

PROPOSAL FOR RULE CHANGE
S/NO. 304

Rule modification title	Rules Modification for EMA's "Review of Policy on Direct Supply of Electricity by Generating Sets to Onsite Loads"
Submitted By : Company: Date: Telephone No.	Market Administration Energy Market Company 24 June 2011 67793000
Rules Version/Chapter/Section	<p>Market Rules: Version 01 January 2011/Chapter 2, 7 (including Appendix 7B), and 8.</p> <p>Market Manuals:</p> <ul style="list-style-type: none"> • Market Administration - Registration and Authorisation: Part 2: Application Form for Generation Facility Registration • Market Operations - Standing Offers, Offer Variations and Standing Data (Chapter 6 Market Rules) • Market Operations - Settlement (Chapter 7 Market Rules)
Description of Market Rules	Please refer to Annex 1 to 4.
Reasons for amendment	<p>The proposed rules modification is to give effect to EMA's policy decision to:</p> <ol style="list-style-type: none"> 1. grant all Embedded Generation Facilities (EGFs) net treatment on non-reserve charges (i.e. MEUC, PSO fees and EMC fees), regardless of whether they export electricity to the power grid; and 2. require EGFs to bid into the market only for their 'export' quantities, and declare their generation quantities for their own consumption to the EMC and the PSO on an <i>ex-ante</i> basis.
Impact of proposed amendment on MP, MO, PSO and general public	<p>EGFs that export electricity to the power grid</p> <ul style="list-style-type: none"> • would be able to receive net treatment; and • would be required to bid into the market for their 'export' quantities, and declare to the EMC and the PSO their generation quantities for their own consumption. .
EMC's Comments	The proposed rules modification is made pursuant to the EMA's directive made under Section 46(2)(b) of the Electricity Act.

Annex 1

Proposed Modifications to the Market Rules

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
1 Net Treatment for all Embedded Generation Facilities (EGFs)		
<u>CHAPTER 2 PARTICIPATION</u>	<u>CHAPTER 2 PARTICIPATION</u>	
5.5 <u>NON-INJECTING GENERATION FACILITIES</u>	5.5 <u>NON-INJECTING GENERATION FACILITIES</u>	
<p>Explanatory Note: The classification of a generation facility as a “non-injecting generation facility” is one of the prerequisites for embedded generators receiving net treatment on certain non-reserve charges (i.e. MEUC, the PSO’s fees and the EMC’s fees) under Chapter 7.</p>	<p>Explanatory Note: The classification of a generation facility as a “non-injecting generation facility” is one of the prerequisites for embedded generators receiving net treatment on certain non-reserve charges (i.e. MEUC, the PSO’s fees and the EMC’s fees) under Chapter 7.</p>	<p>To delete the heading and explanatory note in the existing section 5.5 of Chapter 2.</p>
	<p><u>5.5 EMBEDDED GENERATION FACILITIES</u></p> <p><u>Explanatory Note:</u></p> <p><u>(1) An electricity licensee holding a relevant electricity licence, or a person exempt from the obligation to hold a relevant electricity licence, under the Electricity Act who intends to install a generation facility principally to generate and supply electricity to its load facilities, or such other load facilities, as the Authority may permit may apply to the Authority for approval for that generation facility to be classified by the EMC as an embedded generation facility and to be assigned to an EGF group. Guidance on when the Authority will grant such approval may be found in the Authority’s paper “Review of Policy on Direct Supply of Electricity by Generating Sets to Onsite Loads” dated 18 November</u></p>	<p>To introduce a new heading, “Embedded Generation Facilities” for section 5.5 of Chapter 2 and a new explanatory note to provide an overview of classification as an embedded generation facility (“EGF”), assignment to an EGF group, grant of price neutralisation and cessation of such classification, assignment or grant.</p>

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	<p><u>2009. If the EMC is notified by the Authority that such approval is granted by the Authority, the EMC shall classify that generation facility as an embedded generation facility and effect such assignment in accordance with the market rules. When so classified and assigned, that generation facility will be eligible to receive net treatment on certain non-reserve charges (i.e. MEUC, the PSO's fees and the EMC's fees) under Chapter 7 of the market rules.</u></p> <p><u>(2) An electricity licensee holding a relevant electricity licence, or a person exempt from the obligation to hold a relevant electricity licence, under the Electricity Act may also apply to the Authority for approval for a group of one or more generation facilities to be granted price neutralisation. If the EMC is notified by the Authority that such approval is granted by the Authority, the EMC shall grant price neutralisation to that group in accordance with the market rules.</u></p> <p><u>(3) All of the foregoing applications to the Authority for its approvals will be subject to such procedures, requirements, terms and conditions as the Authority may from time to time impose or prescribe.</u></p> <p><u>(4) The EMC will cease the classification of a generation facility as an embedded generation facility and its assignment to an EGF group, and/or the grant of price neutralisation to that EGF group, if conditions set out in</u></p>	

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	<u>section 5.5.10.1 and/or section 5.5.11.1 (as the case may be) cease to be satisfied or if the Authority notifies the EMC of the Authority’s approval(s) for such cessation(s).</u>	
<p>5.5.1 When applying to register a <i>generation facility</i> under section 5.2, 5.3 or 5.4, a <i>market participant</i> who intends to have that <i>generation facility</i> classified as a <i>non-injecting generation facility</i>, shall, at the time of such application, provide each of the <i>EMC</i> and the <i>MSSL</i> with a copy of the <i>Authority’s</i> written approval for such classification. The <i>EMC</i> shall then classify that <i>generation facility</i> as a <i>non-injecting generation facility</i> upon registration.</p>	<p>5.5.1 When applying to register a <i>generation facility</i> under section 5.2, 5.3 or 5.4, a <i>market participant</i> who intends to have that <i>generation facility</i> classified as a <i>non-injecting generation facility</i>, shall, at the time of such application, provide each of the <i>EMC</i> and the <i>MSSL</i> with a copy of the <i>Authority’s</i> written approval for such classification. The <i>EMC</i> shall then classify that <i>generation facility</i> as a <i>non-injecting generation facility</i> upon registration.</p> <p><u>5.5.1 If the <i>EMC</i> receives notification from the <i>Authority</i> of the <i>Authority’s</i> approval for a <i>generation facility</i> to be classified as an <i>embedded generation facility</i> and assigned to an <i>EGF group</i>, the <i>EMC</i> shall, subject to sections 5.5.2, 5.5.3 and 5.5.4, effect such classification and assignment of that <i>generation facility</i> as stated in such notification from the <i>Authority</i>:</u></p> <p><u>5.5.1.1 upon the registration of that <i>generation facility</i> as a <i>commissioning generation facility</i>, a <i>generation registered facility</i> or a <i>generation settlement facility</i>, if at the date</u></p>	<p>To delete the existing section 5.5.1.</p> <p>To provide that the EMC shall effect the classification of a generation facility (“GF”) as an EGF and effect the assignment of that EGF to an EGF group, as stated in the notification from the EMA to the EMC of the EMA’s approval for such classification and assignment.</p> <p>To provide that the EMC’s effecting of such classification and assignment shall be subject to the new sections 5.5.2, 5.5.3 and 5.5.4 of Chapter 2.</p> <p>To provide that the EMC shall effect such classification and assignment at the time</p>

