

# Market Operator

## Generator Offer Procedure

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## 1. Purpose

This procedure specifies the principles for the preparation and submission (before and after *gate closure*) of *Generator Offers* to the Power System Controller when operating in the *I-NTEM*.

## 2. Scope

- 2.1 This document applies to any *settlements* statements prepared and issued by the *Market Operator*. The procedure only applies to the *I-NTEM*.
- 2.2 The procedure is prepared under the authority of Section 4.4B(e) of the System Control Technical Code.
- 2.3 The procedure covers those parts of the commitment and dispatch process<sup>1</sup> that involve the submission of *Generator Offers* ('Offers') to the System Controller. The receipt of Offers by the System Controller forms an initial part of the commitment and dispatch process.
- 2.4 The principles for preparation and submission of Offers cover:
  - 2.4.1 The Offer template.
  - 2.4.2 The Default *Generator Offer* ('Default Offer').
  - 2.4.3 The mandatory Offer.
  - 2.4.4 The *gate closure* time.
  - 2.4.5 The discretionary Offer – situations when an Offer can be revised after *gate closure* ('Revised Offer').
  - 2.4.6 The cut-off time for *Revised Offers*.
- 2.5 *Gate closure* only occurs on business days.
- 2.6 The procedure does not cover other parts of the commitment and dispatch process.

<sup>1</sup> The commitment and dispatch process is referred to in Section 4.4B(c) of the System Control Technical Code.

### 3. Roles and Responsibilities

Role / Title	Responsibility
General Manager System Control	<ul style="list-style-type: none"> <li>• Ensure that the requirements of Section 4B(e) have been correctly actioned.</li> <li>• Ensure that this procedure is fit for purpose.</li> <li>• Approve the procedure.</li> <li>• Ensure compliance with this procedure.</li> </ul>
Operational Systems Manager	<ul style="list-style-type: none"> <li>• Receive and process Offers in accordance with this procedure.</li> <li>• Advise <i>Generator</i> representatives of any instance that an Offer is not consistent with this procedure.</li> <li>• Escalate (after discussion with the <i>Generator</i> representative) a situation to the General Manager System Control where an Offer is made that is not consistent with the procedure.</li> <li>• Review and revise the procedure form time to time and no later than the review date to maintain its relevance.</li> </ul>
<i>Generator</i> representative	<ul style="list-style-type: none"> <li>• Perform the duties required of a <i>Generator</i> Market Participant as required by this procedure.</li> </ul>

### 4. Definitions

The definitions of words recorded in the Glossary of the System Control Technical Code apply to this document, in addition to the words recorded in the table below, as shown in italics throughout the document.

Definitions		
No.	Term	Meaning
1	<i>Default Offer</i>	The Default <i>Generator</i> Offer that is approved from time to time by the Market Operator as part of the <i>Generator's</i> registration standing data. Note that the <i>Generator</i> may revise the Default Offer at any time by submitting a revised Default Offer to the Market Operator for approval. The Market Operator, in conjunction with the Power System Controller, will advise of the approval (or otherwise) of the Default Offer. The Default Offer commences from the day immediately following the date of approval by the Market Operator.
2	<i>Gate closure</i>	1230 hours on the last business day before the nominated trading day.
3	<i>Generator</i>	A Market Participant who has registered with the Market Operator for the <i>I-NTEM</i> as a Generator.
4	<i>Generator Offer</i>	The information recorded on the Generator Offer template by a <i>Generator</i> for any one day of its proposed operation in the <i>I-NTEM</i> . For any one trading day, prior to <i>gate closure</i> , the <i>Generator</i> may progressively submit one or more versions of the Generator Offer to correct a previous version. The last version prior to <i>gate closure</i> is the active Generator Offer.
5	<i>GOTR</i>	<i>Generator</i> Outage/Test Request

6	<i>I-NTEM</i>	The Interim Northern Territory Electricity Market
7	<i>Revised Offer</i>	A Revised Offer is a <i>Generator Offer</i> that is received after <i>gate closure</i> and prior to the end of the trading day.

