. That process was completed in June 2007. As you may be aware, some generators in Queensland operate under jurisdictional derogations in Chapter 9, Part E of the NER that prevail over all other Chapters of the NER. These derogations, in part, apply less onerous technical performance standards than those contained within Schedule 5 of the NER, including in cases where a power system disturbance has occurred.

The application of less exacting technical performance standards to some Queensland generators through Chapter 9 derogations has the potential to compromise system security. For example, as was seen on 16 January, it is possible for generators to trip during a power system disturbance without breaching their respective jurisdictional derogations.

With all generators having now registered the actual capability of their plant and equipment, we believe the Chapter 9 derogations have become redundant since they incorporate technical standards that are inconsistent with those registered with NEMMCO.

In light of this redundancy, the AER recommends that the Queensland government remove the Chapter 9 derogations relating to generation technical standards.”

The Queensland electricity generating units which currently have technical performance derogations in Chapter 9, Part E of the NER, the particular clauses in the NER granting these derogations and the registered Generators of these units, are listed below.

NEM Generator	Generating Units	NER Derogation Clauses
Stanwell Corporation	Barron Gorge 1&2	9.37.21
	Gladstone 1-4	9.37.2; 9.37.10; 9.37.19; 9.37.21
	Gladstone 5&6	9.37.2; 9.37.10; 9.37.19; 9.37.21
	Kareeya 1-4	9.37.21
	Stanwell 1-4	9.37.10; 9.37.19; ; 9.37.20; 9.37.21
CS Energy	Callide "A" 1-4	9.37.10; ; 9.37.20; 9.37.21
	Callide "B" 1&2	9.37.10; 9.37.19; 9.37.20; 9.37.21
	Collinsville 1-4	9.37.10; 9.37.19; 9.37.21
	Collinsville 5	9.37.10; 9.37.19; 9.37.21
	Swanbank "A" 1-6	9.37.20; 9.37.21
	Swanbank "B" 1-4	9.37.10; ; 9.37.20; 9.37.21
Tarong Energy	Tarong 1-4	9.37.10; 9.37.19; 9.37.20; 9.37.21
	Wivenhoe	9.37.21
Origin Energy	Mount Stuart 1&2	9.37.10

Swanbank "A" units 1 to 6 have been decommissioned and their derogations are no longer applicable.

In accordance with the NER, the actual technical performance capabilities of those generating units able to be operated were, in 2007, registered with NEMMCO. Where these actual capabilities could not match or exceed the standards set in the NER, the Generators and NEMMCO entered into negotiated access standards agreements specific for each of those generating units.

However, because the technical performance standards detailed in the derogations still take precedence over the technical performance capabilities registered with NEMMCO, there is little incentive for the Generators to ensure their generating units continue to comply with the registered technical performance capabilities.

The exceptions are the units at Gladstone Power Station and Collinsville Power Station.

Enertrade, the previous Nominated Generator for both the Gladstone Power Station and the Collinsville Power Station, had submitted, to NEMMCO, technical performance standards which were not agreed to by the owners/operators of those power stations.

Stanwell Corporation, the current Nominated Generator for the Gladstone Power Station, and CS Energy, the current Nominated Generator for the Collinsville Power Station, have advised that the current derogations applying to those power stations should remain in place until mutually agreed generator technical performance standards can be developed and accepted by NEMMCO.

EXPLANATION OF HOW THE PROPOSED RULE WILL ADDRESS THE ISSUE

Deletion of the technical performance derogations applying to most of these operating generating units would ensure that the generating units must comply only with their registered technical performance capabilities.

Because Swanbank A has been de-commissioned, the derogations applying to its units need to be removed from the NER in any case.

HOW DOES THE PROPOSED RULE CONTRIBUTE TO THE ACHIEVEMENT OF THE NATIONAL ELECTRICITY OBJECTIVE?

The National Electricity Objective (NEO) is “to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to –

(a) price, quality, safety, reliability and security of supply of electricity;

(b) the reliability, safety and security of the national electricity system.”

Before entering into any negotiated access standards agreement, NEMMCO had to determine, among other things, that the registered capabilities did not adversely affect power system security and that they were no less onerous than the minimum access standards set by the Network Service Provider, who in Queensland is Powerlink.