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	<p><u>of the EMC's receipt of such notification from the Authority:</u></p> <p><u>a. an application had been submitted for that generation facility to be so registered; and</u></p> <p><u>b. such application was then still pending; or</u></p> <p><u>5.5.1.2 within ten business days from the date of the EMC's receipt of such notification from the Authority, if at the date of the EMC's receipt of such notification from the Authority, the generation facility is already registered as a commissioning generation facility, a generation registered facility or a generation settlement facility.</u></p>	<p>specified in these new sections 5.5.1.1 or 5.5.1.2.</p>
<p>5.5.2 A market participant, who wishes its generation facility which is already registered under section 5.2, 5.3 or 5.4 to be classified as a non-injecting generation facility, shall provide each of the EMC and the MSSL, at the same time, with a copy of the Authority's written approval for such classification. The EMC shall classify that generation facility as a non-injecting generation facility no later than ten business days after receiving a copy of such written approval.</p>	<p>5.5.2 A market participant, who wishes its generation facility which is already registered under section 5.2, 5.3 or 5.4 to be classified as a non-injecting generation facility, shall provide each of the EMC and the MSSL, at the same time, with a copy of the Authority's written approval for such classification. The EMC shall classify that generation facility as a non-injecting generation facility no later than ten business days after receiving a copy of such written approval.</p>	<p>To delete the existing section 5.5.2.</p> <p>To provide that the classification and assignment by EMC in respect of a person's GF under the new section 5.5.1 of Chapter 2 shall be subject to:</p>

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	<p><u>5.5.2</u> <u>Notwithstanding section 5.5.1, the classification and assignment in respect of a generation facility of any person under section 5.5.1 shall be subject to:</u></p> <p><u>5.5.2.1</u> <u>that person at all times being a market participant; and</u></p> <p><u>5.5.2.2</u> <u>that generation facility at all times being either a commissioning generation facility, a generation registered facility or a generation settlement facility of such market participant.</u></p>	<p>(1) that person at all times being a market participant (“MP”);</p> <p>(2) that GF at all times being a commissioning generation facility (“CGF”), generation registered facility (“GRF”) or generation settlement facility (“GSF”) of such MP.</p>
<p>5.5.3 A market participant shall ensure that its generation facility, for as long as such generation facility is classified by the EMC as a non-injecting generation facility, does not inject electricity into the transmission system.</p>	<p>5.5.3 A market participant shall ensure that its generation facility, for as long as such generation facility is classified by the EMC as a non-injecting generation facility, does not inject electricity into the transmission system.</p> <p><u>5.5.3</u> <u>Notwithstanding any other provision in this section 5.5, the EMC shall not put into effect any classification, assignment or grant under sections 5.5.1, 5.5.6 or 5.5.7 earlier than the date notified by the market support services licensee to the EMC as being the date by which the market support services licensee will be ready to provide the EMC with all relevant settlement data as may be required, if and</u></p>	<p>To delete the existing section 5.5.3.</p> <p>To provide that the EMC shall not put into effect any classification, assignment or grant under the new sections 5.5.1, 5.5.6 or 5.5.7 of Chapter 2 earlier than the date which the MSSL has notified to the EMC as being the date by which the MSSL will be ready to provide the EMC with all relevant settlement</p>

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	<p><u>when such classification, assignment or grant (as the case may be) is effective, under the market rules.</u></p>	<p>data as may be required, if and when such classification, assignment or grant (as the case may be) is effective, under the market rules.</p>
<p>5.5.4 If a <i>market participant</i> intends for its <i>non-injecting generation facility</i> to inject <i>electricity</i> into the <i>transmission system</i>, the <i>market participant</i> shall obtain the <i>Authority's</i> written approval for cessation of that <i>generation facility's</i> classification as a <i>non-injecting generation facility</i> and provide a copy of such written approval to each of the <i>EMC</i> and the <i>MSSL</i> at the same time. The <i>EMC</i> shall cease to classify that <i>generation facility</i> as a <i>non-injecting generation facility</i> no later than ten <i>business days</i> after receiving a copy of such written approval.</p>	<p>5.5.4 If a <i>market participant</i> intends for its <i>non-injecting generation facility</i> to inject <i>electricity</i> into the <i>transmission system</i>, the <i>market participant</i> shall obtain the <i>Authority's</i> written approval for cessation of that <i>generation facility's</i> classification as a <i>non-injecting generation facility</i> and provide a copy of such written approval to each of the <i>EMC</i> and the <i>MSSL</i> at the same time. The <i>EMC</i> shall cease to classify that <i>generation facility</i> as a <i>non-injecting generation facility</i> no later than ten <i>business days</i> after receiving a copy of such written approval.</p> <p><u>5.5.4 Notwithstanding section 5.5.1, the <i>EMC</i> shall only effect the classification and assignment in respect of a <i>generation facility</i> under section 5.5.1 if, in the <i>Authority's</i> notification to the <i>EMC</i> referred to in section 5.5.1 in respect of that <i>generation facility</i>:</u></p> <p><u>5.5.4.1 that <i>generation facility</i> is to be assigned to a group which contains only <i>embedded generation facilities</i>; and</u></p> <p><u>5.5.4.2 all <i>generation facilities</i> assigned or to be</u></p>	<p>To delete the existing section 5.5.4.</p> <p>To provide that EMC shall only effect the classification and assignment in respect of a GF under the new section 5.5.1 of Chapter 2 if, in the EMA's notification to the EMC (referred to in the new section 5.5.1 of Chapter 2) in respect of that GF:</p> <p>(a) that GF is to be assigned to a group which only contains EGFs; and</p> <p>(b) all GFs assigned or to be assigned to that group are all GFs of the same MP.</p>

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	<p style="text-align: center;"><u>assigned to that group are all generation facilities of the same market participant.</u></p>	
[New section]	<p><u>5.5.5 Upon the classification of a market participant's generation facility as an embedded generation facility and its assignment to an EGF group under section 5.5.1:</u></p> <p><u>5.5.5.1 consumption of electricity by that market participant's load facilities, or such other load facilities, as the Authority may permit shall be assigned as the associated load of that EGF group; and</u></p> <p><u>5.5.5.2 the associated load of that EGF group shall be associated with the settlement account of that EGF group or another market participant's settlement account.</u></p>	<p>To provide that upon the classification of an MP's GF as an EGF and assignment to an EGF group under the new section 5.5.1 of Chapter 2:</p> <p>(a) consumption of electricity by that MP's load facilities, or such other load facilities, as the EMA may permit shall be assigned as the associated load of that EGF group; and</p> <p>(b) the associated load of that EGF group shall be associated with the settlement account of that EGF group or the settlement account of another MP.</p>
[New section]	<p><u>5.5.6 If the EMC receives notification from the Authority of the Authority's approval for a group of one or more generation facilities to be granted price neutralisation, and if an EGF group has not yet been created for all such generation facilities at the date</u></p>	<p>To provide that upon the EMC's receipt of notification from EMA of EMA's approval for a group of one or more GFs to be granted price</p>