## 5. Principles

The following principles apply to the preparation and submission of *Generator Offers*:

- 5.1 A *Generator Offer* is to be prepared using the template shown in Appendix A<sup>2</sup>. The template in Appendix A replaces the template shown in Attachment 4 of the System Control Technical Code, as provided for in clause 4.4B(f) of that Code.
- 5.2 A *Generator* must submit an Offer to the System Controller before *gate closure*. That *Generator* may submit a revised *Generator Offer* to the Power System Controller from *gate closure* up until the end of the nominated trading day.
- 5.3 In the first instance, the *Generator Offer* is to be submitted to the Power System Controller's nominated email address no later than *gate closure*, as detailed in Appendix B.
- 5.4 If the *Generator Offer* is not received in the Power System Controller's mail box by *gate closure* the *Default Offer* will be used in the commitment and dispatch process.
- 5.5 A *Generator* may submit *Revised Offer* after *gate closure*, subject to the following conditions:
  - 5.5.1 There must be a change in physical circumstance<sup>3</sup> clearly identified in the body of the email that contains the *Revised Offer*.
  - 5.5.2 When one or more *Generators* are registered in the *I-NTEM*, there is to be no unfavourable impact on the Market Prices from the *Revised Offer* when compared to the pre-dispatch prices. Refer to Appendix C for an example.
  - 5.5.3 During the period when only one *Generator* is operating in the *I-NTEM*, and only for the condition where a generating unit is forced out of service, a *Revised Offer* will be accepted where the net impact of the change is to hold a low capacity unit as (or immediately above) the marginal unit<sup>4</sup>. This is explained further in Appendix C.
  - 5.5.4 A *Revised Offer* may be made any time after *gate closure*, but no later than the end of the trading day to which it applies. A *Revised Offer* received after the end of the nominated trading day will not be processed by the Power System Controller.
- 5.6 The pre-dispatch schedule and associated information may be re-published by the Power System Controller on receipt of a *Revised Offer* – this is at the System Controller's discretion<sup>5</sup>.
  - 5.6.1 For the removal of doubt, a *Revised Offer* that did not warrant a republishing of the pre-dispatch schedule would nevertheless be applied to the processing of the Market Price in the nominated day after the trading day.
- 5.7 A *Revised Offer* is to be made on the same Offer Template as was used for the initial *Generator Offer*, with the version number incremented.

<sup>2</sup> Note that the template in Appendix A replaces the template shown in Attachment 4 of the System Control Technical Code.

<sup>3</sup> Such as a change in merit order to facilitate unit maintenance (including routine inspections), late advice of change in network status that results in generator constraints that result in a non-sensible dispatch outcome, significant variance in weather forecast and a change to accommodate the impact of a forced outage of a *generating unit*.

<sup>4</sup> Note that this principle will terminate when two or more *Generators* are registered to operate in the *I-NTEM*.

<sup>5</sup> As a guide only, it would be unusual for the *Power System Controller* to re-publish the pre-dispatch schedule after 1800 hours on the day prior to the trading day.

- 5.7.1 The commitment and dispatch process will automatically classify the *Generator Offer* according to its submission time relative to the *gate closure* time.

## 6. References

#	Document	Date	Location
1	Systems Control Technical Code v5	23/05/2015	D2015/414673
2	Market Timetable (draft version 03) <sup>1</sup>	29/02/2016	D2016/93559

Note: 1: in draft – consultation yet to be conducted.

## 7. Attachments

- 7.1 Attachment A: *Generator Offer* Template.  
 7.2 Attachment B: *Gate Closure* Details.  
 7.3 Attachment C: *Revised Offer* Examples

## 8. Records

This Guideline is to be stored in Power and Water's Records Management System (TRIM) in accordance with the Document and Record Control Procedure.

## 9. Review

This document is to be reviewed in accordance with changes to the System Control Technical Code.

## 10. Document History

Date of Issue	Version	Prepared By	Description of Changes
01/03/2016	Draft	Andrew Roberts	Document published for consultation

For clarification on the use of this document, please contact:

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### NOTE:

This document is under consultation:

Stakeholders, please send your submissions to:

[market.operator@powerwater.com.au](mailto:market.operator@powerwater.com.au)

Consultation closes 2pm Thursday 24 March 2016.