The AER considers that ensuring the Generators comply only with their (generally) more onerous registered technical performance capabilities would contribute to the achievement of the NEO by improving the security of the national electricity system. Deletion of the relevant technical performance derogations would achieve this outcome.

EXPECTED BENEFITS AND COSTS OF THE PROPOSED CHANGE AND THE POTENTIAL IMPACTS OF THE CHANGE ON THOSE LIKELY TO BE AFFECTED

Powerlink and NEMMCO were consulted to determine if removal of the derogations would have any financial and/or operational impacts (positive or negative) on their operation and on the operation of the NEM network. Their comments are listed below.

Network Operator	Comments on Effects of the Proposed NER Changes
Powerlink	No adverse impact on the operation of the Queensland transmission system
NEMMCO	No longer any need for the technical derogations

All the affected Generators were consulted to determine if removal of the derogations would have any financial and/or operational impacts on their generating units. These Generators and their comments are listed below.

NEM Generator	Comments on Effects of the Proposed NER Changes
Stanwell Corporation	Agrees to deletion of derogations applying to Stanwell, Barron Gorge and Kareeya power stations; recommends the continuation of the derogations applying to Gladstone Power Station.
CS Energy	Agrees to deletion of derogations applying to Swanbank and Callide power stations; recommends the continuation of the derogations applying to Collinsville Power Station.
Tarong Energy	No adverse impact on Tarong Energy; agrees to deletion of the derogations.
Origin Energy	No issues with the deletion of the derogations.

DETAILS OF THE PROPOSED RULE CHANGES

NER clause 9.37.10 - Existing clause

9.37.10 Reactive power capability (clause S5.2.5.1 of schedule 5.2)

Clause S5.2.5.1 of schedule 5.2 of the *Rules* is replaced for each of the *generating units* situated at the relevant *power station* listed in the following table by the following:

For the purpose of this clause S5.2.5.1:

'*rated active power output*' means the 'Rated MW (Generated)' (as defined in the *Generating System Design Data Sheet*) for the relevant *synchronous generating unit*; and '*nominal terminal voltage*' means the 'Nominal Terminal Voltage' (as defined in the *Generating System Design Data Sheet*) for the relevant *synchronous generating unit*.

- (a) Each of the *generating units*, while operating at any level of *active power* output, must be capable of:
 - (1) supplying at its terminals an amount of *reactive power* of at least the amount that would be supplied if the *generating unit* operated at *rated active power output*, *nominal terminal voltage* and a lagging power factor of 0.9; and
 - (2) absorbing at its terminals an amount of reactive power of at least the amount that would be absorbed if the generating unit operated at rated active power output, nominal terminal voltage and a leading power factor set out in respect of that generating unit in column 3 of the following table.
- (b) In the event that any of the relevant power factors referred to in paragraph (a) above cannot be provided in respect of a generating unit, the relevant Generator must reach a commercial arrangement under its connection agreement with the relevant Network Service Provider, or with another Registered Participant, for the supply of the deficit in reactive power as measured at that generating unit's terminals.

Power station	Generating units	Leading power factor
Gladstone	Units 1 to 4	0.99
Gladstone	Units 5 & 6	0.94
Tarong	Units 1 to 4	0.95
Callide "A"	Units 1 to 4	0.95
Callide "B"	Units 1 & 2	0.95
Stanwell	Units 1 to 4	0.95
Swanbank "B"	Units 1 to 4	0.97
Mount Stuart	Units 1 & 2	0.95
Collinsville	Units 1 to 5	0.95

NER clause 9.37.10 – Proposed changes to the clause

- Delete the following Generating Units from the table:
 - Tarong Units 1 to 4;
 - Callide “A” Units 1 to 4;
 - Callide “B” Units 1 & 2;
 - Stanwell Units 1 to 4;
 - Swanbank “B” Units 1 to 4;
 - Mount Stuart Units 1 & 2;

The table would therefore be as follows:

Power station	Generating units	Leading power factor
Gladstone	Units 1 to 4	0.99
Gladstone	Units 5 & 6	0.94
Collinsville	Units 1 to 5	0.95

NER clause 9.37.10 – Proposed amended clause

9.37.10 Reactive power capability (clause S5.2.5.1 of schedule 5.2)

Clause S5.2.5.1 of schedule 5.2 of the *Rules* is replaced for each of the *generating units* situated at the relevant *power station* listed in the following table by the following:

For the purpose of this clause S5.2.5.1:

'*rated active power output*' means the 'Rated MW (Generated)' (as defined in the *Generating System Design Data Sheet*) for the relevant *synchronous generating unit*; and
'*nominal terminal voltage*' means the 'Nominal Terminal Voltage' (as defined in the *Generating System Design Data Sheet*) for the relevant *synchronous generating unit*.