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	<p align="center"><u>of the EMC's receipt of such notification from the Authority, the EMC shall, subject to section 5.5.3, grant price neutralisation to that group with effect on and from the date of creation of that EGF group.</u></p>	<p>neutralisation, and if an EGF group has not yet been created for all such GFs at the date of the EMC's receipt of notification from EMA, the EMC shall grant price neutralisation with effect on and from the date of creation of that EGF group.</p> <p>To provide that such grant of price neutralisation shall be subject to the new section 5.5.3 of Chapter 2.</p>
<p>[New section]</p>	<p><u>5.5.7 If the EMC receives notification from the Authority of the Authority's approval for an existing EGF group to be granted price neutralisation, the EMC shall, subject to section 5.5.3, grant price neutralisation to that EGF group with effect on and from a date falling within ten business days from the date of the EMC's receipt of such notification from the Authority.</u></p>	<p>To provide that upon the EMC's receipt of notification from EMA of EMA's approval for an existing EGF group to be granted price neutralisation, the EMC will grant price neutralisation with effect on and from a date falling within 10 business days from the date of the EMC's receipt of such notification from EMA.</p> <p>To provide that such grant of</p>

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		price neutralisation shall be subject to the new section 5.5.3 of Chapter 2.
	5.5.8 In this section 5.5, the reference to the creation of an EGF group is a reference to the assignment of the first embedded generation facility to such EGF group.	To provide that any reference in section 5.5 of Chapter 2 to the creation of an EGF group is a reference to the assignment of the first EGF to such EGF group.
[New section]	5.5.9 <u>A market participant shall, as long as its generation facility is classified by the EMC as an embedded generation facility and assigned to an EGF group, ensure that the associated load of that EGF group in each successive 12-month period (the first of such 12-month periods shall commence from the day that the first embedded generation facility in that EGF group is classified by the EMC as an embedded generation facility and assigned to that EGF group) is at least half of the generation of that EGF group in the same 12-month period.</u>	To provide that, as long as an MP's GF is classified by the EMC as an EGF and assigned to an EGF group, the MP is to ensure that the associated load of that EGF group in each successive 12-month period (of which the first shall commence from the day the EMC effects the classification of the first EGF in that EGF group and the assignment to that EGF group), is at least half of the generation of that EGF group in the same 12-month period.
	5.5.10 The EMC shall cease the classification of a	To require the EMC to cease

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	<p><i>generation facility as an embedded generation facility and its assignment to an EGF group:</i></p> <p><u>5.5.10.1if any of the conditions in section 5.5.2 ceases to be met; or</u></p> <p><u>5.5.10.2no later than ten <i>business days</i> after the <i>EMC</i> receives a notification from the <i>Authority</i> of the <i>Authority's</i> approval for such cessation.</u></p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><u>Explanatory Note: If the registration of an embedded generation facility is transferred from a market participant to another market participant, the EMC will cease to classify that facility as an embedded generation facility and its assignment to its then assigned EGF group. This does not prevent the transferee market participant from seeking fresh approval from the Authority for that facility to be classified as an embedded generation facility of the transferee or assignment to an EGF group.</u></p> </div>	<p>classifying a GF as an EGF and its assignment to an EGF group: (1) if any of the conditions in the new section 5.5.2 of Chapter 2 ceases to be met; or (2) within no later than 10 business days after receiving notice from the EMA of the EMA's approval for such cessation of classification.</p>
	<p><u>5.5.11 The <i>EMC</i> shall cease the grant of <i>price neutralisation</i> to an <i>EGF group</i>:</u></p> <p><u>5.5.11.1if there ceases to be any <i>embedded generation facility</i> assigned to that <i>EGF group</i>; or</u></p>	<p>To require the EMC to cease granting price neutralisation to an EGF group: (1) if there ceases to be any EGF assigned to that group; or (2) no later than 10 business days after</p>

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	<p data-bbox="1032 352 1655 483"><u>5.5.11.2</u>no later than ten <i>business days</i> after the <i>EMC</i> receives a notification from the <i>Authority</i> of the <i>Authority's</i> approval for such cessation.</p> <div data-bbox="1019 552 1666 1169" style="border: 1px solid black; padding: 5px;"> <p data-bbox="1032 560 1655 1161"><u>Explanatory Note: If the registration of an embedded generation facility is transferred from a market participant to another market participant, the EMC will cease to classify that facility as an embedded generation facility and its assignment to its then assigned EGF group. If that EGF group has been granted price neutralisation, the cessation of assignment of that generation facility to that EGF group will also mean that any price neutralisation which may be granted to the EGF group will no longer include such generation facility. The foregoing does not prevent the transferee market participant from seeking fresh approvals from the Authority for that facility to be classified as an embedded generation facility of the transferee, and assigned to an EGF group, and for the grant of price neutralisation to that EGF group.</u></p> </div>	<p data-bbox="1682 352 2040 448">receiving notice from the EMA of the EMA's approval for such cessation.</p>
	<p data-bbox="936 1209 1655 1334"><u>5.5.12</u> To the extent that a <i>generation facility</i> had been classified as a <i>non-injecting generation facility</i> (as defined in the <i>market rules</i> effective immediately before 28 June 2011) effective</p>	<p data-bbox="1682 1209 2040 1334">To provide that GFs classified as non-injecting generation facilities immediately before the effective date of these rule</p>

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	<p>immediately before 28 June 2011, such generation facility shall be deemed to be classified as an embedded generation facility and assigned to an EGF group under section 5.5.1 with effect on and from 28 June 2011 until cessation of classification and assignment is required under section 5.5.10.</p>	<p>changes are deemed classified as EGFs and assigned to an EGF group under the new section 5.5.1 of Chapter 2 with effect on such effective date, until cessation of such classification and assignment is required under the new section 5.5.10 of Chapter 2.</p>
	<p>5.5.13 To the extent that a generation facility had been classified as an embedded generation facility and authorised and assigned to a group for the purposes of price neutralisation under the market rules effective immediately before 28 June 2011, then with effect on and from 28 June 2011:</p> <p>5.5.13.1 that generation facility shall be deemed to be an embedded generation facility to which the EMC has assigned to the aforementioned group as an EGF group until cessation of classification and assignment is required under section 5.5.10; and</p> <p>5.5.13.2 that EGF group shall be granted price neutralisation until cessation of grant of price neutralisation is required under section 5.5.11.</p>	<p>To provide that, to the extent that a GF had been classified as an embedded generation facility under the old rules and authorised and assigned to a group for the purposes of price neutralisation under the market rules effective immediately before the effective date of these rule changes, then with effect on and from such effective date:</p> <p>(a) that GF shall be deemed to be an EGF to which the EMC has assigned to the aforementioned group as an EGF group; and</p>