# Attachment A: Generator Offer Template

A *Generator Offer* is to be submitted using the following pre-prepared template, available from the System Controller:

For trading day commencing  
<<dd/mm/yyyy>>

Issuer

<<name of person sending Offer>>

Date of issue

<<title of person sending Offer>>

Issue Version

<<dd/mm/yyyy>>

Company

<<V1>>

<<company name>>

Standard Unit ID	Self-commitment units									Fast start units											
	off/load order Number	Time of sync (on-line) hhmm	Time of de-sync (off-line) hhmm	B1: minimum stable load MW	B1 OFFER \$/MWh	B2: incremental capacity MW	B2 OFFER \$/MWh	B3: incremental capacity MW	B3 OFFER \$/MWh	total offered capacity (check) MW	T1: Time to start min	T2: Time to reach min load min	SPARE min	T4: Time to reduce to zero min	B1 minimum stable load MW	B2: incremental capacity MW	B2 OFFER - LONG RUN (Set 1) \$/MWh	B2 OFFER - SHORT RUN (Set 2) \$/MWh	B3: incremental capacity MW	B3 OFFER \$/MWh	total offered capacity (check) MW
1										0											0
2										0											0
3										0											0
4										0											0
5										0											0
6										0											0
7										0											0
8										0											0
9										0											0
10										0											0
11										0											0
12										0											0
13										0											0
14										0											0
15										0											0
16										0											0
17										0											0
18										0											0
19										0											0
20										0											0
21										0											0
22										0											0
23										0											0
24										0											0
Band totals				0		0		0						0	0			0			0

Generator Offer Template – version 09

## Instructions for completing the Generator Offer ('Offer') template:

Ref #	Instruction (introduction)	Instruction detail
1	In preparing an Offer, the <i>Generator</i> should note:	<ul style="list-style-type: none"> <li>The trading day is the 24 hour period commencing half hour ending 0430 hrs on day 1 and ending 0400 hrs on day 2.</li> <li>The email address from which the Offer was sent will be used to relate the Company to the Offer.</li> <li>That email address will be nominated at the time of Registration of the <i>Generator</i> with the Market Operator.</li> <li>The Market Operator will assign a <i>Generator</i> ID at the time of Registration.</li> </ul>
2	Please email the completed Offer to:	<a href="mailto:systemdispatch.PWC@powerwater.com.au">systemdispatch.PWC@powerwater.com.au</a>
3	Email subject line must contain: <b>[mandatory]</b>	<i>Generator Offer</i> <<user defined text>> [where <<user defined text>> is optional]
4	Offer to be an Attachment to the email:	file type must be '.xlsx'
5	Offer file name:	<<user defined text>> [that is, no restrictions are placed on the file name]
6	Offer date:	<ul style="list-style-type: none"> <li>The Offer date is the date shown in cell C3 in the Offer tab.</li> <li>The Offer date is the date of the trading day (NOT the date of the email submission).</li> <li>If this date is missing the email will be rejected (see below).</li> </ul>
7	Email to be submitted no later than:	<ul style="list-style-type: none"> <li>1230 hours on any one business day.</li> <li>Note that Offers for days in advance may be made on the last business day in the week provided the Offers are correctly dated.</li> </ul>
8	Number of Offers for a trading day:	<ul style="list-style-type: none"> <li>Only one Offer is required for each trading day.</li> <li>If two Offers are submitted for the one trading day, only the latest Offer prior to 1230 hours will be processed for that trading day.</li> </ul>
9	Rules for completing Offer template:	
	9.1	A blank field means that no Offer is made - no entry is otherwise required in that field
	9.2	For self-commitment generating units, the Band 3 price is to be equal to or greater than the Band 2 price. The Band 2 price is to be equal to or greater than the Band 1 price. The Band 1 price is to be zero \$/MWh.
	9.3	For self-commitment generating units, the Band 3 quantity (if any) is to be incremental on the Band 2 quantity. The Band 2 quantity is to be incremental on the Band 1 quantity. The Band 1 quantity is to represent the minimum stable load of the unit. Note: Band 3 capacity is not required if all capacity is