- (a) Each of the *generating units*, while operating at any level of *active power* output, must be capable of:
 - (1) supplying at its terminals an amount of *reactive power* of at least the amount that would be supplied if the *generating unit* operated at *rated active power output*, *nominal terminal voltage* and a lagging power factor of 0.9; and
 - (2) absorbing at its terminals an amount of reactive power of at least the amount that would be absorbed if the generating unit operated at rated active power output, nominal terminal voltage and a leading power factor set out in respect of that generating unit in column 3 of the following table.
- (b) In the event that any of the relevant power factors referred to in paragraph (a) above cannot be provided in respect of a generating unit, the relevant Generator must reach a commercial arrangement under its connection agreement with the relevant Network Service Provider, or with another Registered Participant, for the supply of the deficit in reactive power as measured at that generating unit's terminals.

Power station	Generating units	Leading power factor
Gladstone	Units 1 to 4	0.99
Gladstone	Units 5 & 6	0.94
Collinsville	Units 1 to 5	0.95

NER clause 9.37.19 - Existing clause

9.37.19 Generating unit response to disturbances (clause S5.2.5.3 of schedule 5.2)

- (a) Despite the provisions of clause S5.2.5.3 of schedule 5.2 of the *Rules*, the *generating units* listed in the following table are not required to operate continuously outside the corresponding *frequency band* specified in column three of the following table:

Power station	Generating units	Frequency band
Tarong	Units 1 to 4	47.5 Hz to 51 Hz
Callide "B"	Units 1 & 2	47.5 Hz to 51 Hz
Stanwell	Units 1 to 4	47.5 Hz to 51 Hz
Gladstone	Units 1 to 6	47.5 Hz to 51.5 Hz
Collinsville	Units 1 to 4	48.0 Hz to 51 Hz
	Unit 5	48.0 Hz to 52 Hz

(b) **[Deleted]**

(b1) **[Deleted]**

NER clause 9.37.19 – Proposed changes to the clause

- Delete the following Generating Units from the table:
 - Tarong Units 1 to 4;
 - Callide "B" Units 1 & 2;
 - Stanwell Units 1 to 4;

The table would therefore be as follows:

Power station	Generating units	Frequency band
Gladstone	Units 1 to 6	47.5 Hz to 51.5 Hz
Collinsville	Units 1 to 4	48.0 Hz to 51 Hz
	Unit 5	48.0 Hz to 52 Hz

NER clause 9.37.19 - Proposed amended clause**9.37.19 Generating unit response to disturbances (clause S5.2.5.3 of schedule 5.2)**

- (a) Despite the provisions of clause S5.2.5.3 of schedule 5.2 of the *Rules*, the *generating units* listed in the following table are not required to operate continuously outside the corresponding *frequency* band specified in column three of the following table:

Power station	Generating units	Frequency band
Gladstone	Units 1 to 6	47.5 Hz to 51.5 Hz
Collinsville	Units 1 to 4 Unit 5	48.0 Hz to 51 Hz 48.0 Hz to 52 Hz

(b) **[Deleted]**

(b1) **[Deleted]**

NER clause 9.37.20 - Existing clause**9.37.20 Frequency control (clause S5.2.5.11 of schedule 5.2)**

For each of the *generating units* situated at the *power stations* listed in the following table, the application of clause S5.2.5.11 of schedule 5.2 of the *Rules* is modified by deleting clause S5.2.5.11(b)(3) and replacing it with the following:

- “(d) A *Generator* must ensure that each of its *scheduled generating units* is capable of automatically increasing its *active power* output by 4 per cent for a 0.1 Hz reduction in *system frequency*”.