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		<p>(b) that EGF group shall be granted price neutralisation.</p> <p>To state that (a) above shall remain in effect until cessation of classification and assignment is required under the new section 5.5.10 of Chapter 2.</p> <p>To state that (b) above shall remain in effect until cessation of grant of price neutralisation is required under the new section 5.5.11 of Chapter 2.</p>
<u>CHAPTER 7 SETTLEMENT</u>	<u>CHAPTER 7 SETTLEMENT</u>	
	<p><u>1.3 Transitory Provisions</u></p> <p><u>1.3.1 In relation to <i>dispatch periods</i> commencing before 28 June 2011 (and their corresponding <i>settlement intervals</i>), the following sections in force immediately before 28 June 2011 shall continue to apply, notwithstanding the <i>modifications</i> relating to the following sections taking effect on or from 28 June 2011:</u></p>	<p>To provide that for dispatch periods commencing before the effective date of these rule changes (and their corresponding settlement intervals), the market rules in force immediately before the effective date of these rule changes shall continue to</p>

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	<p align="center"><u>1.3.1.1 section 2.1.2;</u></p> <p align="center"><u>1.3.1.2 section 2.2.3;</u></p> <p align="center"><u>1.3.1.3 section 3.5.3;</u></p> <p align="center"><u>1.3.1.4 section 3.7;</u></p> <p align="center"><u>1.3.1.5 section 4.1.7;</u></p> <p align="center"><u>1.3.1.6 section 4.1.8;</u></p> <p align="center"><u>1.3.1.7 section 4.1.9; and</u></p> <p align="center"><u>1.3.1.8 section 4.4.</u></p>	<p>apply, notwithstanding the rule changes taking effect on or from such effective date.</p>
<p>2.1.2 The <i>EMC</i> shall establish procedures whereby each <i>market participant</i> and <i>market support services licensee</i> shall provide to the <i>EMC</i> such information as may be required by the <i>EMC</i> to establish and maintain a <i>settlement account</i> for it, such that:</p> <p>...</p> <p>except that, where a <i>market participant</i> has embedded <i>generation facilities</i> as defined in section</p>	<p>2.1.2 The <i>EMC</i> shall establish procedures whereby each <i>market participant</i> and <i>market support services licensee</i> shall provide to the <i>EMC</i> such information as may be required by the <i>EMC</i> to establish and maintain a <i>settlement account</i> for it, such that:</p> <p>...</p> <p>except that, where a <i>market participant</i> has <u>embedded</u> embedded <i>generation facilities</i> as defined</p>	<p>To italicise “embedded” as “embedded generation facility” is now to be a defined term in Chapter 8 of the market rules.</p> <p>To replace “group of embedded generation facilities” with “EGF group” as “EGF group” is now to be a</p>

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
<p>4.4.2, the <i>market participant</i> will be associated with a separate <i>settlement account</i> for each group of embedded <i>generation facilities</i>, provided always that, where the <i>market participant</i> only has one group of embedded <i>generation facilities</i> as defined in section 4.4.2, but has no other <i>generation facility</i> or <i>load facility</i>, then such <i>market participant</i> shall be associated only with a single <i>settlement account</i>.</p>	<p>in section 4.4.2, the <i>market participant</i> will be associated with a separate <i>settlement account</i> for each <i>EGF group</i> group of embedded <i>generation facilities</i>, provided always that, where the <i>market participant</i> only has one <i>EGF group</i> group of embedded <i>generation facilities</i> as defined in section 4.4.2, but and has no other <i>generation facility</i> that has not been assigned to such <i>EGF group</i> or and no other <i>load facility</i> which load has not been assigned as the associated load of such <i>EGF group</i>, then such <i>market participant</i> shall be associated only with a single <i>settlement account</i>.</p>	<p>defined term in Chapter 8 of the market rules.</p> <p>To delete “as defined in section 4.4.2” as that phrase is no longer required.</p>
<p>2.2 Energy, Regulation and Reserve Market Data</p>	<p>2.2 Energy, Regulation and Reserve Market Data</p>	
<p>2.2.3 The <i>market support services licensee</i> shall, for each <i>dispatch period</i>, determine and provide the following <i>energy</i> quantities for the <i>settlement interval</i> corresponding to that <i>dispatch period</i>:</p> <p>...</p> <p>WCQ_h^a= total withdrawal charge quantity (in MWh) for <i>settlement account</i> a for <i>settlement interval</i> h, being the quantity of <i>energy</i> determined as follows:</p>	<p>2.2.3 <u>Subject to section 1.3, the</u> The <i>market support services licensee</i> shall, for each <i>dispatch period</i>, determine and provide the following <i>energy</i> quantities for the <i>settlement interval</i> corresponding to that <i>dispatch period</i>:</p> <p>...</p> <p>WCQ_h^a= total withdrawal charge quantity (in MWh) for <i>settlement account</i> a for <i>settlement interval</i> h, being the quantity of <i>energy</i> determined as follows:</p>	<p>To provide that these provisions are subject to the new section 1.3 of Chapter 7.</p> <p>To remove WCQ from the list of metered energy quantity that MSSL provides to EMC as it is no longer required.</p>

Current Market Rules (1 January 2011)				Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)				Reasons for Rule Change	
WEQ _h ^a	minus	sum of all injection energy quantities for all groups of embedded generation facilities (that are comprised wholly of non-injecting generation facilities) whose associated loads are associated with settlement account a for settlement interval h		WEQ_h^a	minus	sum of all injection energy quantities for all groups of embedded generation facilities (that are comprised wholly of non-injecting generation facilities) whose associated loads are associated with settlement account a for settlement interval h			
				<p><u>WFQ_h^a = total withdrawal fee quantity (in MWh) for settlement account a for settlement interval h, being the quantity of energy determined as the sum of:</u></p> <p>(a) <u>the sum of net withdrawal or net injection energy quantities for every EGF group and its associated load which are associated with settlement account a for settlement interval h;</u> <u>and</u></p> <p>(b) <u>withdrawal energy quantity of any other load associated with</u></p>					To add and define a new energy quantity, WFQ, which the MSSL is to be required to determine and provide under this section 2.2.3 of Chapter 7.