		shared between bands 1 and 2. Band 2 capacity is not required if all capacity is allocated to band 1 for a special purpose (eg testing).
	9.4	For self-commitment generating units, the time to synchronise and time to de-synchronise is to be provided in columns G and H respectively.
	9.5	<p>For self-commitment generating units, the order for taking the unit off-line is to be provided in column E. Column E has two sequences, an alpha sequence and a numeric sequence (with alpha suffix).</p> <p><b>Alpha sequence:</b> This sequence is used when the generating units are self-committed in the open cycle mode. The Off-load Order commences with character 'A' and then 'B' and so on, with no limit to the number of characters. The generating unit assigned character A is off-loaded first in the sequence. Generating units that are assigned alpha characters are off-loaded before generating units that are assigned numeric characters.</p> <p><b>Numeric sequence (with alpha suffix):</b> This sequence is used when generating units are used in the closed cycle mode. The order starts at numeric number 1 (first off-line), 2 means next off line and so on, with no limit to the order number. In addition, an alpha character (as a suffix) may accompany the numeric number, but only for special reasons: The only acceptable alpha character is: a = open cycle minimum stable load.</p> <p>The following examples are provided for the removal of doubt:  1 the <i>generating unit</i> will be requested to be de-synchronised by the System Controller  1a the <i>generating unit</i> will be requested to go onto open cycle mode and its output will then be reduced to its minimum load (by AGC) to the quantity provided in the standing data.</p> <p>In both these examples, the System Controller will assumed that the steam unit will remain on-line coupled to the remaining <i>generating unit</i> unless otherwise advised by the <i>Generator</i>.</p> <p>Note that these examples are based on the current generating unit technology deployed in the Darwin – Katherine power system. A change to that technology may require a change in these examples.</p>
	9.6	<p>For fast start generating units, the Band 1 price will be equal to the Band 2 (set 1) price, or the Band 2 (set 2) price, depending on the mode of dispatch. As such, no price offer is required for Band 1. The Band 3 price is to be equal to or greater than the Band 2 price.</p> <p>For each fast start generating unit:</p>

		<p>(a) there must be a T1, T2 and T4 time. Note that the T3 time has now been removed.</p> <p>(b) there must be a set 1 and set 2 price.</p>
	9.7	<p>For fast start generating units, the Band 2 quantity, up the 'base maximum capacity' of the unit (as provided in the standing data) is to be incremental on the Band 1 quantity. The Band 3 quantity (if any) is to be incremental on the Band 2 quantity.</p> <p>Notes:</p> <p>(a) Band 2 must be equal to or less than Base Maximum Capacity ('BMC').</p> <p>(b) Band 3 may be equal to or greater than the BMC.</p> <p>(c) Band 3 may be used to define the daily capacity for wet mode and/or overload capacity.</p> <p>(d) Band 3 capacity is not required if all capacity is shared between Bands 1 and 2.</p> <p>(e) For the removal of doubt, Band 2 capacity is always required for fast start generating units.</p>
	9.8	<p>Units that can operate in combined cycle mode and/or in open cycle mode are to be offered as individual units. The recognition of their combined cycle relationship will be recorded in the standing data.</p>
	9.9	<p>The Overload Capability of a generating unit will be expressed within Band 3 of the <i>Generator Offer</i>.</p>
	9.10	<p>The total capacity offered for any one generating unit must be equal to or greater than the Base Maximum Capacity quantity registered in the standing data with the Market Operator, unless the <i>Generator</i> has submitted a <i>GOTR</i> advising of the temporary reduction in capacity.</p>
	9.11	<p>The self-commitment synchronisation and de-synchronisation times:</p> <p>(a) are the time of a trading interval - that is, the half-hour ending hh:mm</p> <p>(b) represent the time of synchronising of the unit at the beginning of the trading interval (the unit ramps up during the trading interval) and is at its band 1 level by the end of the trading interval</p> <p>(c) represent the time of de-synchronising of the unit at the end of the trading interval (the unit ramps down during the trading interval) and is de-synchronised at or before the end of the trading interval</p> <p>(d) to be left blank only if the unit is on-line prior to the trading day and offered for all 48 trading intervals in the nominated trading day.</p>
	9.12	<p>For fast start units, the run time duration for set 1 and set 2 prices are defined as:</p>