Power station	Generating units
Tarong	Units 1 to 4
Callide “A”	Units 1 to 4
Callide “B”	Units 1 & 2
Stanwell	Units 1 to 4
Swanbank “A”	Units 1 to 6
Swanbank “B”	Units 1 to 4

NER clause 9.37.20 – Proposed changes to the clause

- Delete all of clause 9.37.20.

NER clause 9.37.20 - Proposed amended clause

9.37.20 **[Deleted]**

NER clause 9.37.21 - Existing clause

9.37.21 Excitation control system (clause S.5.2.5.13 of schedule 5.2)

- (a) For each of the generating units listed in the following table:
- (1) the application of clause S5.2.5.13(a) of schedule 5.2 of the *Rules* is modified by amending it to ensure that the short-time average *generating unit* stator *voltage* at highest rated power output level is not required to be more than 5 per cent above nominal stator *voltage*; and
 - (2) the application of clause S5.2.5.13(b) of schedule 5.2 of the Rules is modified by deleting the words “all operating conditions” and replacing them with the words “all normal operating conditions and all single credible contingency events”.
- (b) For Wivenhoe Power Station, the application of clause S5.2.5.13(c) of schedule 5.2 of the Rules is modified by replacing sub-clause (c) with the words “providing a five second ceiling excitation voltage to a maximum of 730 V excitation voltage.”
- (c) **[Deleted]**
- (d) For Collinsville Power Station, any variation to the minimum performance requirements specified in clause S5.2.5.13 of schedule 5.2 of the Rules is to be limited to figures agreed with the Network Service Provider to whose network the Collinsville Power Station is connected.

Power station	Generating units
Tarong	Units 1 to 4
Callide “A”	Units 1 to 4
Callide “B”	Units 1 & 2
Stanwell	Units 1 to 4
Swanbank “A”	Units 1 to 6
Swanbank “B”	Units 1 to 4
Wivenhoe	Units 1 & 2
Barron Gorge	Units 1 & 2
Kareeya	Units 1 to 4
Gladstone	Units 1 to 6
Collinsville	Units 1 to 5

- (e) A Generator whose generating unit is situated in Queensland must ensure that each new synchronous generating unit of greater than 100MW is fitted with a static excitation system or some other excitation control system which will provide voltage regulation to within 0.5 per cent of the selected setpoint value unless otherwise agreed with the relevant Network Service Provider.

NER clause 9.37.21 – Proposed changes to the clause

- Delete clause 9.37.21 (b);
- Delete the following Generating Units from the table:
 - Tarong Units 1 to 4;
 - Callide “A” Units 1 to 4;
 - Callide “B” Units 1 & 2;
 - Stanwell Units 1 to 4;
 - Swanbank “A” Units 1 to 6;
 - Swanbank “B” Units 1 to 4;
 - Wivenhoe Units 1 & 2;
 - Barron Gorge Units 1&2;
 - Kareeya 1 to 4;

The table would therefore be as follows:

Power station	Generating units
Gladstone	Units 1 to 6
Collinsville	Units 1 to 5

NER clause 9.37.21 - Proposed amended clause**9.37.21 Excitation control system (clause S.5.2.5.13 of schedule 5.2)**

- (a) For each of the generating units listed in the following table:
- (1) the application of clause S5.2.5.13(a) of schedule 5.2 of the *Rules* is modified by amending it to ensure that the short-time average *generating unit* stator *voltage* at highest rated power output level is not required to be more than 5 per cent above nominal stator *voltage*; and
 - (2) the application of clause S5.2.5.13(b) of schedule 5.2 of the Rules is modified by deleting the words “all operating conditions” and replacing them with the words “all normal operating conditions and all single credible contingency events”.
- (b) **[Deleted]**
- (c) **[Deleted]**
- (d) For Collinsville Power Station, any variation to the minimum performance requirements specified in clause S5.2.5.13 of schedule 5.2 of the Rules is to be limited to figures agreed with the Network Service Provider to whose network the Collinsville Power Station is connected.

Power station	Generating units
Gladstone	Units 1 to 6
Collinsville	Units 1 to 5

- (e) A Generator whose generating unit is situated in Queensland must ensure that each new synchronous generating unit of greater than 100MW is fitted with a static excitation system or some other excitation control system which will provide voltage regulation to within 0.5 per cent of the selected setpoint value unless otherwise agreed with the relevant Network Service Provider.