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
<p>WPQ_{h(sa)}= total withdrawal price quantity (in MWh) determined for the purpose of nodal price neutralisation under section 4.4, being the quantity of <i>energy</i> deemed to be withdrawn at the <i>SHUB</i> for <i>settlement interval h</i> by the associated <i>load</i> (as defined in section 4.4.4) for each group of embedded <i>generation facilities</i> associated with <i>settlement account</i></p>	<p><i>settlement account a for settlement interval h, which are not associated with any EGF group.</i></p> <p>WMQ_h^a= <u>total withdrawal MEUC quantity (in MWh) for <i>settlement account a for settlement interval h</i>, being the quantity of <i>energy</i> determined as the sum of:</u></p> <p>(a) <u>sum of net withdrawal <i>energy</i> quantities for every <i>EGF group</i> and its associated <i>load</i> which are associated with <i>settlement account a for settlement interval h</i>; and</u></p> <p>(b) <u>withdrawal energy quantity of any other <i>load</i> associated with <i>settlement account a for settlement interval h</i>, which are not associated with any <i>EGF group</i>;</u></p> <p>WPQ_{h(sa)}= total withdrawal price quantity (in MWh) determined for the purpose of nodal price neutralisation under section 4.4 <u><i>price neutralisation</i></u>, being the quantity of <i>energy</i> deemed to be withdrawn at the <i>SHUB</i> for <i>settlement interval h</i> by the associated <i>load</i> (as specified in section 4.4.4) for each <u><i>EGF group</i></u> group of embedded <i>generation</i></p>	<p>To add and define a new energy quantity, WMQ, which the MSSL is to be required to determine and provide under this section 2.2.3 of Chapter 7.</p> <p>To delete the word “nodal price neutralisation under section 4.4” and replace it with the italicised term “price neutralisation” as “price neutralisation” is now to be a defined term under Chapter 8 of the market rules.</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
<p>sa</p> <p>...</p>	<p>facilities associated with <i>settlement account</i></p> <p>sa</p> <p>...</p>	<p>To remove the reference to existing section 4.4.4 of Chapter 7.</p> <p>To replace “group of embedded generation facilities” with “EGF group” as “EGF group” is now to be a defined term in Chapter 8 of the market rules.</p>
<p>Explanatory Note: WCQ is required for the EMC to determine the amount of MEUC cost to be charged to a settlement account for a settlement interval. Only associated load for a group of embedded generation facilities (which is comprised wholly of non-injecting generation facilities) will be charged MEUC cost based on ‘net load’. All other load will be charged MEUC cost based on ‘gross load’. Hence, in respect of the associated loads for all groups of embedded generation facilities (which are not comprised exclusively of non-injecting generation facilities) associated with a settlement account, WCQ for that settlement account would be equal to WEQ.</p>	<p>Explanatory Note: <u>For dispatch periods commencing on or after 28 June 2011, WCQ WMQ</u> is required for the EMC to determine the amount of MEUC cost to be charged to a settlement account for a settlement interval. Each <u>EGF</u> group (which is comprised wholly of non-injecting generation facilities <u>embedded generation facilities</u>) and their associated load will be charged MEUC cost based on ‘net load’. All other load will be charged MEUC cost based on ‘gross load’. Hence, in respect of the associated loads for all groups of embedded generation facilities (which are not comprised exclusively of non-injecting generation facilities) associated with a settlement account, WCQ for that settlement account would be equal to WEQ.</p> <p><u>For dispatch periods commencing on or after 28 June 2011, WFQ is required for the EMC to determine the</u></p>	<p>To provide that the first and second paragraphs of this explanatory note applies only to dispatch periods commencing on or after the effective date of the rule changes.</p> <p>To replace WCQ with WMQ as WMQ is the quantity used to determine the MEUC cost to be charged to a settlement account.</p> <p>To change the phrase “group of embedded facilities” to “EGF group” as “EGF group”</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
	<p>amount of PSO fee and EMC fee to be charged to a settlement account for a settlement interval. Each EGF group (which is comprised wholly of embedded generation facilities) and their associated load will be charged PSO fee and EMC fee based on “net injection” or “net withdrawal”.</p> <p><u>Dispatch periods commencing before 28 June 2011 (and their corresponding settlement intervals) will continue to be subject to the market rules specified in section 1.3 in force before 28 June 2011.</u></p> <p><u>WCQ – the total withdrawal charge quantity (in MWh) – for dispatch periods commencing before 28 June 2011 (and their corresponding settlement intervals) will still need to be determined and provided by the MSSL for the purpose of settlement adjustments for metering errors, as per the process and for the period set out in Appendix 7B (which is approximately one year beginning 28 June 2011.</u></p>	<p>is now to be a defined term in Chapter 8 of the market rules. To change the reference from “non-injecting generation facilities”, which has now been deleted, to “EGFs”.</p> <p>To delete last sentence of the first paragraph of this explanatory note.</p> <p>To state in the explanatory note why WFQ is required.</p> <p>To state that the sections, which are listed in the new section 1.3 of Chapter 7 and which were effective before the effective date of these rule changes, will continue to apply to dispatch periods commencing before the effective date of these rule changes.</p> <p>To clarify that WCQ for dispatch periods commencing before the effective date of these rule changes (and their</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
		corresponding settlement intervals) will still need to be determined and provided by MSSL for the period set out in Appendix 7B (which is approximately one year after these rule changes take effect).
<u>3.5 SETTLEMENT INTERVAL ENERGY UPLIFT CHARGES</u> ... 3.5.3 The <i>EMC</i> shall, prior to the start of each calendar month, estimate the monthly <i>energy</i> uplift charge (MEUC) for the immediately following calendar month in accordance with section 4.1	<u>3.5 SETTLEMENT INTERVAL ENERGY UPLIFT CHARGES</u> ... 3.5.3 <u>Subject to section 1.3, the</u> The <i>EMC</i> shall, prior to the start of each calendar month, estimate the monthly <i>energy</i> uplift charge (MEUC) for the immediately following calendar month in accordance with section 4.1	To subject this section to the new section 1.3 of Chapter 7.
<u>3.7 NET SETTLEMENT INTERVAL CREDITS</u>	<u>3.7 NET SETTLEMENT INTERVAL CREDITS</u>	
3.7.1 The <i>EMC</i> shall determine the net account <i>settlement</i> credit (NASC) applicable to each <i>settlement account</i> in each <i>settlement interval</i> in accordance with the following formula: $\text{NASC}_h^{a=} \quad \text{NESC}_h^a + \text{NFSC}_h^a + \text{NRSC}_h^a + \text{NTSC}_h^a + \text{VCSC}_h^{a-} - (\text{HEUC}_h \times$	3.7.1 <u>Subject to section 1.3, the</u> The <i>EMC</i> shall determine the net account <i>settlement</i> credit (NASC) applicable to each <i>settlement account</i> in each <i>settlement interval</i> in accordance with the following formula: $\text{NASC}_h^{a=} \quad \text{NESC}_h^a + \text{NFSC}_h^a + \text{NRSC}_h^a + \text{NTSC}_h^a + \text{VCSC}_h^{a-} - (\text{HEUC}_h \times$	To replace WCQ with WMQ as MEUC will be charged based on WMQ, and to subject this section to the new section 1.3 of Chapter 7.