		<p>set 1 (Long Run): longer than 4 hours up to 24 hours</p> <p>set 2 (Short Run): 4 hours or less.</p>
10	Rejection of Offer:	<p>An Offer will be rejected if it contains an error (as a result of a few simple tests). Examples of errors include:</p> <ul style="list-style-type: none"> <li>• Email subject line can't be recognised.</li> <li>• No email '.xlsx' attachment detected.</li> <li>• Generating unit ID has not been registered with Market Operator.</li> <li>• Offer date not provided; Offer date relates to a past trading day.</li> <li>• Offer template rule breach &gt;&gt;&gt; in this case the attachment will be returned with the faulty cell highlighted in yellow.</li> <li>• Offered capacity for bands 1 and 2 (B1+B2) is equal to more than the registered standing data for Base Maximum Capacity</li> </ul>
11	Offer template notes:	<ul style="list-style-type: none"> <li>• Grey highlight is for Office Use only.</li> <li>• Purple text (or strikethrough) means a change from the last version.</li> <li>• For convenience, the Unit IDs to be used in column C of the Offer template are: <ul style="list-style-type: none"> <li>○ Channel Island Power Station: C1, C2, C3, C4, C5, C6, C7, C8, C9.</li> <li>○ Katherine Power Station: K1, K2, K3, K4.</li> <li>○ Weddell Power Station: W1, W2, W3.</li> <li>○ Shoal Bay Power Station: LMS.</li> <li>○ Pine Creek Power Station: P1, P2, P3.</li> </ul> </li> </ul>
12	Standing data:	<ul style="list-style-type: none"> <li>• Standing Data is to be provided to the Market Operator at time of Registration.</li> <li>• Any changes to Standing Data (if it can't meet the Standing Data on a temporary basis (e.g., band 1 and band 2 capacity not meeting BMC) are to be provided in a <i>Generator Outage/Test Request (GOTR)</i>.</li> <li>• Definitions: <ul style="list-style-type: none"> <li>○ Minimum stable load - the lowest MW output at which a unit freely operates before it is taken off-line.</li> <li>○ Base Maximum Capacity - the lowest maximum capacity of a unit when environmental operating conditions are the most unfavourable. Any output above that capacity is regarded as additional/overload capacity and is regarded as a real time extension of the band 3 offer.</li> </ul> </li> </ul>
13	Default <i>Generator</i> Offer:	<ul style="list-style-type: none"> <li>• The Default <i>Generator</i> Offer is to be provided to the Market Operator at time of registration and</li> </ul>

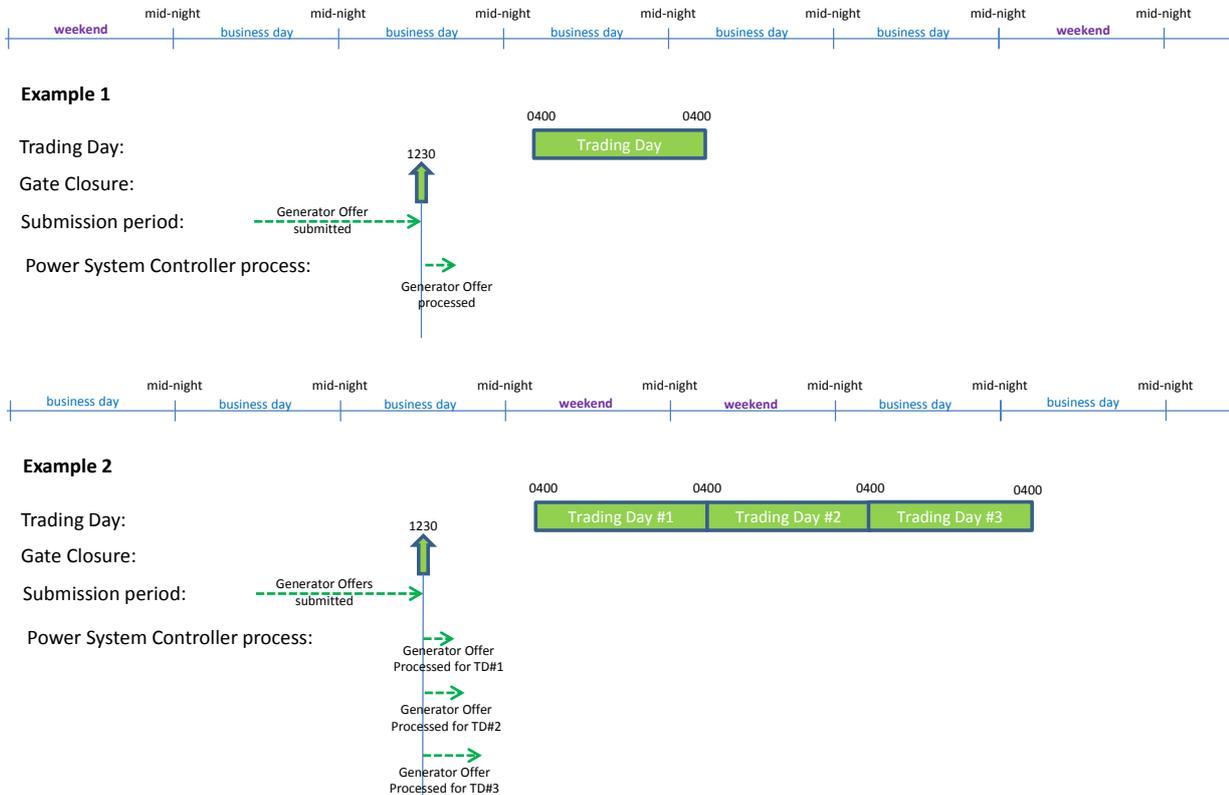
		<p>subsequently when a change to the offer is requested.</p> <ul style="list-style-type: none"> <li>• A special one off Offer (which will be known as the Default <i>Generator</i> Offer) is to be provided at the time the <i>Generator</i> registers with the Market Operator. This is nominally a one-off event.</li> <li>• The Default <i>Generator</i> Offer can be changed at any time after the initial Default <i>Generator</i> Offer is registered.</li> <li>• The Default <i>Generator</i> Offer is separate to a Generator's Offer for any trading day.</li> <li>• The Default <i>Generator</i> Offer will only be used if the <i>Generator's</i> Offer fails to reach the designated System Control email inbox by 1230 hours on a business day.</li> <li>• An update to the Default <i>Generator</i> Offer may be emailed to the Market Operator at any time.</li> </ul>
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## Attachment B: Gate Closure Details

An explanation of the *gate closure* arrangements is provided below.

### Generator Offer Examples

Before gate closure



**Diagram 1 – Examples of Offers submissions before *gate closure***

An Offer must be submitted by email prior to 1230 hours on the day ahead of the nominated trading day in which *gate closure* applies. If no Offer is received by the System Controller for the nominated trading day, the commitment and dispatch process will automatically select that default *Generator Offer* as its replacement.

Whilst it would be expected that an Offer would be made relatively close to the time of *gate closure*, there is no earliest time specified for the transmission of the Offer.