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
<p style="text-align: center;">$WEQ_h^a) - (MEUC \times WCQ_h^a)$</p> <p>where:</p> <p>a = a <i>settlement account</i></p> <p>h = a <i>settlement interval</i></p> <p>3.7.2 The <i>EMC</i> shall determine the net participant <i>settlement credit</i> (NPSC) for each <i>market participant</i> and <i>market support services licensee</i> in each <i>settlement interval</i> in accordance with the following formula:</p> <p>...</p>	<p style="text-align: center;"><math>WEQ_h^a) - (MEUC \times \del{WCQ_h^a} <u>WMQ_h^a</u>)</math></p> <p>where:</p> <p>a = a <i>settlement account</i></p> <p>h = a <i>settlement interval</i></p> <p>3.7.2 <u>Subject to section 1.3, the</u> The <i>EMC</i> shall determine the net participant <i>settlement credit</i> (NPSC) for each <i>market participant</i> and <i>market support services licensee</i> in each <i>settlement interval</i> in accordance with the following formula:</p> <p>...</p>	<p>To subject this section to the new section 1.3 of Chapter 7.</p>
<p>4 <u>RECOVERY OF NON-SETTLEMENT-INTERVAL COSTS</u></p>	<p>4 <u>RECOVERY OF NON-SETTLEMENT-INTERVAL COSTS</u></p>	
<p>4.1 The Monthly Energy Uplift Charge</p>	<p>4.1 The Monthly Energy Uplift Charge</p>	
<p>...</p> <p>4.1.7 Prior to the beginning of each calendar month, the <i>EMC</i> shall project the monthly withdrawal charge quantities (MWCQ) for that calendar month.</p> <p>MWCQ = projected $\sum_h \sum_a WCQ_h^a$,</p>	<p>...</p> <p>4.1.7 <u>Subject to section 1.3, prior</u> Prior to the beginning of each calendar month, the <i>EMC</i> shall project monthly withdrawal charge quantities <u>monthly withdrawal MEUC quantities (MWCQMWMQ)</u> for that calendar month.</p>	<p>To allocate the monthly uplift charges to newly defined WMQ instead of to WCQ; to replace “monthly withdrawal charge quantities” (or</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
<p>where:</p> <p>Σ_h = sum over all <i>settlement intervals</i> h in a calendar month</p> <p>Σ_a = sum over all <i>settlement accounts</i> a</p>	<p>MWCQ <u>MWMQ</u> = projected $\Sigma_h \Sigma_a$ WQC_h^a <u>WMQ_h^a</u>,</p> <p>where:</p> <p>Σ_h = sum over all <i>settlement intervals</i> h in a calendar month</p> <p>Σ_a = sum over all <i>settlement accounts</i> a</p>	<p>“MWCQ”) with “monthly withdrawal MEUC quantities” (or “MWMQ”); and to subject this section 4.1.7 to the new section 1.3 of Chapter 7.</p>
<p>4.1.8 Prior to the beginning of each calendar month, the <i>EMC</i> shall estimate the monthly <i>energy</i> uplift charge (MEUC) for that calendar month as follows:</p> <p>MEUC = MEUA/MWCQ</p>	<p>4.1.8 <u>Subject to section 1.3, prior</u> Prior to the beginning of each calendar month, the <i>EMC</i> shall estimate the monthly <i>energy</i> uplift charge (MEUC) for that calendar month as follows:</p> <p>MEUC = MEUA/MWCQ<u>MWMQ</u></p>	<p>To subject this section 4.1.8 to the new section 1.3 of Chapter 7.</p> <p>To replace MWCQ with the new MWMQ.</p>
<p>4.1.9 Within 1 <i>business day</i> of the beginning of each calendar month, the <i>EMC</i> shall <i>publish</i> the value established for each of MACP, MTRA, MISC, MEUS and MWCQ for that calendar month.</p>	<p>4.1.9 <u>Subject to section 1.3, within</u> Within 1 <i>business day</i> of the beginning of each calendar month, the <i>EMC</i> shall <i>publish</i> the value established for each of MACP, MTRA, MISC, MEUS and MWCQ<u>MWMQ</u> for that calendar month.</p>	<p>To subject this section 4.1.9 to the new section 1.3 of Chapter 7.</p> <p>To replace MWCQ with the new MWMQ.</p>
<p>4.4 (USEP+HEUC)/Nodal Price Neutralisation</p>	<p>4.4 (USEP+HEUC)/Nodal Price Neutralisation</p>	

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
<p>Explanatory note: This section applies to a market participant who satisfies the conditions, and is authorised by the Authority as provided in Section 4.4.1. Each group of embedded generation facilities of a market participant will be associated with a single settlement account of such market participant. The associated load for such a group of embedded generation facilities may be associated with either the settlement account of that group or another market participant’s settlement account.</p>	<p>Explanatory note: This section applies to a market participant who satisfies the conditions, and is authorised by the Authority as provided in Section 4.4.1 <u>an EGF group which the EMC is required to grant such price neutralisation under section 5.5 of Chapter 2</u>. Each <u>such EGF group</u> of one or more embedded generation facilities of a market participant will be associated with a single settlement account of such market participant. The associated load for such a <u>an EGF group</u> of embedded generation facilities may be associated with either the settlement account of that <u>EGF group</u> or another market participant’s settlement account.</p>	<p>To delete the reference to a market participant who is authorised by the EMA, and to change it to note that this section applies to a group of one or more EGFs which the EMA notifies to the EMC of the EMA’s approval for the granting of price neutralisation and which EMC is required to grant price neutralisation under section 5.5 of Chapter 2.</p> <p>To replace “group of one or more embedded generation facilities” with “EGF group” as “EGF group” is now to be a defined term in Chapter 8 of the market rules.</p>
<p>4.4.1 A market participant, who is an <i>electricity licensee</i> and has a <i>generation facility</i> which <i>generates electricity</i> for the consumption of that <i>market participant</i> and/or its <i>related corporations</i> is eligible to apply to the <i>Authority</i> for authorisation for the purpose of this section, provided that such consumption occurs:</p>	<p>4.4.1 A market participant, who is an <i>electricity licensee</i> and has a <i>generation facility</i> which <i>generates electricity</i> for the consumption of that <i>market participant</i> and/or its <i>related corporations</i> is eligible to apply to the <i>Authority</i> for authorisation for the purpose of this section, provided that such consumption occurs:</p>	<p>To delete the existing sections 4.4.1 to 4.4.5 as the existing sections 4.4.1 to 4.4.5 are no longer required with the introduction of the new section 5.5 of Chapter 2 above.</p>

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
<p>4.4.1.1 on the same physical site as the site of such <i>generation facility</i>; or</p> <p>4.4.1.2 on the physical site that is:</p> <p style="padding-left: 40px;">a. majority owned by the <i>market participant</i> or any of its <i>related corporations</i>; and</p> <p style="padding-left: 40px;">b. immediately adjacent and contiguous to the site of such <i>generation facility</i>.</p>	<p>4.4.1.1 on the same physical site as the site of such <i>generation facility</i>; or</p> <p>4.4.1.2 on the physical site that is:</p> <p style="padding-left: 40px;">a. majority owned by the <i>market participant</i> or any of its <i>related corporations</i>; and</p> <p style="padding-left: 40px;">b. immediately adjacent and contiguous to the site of such <i>generation facility</i>.</p>	
<p>4.4.2 Upon authorisation granted by the <i>Authority</i> referred to in section 4.4.1, the <i>generation facility</i> which satisfies the conditions in section 4.4.1.1 or 4.4.1.2 shall be classified as an embedded <i>generation facility</i>.</p>	<p>4.4.2 Upon authorisation granted by the <i>Authority</i> referred to in section 4.4.1, the <i>generation facility</i> which satisfies the conditions in section 4.4.1.1 or 4.4.1.2 shall be classified as an embedded <i>generation facility</i>.</p>	<p>See above.</p>
<p>4.4.3 The <i>Authority</i> shall assign each embedded <i>generation facility</i> to a group containing only embedded <i>generation facilities</i>. Two or more embedded <i>generation facilities</i> shall be assigned to the same group if and only if:</p> <p style="padding-left: 40px;">4.4.3.1 they are <i>generation facilities</i> of the same <i>market participant</i>; and</p> <p style="padding-left: 40px;">4.4.3.2 they are on the same physical site or on</p>	<p>4.4.3 The <i>Authority</i> shall assign each embedded <i>generation facility</i> to a group containing only embedded <i>generation facilities</i>. Two or more embedded <i>generation facilities</i> shall be assigned to the same group if and only if:</p> <p style="padding-left: 40px;">4.4.3.1 they are <i>generation facilities</i> of the same <i>market participant</i>; and</p> <p style="padding-left: 40px;">4.4.3.2 they are on the same physical site or on</p>	<p>See above.</p>