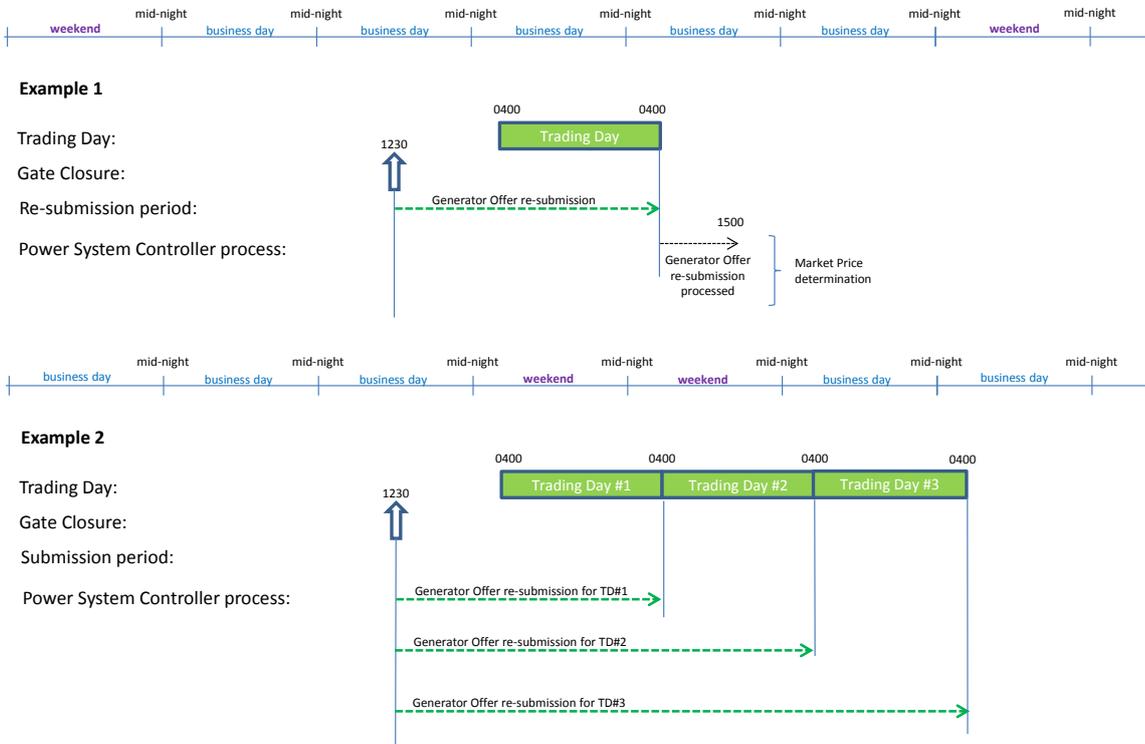
From 1230 hours on the business day immediately ahead of the trading day, an Offer received by the System Controller will be classified as a *Revised Offer* and used in the Market Price determination process. It is at the System Controller's discretion as to whether to accept the *Revised Offer*, and whether to republish the revised pre-dispatch schedule and associated information.

# Attachment C: Re-submission Arrangements

An explanation of the *gate closure* arrangements is provided below (Diagram C.1 and text following the diagram).

Generator Offers

After gate closure



**Diagram C.1 – Examples of Offers after *gate closure***

The *Revised Offer* period commences at 1230 hours on the day a *gate closure* applies and continues until the end of the nominated trading day.

There are two *Revised Offer* scenarios, the 'general' scenario and the 'one *Generator*' scenario.

**The General *Revised Offer* scenario:**

This scenario applies irrespective of the number of *Generators* registered in the *I-NTEM*.

1. An on-line generating unit is requested off-line by a *Generator* prior to the end of the trading day without an approved *GOTR*.
2. The replacement unit capacity is to be priced at the same value as the unit it is replacing.
3. The change in unit price is to be formalised by a *Revised Offer* which has its version number incremented.
4. The *Revised Offer* is to be made in the same manner as the Offer, but the timing will determine its classification.

**The One *Generator Revised Offer* scenario:**

This scenario only applies whilst a single *Generator* is registered in the *I-NTEM*. It falls away once a second *Generator* is registered.

1. Pre-condition: A low capacity unit is either on-line as the marginal unit or it is next in line to be dispatched.

2. Event: An on-line generating unit is forced off-line by equipment mal-function. One or more units are placed on-line to replace the faulty unit.
3. The replacement unit(s) are those above the marginal unit prior to the event. When they are dispatched, the low capacity unit will be elevated in the price stack. The overall impact is that there will be no increase in price relative to the pre-dispatch price.
4. In this situation, the *Generator* may submit a *Revised Offer* to change the price of the replacement capacity to a value of zero \$/MWh<sup>6</sup>.
5. The *Generator* is to formalise the change in unit price by submitting a *Revised Offer*.
6. The *Revised Offer* is to be made in the same manner as the Offer. The timing and the version number will determine its classification.

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<sup>6</sup> A price of zero \$/MWh in effect constrains ON the unit and places it at the bottom of the price stack. This action effectively moves the low capacity unit back to (or above) the marginal position, which was the desired location prior to the forced outage.