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
<p>physical sites that are immediately adjacent and contiguous to each other.</p>	<p>physical sites that are immediately adjacent and contiguous to each other.</p>	
<p>4.4.4 Consumption of <i>electricity</i> that meets the conditions set out in section 4.4.1.1 or 4.4.1.2 with regard to a group of embedded <i>generation facilities</i> shall be classified as the associated <i>load</i> for that group.</p>	<p>4.4.4 Consumption of <i>electricity</i> that meets the conditions set out in section 4.4.1.1 or 4.4.1.2 with regard to a group of embedded <i>generation facilities</i> shall be classified as the associated <i>load</i> for that group.</p>	<p>See above.</p>
<p>4.4.5 The associated <i>load</i> of each group of embedded <i>generation facilities</i> may be associated with the <i>settlement account</i> of that group or another <i>market participant's settlement account</i>.</p>	<p>4.4.5 The associated <i>load</i> of each group of embedded <i>generation facilities</i> may be associated with the <i>settlement account</i> of that group or another <i>market participant's settlement account</i>.</p>	<p>See above.</p>
<p>[New section]</p>	<p><u>4.4.1 Subject to section 1.3, the provisions of this section 4.4 shall apply only to an <i>EGF group</i> which the <i>EMC</i> is required to grant <i>price neutralisation</i> under section 5.5 of Chapter 2.</u></p>	<p>To state that the provisions of this section 4.4 only apply to an EGF group which the EMC is required under the new section 5.5 of Chapter 2 to grant such price neutralisation.</p>
<p>4.4.6 For each <i>settlement interval</i>, if the sum of positive injections of a group of embedded <i>generation facilities</i> into the <i>transmission system</i> is less than or equal to its associated <i>load</i>, the <i>EMC</i> shall determine the net energy load credit (NELC) for that group as follows: ...</p>	<p>4.4.62 <u>Subject to section 4.4.1, for For each <i>settlement interval</i>, if the sum of positive injections of an <i>EGF group</i> a group of embedded <i>generation facilities</i> into the <i>transmission system</i> is less than or equal to its associated <i>load</i>, the <i>EMC</i> shall determine the net energy load credit (NELC) for that group as follows: ...</u></p>	<p>To re-number existing section 4.4.6 as 4.4.2. To subject this section 4.4.2 to the new section 4.4.1 of Chapter 7. To replace “group of</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
		embedded generation facilities” with “EGF group” as “EGF group” is now to be a defined term in Chapter 8 of the market rules.
<p>4.4.7 For each <i>settlement interval</i>, if the sum of positive injections of a group of embedded <i>generation facilities</i> into the <i>transmission system</i> is greater than its associated <i>load</i>, the <i>EMC</i> shall determine the net energy generation credit (NEGC) for that group in accordance with sections 4.4.7.1 to 4.4.7.4.</p>	<p>4.4.73 <u>Subject to section 4.4.1, for</u> For each <i>settlement interval</i>, if the sum of positive injections of <u>an <i>EGF group</i></u> a group of embedded <i>generation facilities</i> into the <i>transmission system</i> is greater than its associated <i>load</i>, the <i>EMC</i> shall determine the net energy generation <u><i>generation</i></u> credit (NEGC) for that group in accordance with sections 4.4.73.1 to 4.4.73.4.</p>	<p>To re-number existing section 4.4.7 as 4.4.3.</p> <p>To replace “group of embedded generation facilities” with “EGF group” as “EGF group” is now to be a defined term in Chapter 8 of the market rules.</p> <p>To subject this section 4.4.3 to the new section 4.4.1 of Chapter 7.</p> <p>To italicise “generation” as “generate” is a defined term in Chapter 8 of the market rules.</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
4.4.7.1 The <i>EMC</i> shall rank all <i>MNNs</i> associated with the <i>settlement account</i> assigned to that group (excluding <i>MNNs</i> at which the injection <i>energy</i> quantity for the <i>settlement interval</i> is negative) in increasing injection <i>energy</i> quantity at each <i>MNN</i> in the <i>settlement interval</i> , such that: ...	4.4. 73 .1 The <i>EMC</i> shall rank all <i>MNNs</i> associated with the <i>settlement account</i> assigned to that group (excluding <i>MNNs</i> at which the injection <i>energy</i> quantity for the <i>settlement interval</i> is negative) in increasing injection <i>energy</i> quantity at each <i>MNN</i> in the <i>settlement interval</i> , such that: ...	To re-number existing section 4.4.7.1 as 4.4.3.1.
4.4.7.2 The <i>EMC</i> shall determine an index size function $S(z)$ such that: $S(z) = \text{injection energy quantity at the } MNN \text{ ranked at index position } z \text{ under section 4.4.7.1}$ $S(z) \leq S(z+1)$	4.4. 73 .2 The <i>EMC</i> shall determine an index size function $S(z)$ such that: $S(z) = \text{injection energy quantity at the } MNN \text{ ranked at index position } z \text{ under section 4.4.73.1}$ $S(z) \leq S(z+1)$	To re-number existing section 4.4.7.2 as 4.4.3.2.
4.4.7.3 The <i>EMC</i> shall determine $T(z)$ such that: ...	4.4. 73 .3 The <i>EMC</i> shall determine $T(z)$ such that: ...	To re-number existing section 4.4.7.3 as 4.4.3.3.

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
4.4.7.4 The <i>EMC</i> shall determine the NEGC for that group for the <i>settlement interval</i> as follows: ...	4.4.73.4 The <i>EMC</i> shall determine the NEGC for that group for the <i>settlement interval</i> as follows: ...	To re-number existing section 4.4.7.4 as 4.4.3.4.
4.4.8 The NEGC and NELC determined for each <i>settlement interval</i> of a given <i>trading day</i> and payable to a given <i>market participant</i> , shall be aggregated and included in that <i>market participant's preliminary settlement statement</i> for that <i>trading day</i> .	4.4.84 <u>Subject to section 4.4.1, the</u> The NEGC and NELC determined for each <i>settlement interval</i> of a given <i>trading day</i> and payable to a given <i>market participant</i> , shall be aggregated and included in that <i>market participant's preliminary settlement statement</i> for that <i>trading day</i> .	To re-number existing section 4.4.8 as 4.4.4. To subject this section 4.4.4 to the new section 4.4.1 of Chapter 7.
4.4.9 The <i>EMC</i> shall determine the net <i>energy</i> adjustment amount (NEAA) for each <i>settlement interval</i> as follows: ... where: ... Σ_{sa} = sum over the <i>settlement accounts</i> <i>sa</i> of all groups of embedded <i>generation facilities</i>	4.4.95 <u>Subject to section 4.4.1, the</u> The <i>EMC</i> shall determine the net <i>energy</i> adjustment amount (NEAA) for each <i>settlement interval</i> as follows: ... where: ... Σ_{sa} = sum over the <i>settlement accounts</i> <i>sa</i> of all <u><i>EGF groups</i></u> groups of embedded <i>generation facilities</i>	To re-number existing section 4.4.9 as 4.4.5. To subject this section 4.4.5 to the new section 4.4.1 of Chapter 7. To replace “groups of embedded generation facilities” with “EGF groups” as “EGF group” is now to be a defined term in Chapter 8 of the market rules.
4.4.10 For each <i>settlement interval</i> , the <i>EMC</i> shall	4.4.106 <u>Subject to section 4.4.1, for</u> For each <i>settlement</i>	To re-number existing section

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
<p>determine the net <i>energy</i> adjustment debit (NEAD) applicable to each <i>market participant</i> or <i>market support services licensee</i> who has withdrawn <i>energy</i> from the <i>transmission system</i> in that <i>settlement interval</i> as follows:</p> <p>...</p> <p>where:</p> <p>...</p> <p>$R_{h(sa)}^a$ = minimum of $WPQ_{h(sa)}^a$ or $\sum_{m(sa)} IEQ_h^{m(sa)}$, if <i>settlement account</i> a is associated with the associated <i>load</i> for a group of embedded <i>generation facilities</i> associated with <i>settlement account</i> sa that has been granted price neutralisation under this section 4.4</p> <p>$R_{h(sa)}^a$ = 0, if <i>settlement account</i> a is not associated with any associated <i>load</i> for a group of embedded <i>generation facilities</i> associated with <i>settlement account</i> sa that has been granted price neutralisation under this section 4.4</p> <p>$WPQ_{h(sa)}^a$ = associated <i>load</i>, associated with <i>settlement account</i> a, for a group of embedded <i>generation facilities</i> associated with <i>settlement account</i> sa that has been</p>	<p><i>interval</i>, the <i>EMC</i> shall determine the net <i>energy</i> adjustment debit (NEAD) applicable to each <i>market participant</i> or <i>market support services licensee</i> who has withdrawn <i>energy</i> from the <i>transmission system</i> in that <i>settlement interval</i> as follows:</p> <p>...</p> <p>where:</p> <p>...</p> <p>$R_{h(sa)}^a$ = minimum of $WPQ_{h(sa)}^a$ or $\sum_{m(sa)} IEQ_h^{m(sa)}$, if <i>settlement account</i> a is associated with the associated <i>load</i> for an <u><i>EGF group</i></u> a group of embedded <i>generation facilities</i> associated with <i>settlement account</i> sa that has been <u>is required to be granted price neutralisation</u> price neutralisation under this section 4.4 <u>section 5.5 of Chapter 2</u></p> <p>$R_{h(sa)}^a$ = 0, if <i>settlement account</i> a is not associated with any associated <i>load</i> for an <u><i>EGF group</i></u> a group of embedded <i>generation facilities</i> associated with <i>settlement account</i> sa that has been <u>is required to be granted price neutralisation</u> price neutralisation under this section 4.4 <u>section 5.5 of Chapter 2</u></p> <p>$WPQ_{h(sa)}^a$ = associated <i>load</i>, associated with</p>	<p>4.4.10 as 4.4.6.</p> <p>To subject this section 4.4.6 to the new section 4.4.1 of Chapter 7.</p> <p>To replace “group of embedded generation facilities” with “EGF group” as “EGF group” is now to be a defined term in Chapter 8 of the market rules.</p> <p>To replace “has been granted price neutralisation under this section 4.4” with “is required to be granted price neutralisation under section 5.5 of Chapter 2”.</p> <p>To italicise the term “price neutralisation” where it appears, as it is now to be a defined term under Chapter 8 of the market rules.</p>

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
<p>granted price neutralisation under this section 4.4</p> <p>$\Sigma_{sa(a)}$ = sum over all <i>settlement accounts</i> <i>sa</i> of all groups of embedded <i>generation facilities</i> whose associated <i>loads</i> are associated with <i>settlement account a</i></p> <p>...</p>	<p><i>settlement account a</i>, for <u>an <i>EGF group</i></u> a group of embedded <i>generation facilities</i> associated with <i>settlement account sa</i> that has been <u>is required to be granted price neutralisation</u> under this section 4.4 <u>section 5.5 of Chapter 2</u></p> <p>$\Sigma_{sa(a)}$ = sum over all <i>settlement accounts sa</i> of all <u><i>EGF groups</i></u> groups of embedded <i>generation facilities</i> whose associated <i>loads</i> are associated with <i>settlement account a</i></p> <p>...</p>	
<p>4.4.11 The NEAD determined for each <i>settlement interval</i> of a given <i>trading day</i> and payable by a given <i>market participant</i> or <i>market support services licensee</i>, shall be aggregated and included in that <i>market participant's preliminary settlement statement</i> for that <i>trading day</i>.</p>	<p>4.4.47 Subject to section 4.4.1, the The NEAD determined for each <i>settlement interval</i> of a given <i>trading day</i> and payable by a given <i>market participant</i> or <i>market support services licensee</i>, shall be aggregated and included in that <i>market participant's preliminary settlement statement</i> for that <i>trading day</i>.</p>	<p>To re-number existing section 4.4.11 as 4.4.7.</p> <p>To subject this section 4.4.7 to the new section 4.4.1 of Chapter 7.</p>
<p>APPENDIX 7B - PROCESS FOR SETTLEMENT ADJUSTMENTS FOR METERING ERRORS</p>	<p>APPENDIX 7B - PROCESS FOR SETTLEMENT ADJUSTMENTS FOR METERING ERRORS</p>	
<p>B.1 <u>PURPOSE</u></p> <p>...</p> <p>[new rule]</p>	<p>B.1 <u>PURPOSE</u></p> <p>...</p> <p><u>B.1.2 In relation to <i>dispatch periods</i> commencing before 28 June 2011 (and their corresponding</u></p>	<p>To provide that for <i>dispatch periods</i> and their</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change																
	<p><u>settlement intervals</u>), the following sections in force immediately before 28 June 2011 shall apply, notwithstanding the modifications relating to the following sections taking effect on or from 28 June 2011:</p> <p><u>B.1.2.1 section B.3.1;</u></p> <p><u>B.1.2.2 section B.4.2;</u> and</p> <p><u>B.1.2.3 section B.4.2A.</u></p>	<p>corresponding settlement intervals commencing before the effective date of the rule change, these rules in force immediately before the effective date of the rule change shall apply.</p>																
<p><u>B.3 Schedule Of Metering Data To Be Submitted By The Market Support Services Licensee To The EMC For Settlement Purposes</u></p>	<p><u>B.3 Schedule Of Metering Data To Be Submitted By The Market Support Services Licensee To The EMC For Settlement Purposes</u></p>																	
<p>B.3.1 The <i>market support services licensee</i> shall, in accordance with the schedule below, submit the relevant <i>metering data</i> or corrected <i>metering data</i> to the <i>EMC</i>:</p> <table border="1" data-bbox="259 1107 837 1345"> <thead> <tr> <th data-bbox="259 1107 389 1345">Submission Time</th> <th data-bbox="389 1107 533 1345">Content of Metering Data</th> <th data-bbox="533 1107 676 1345">Purpose</th> <th data-bbox="676 1107 837 1345">The change in IEQ (ΔIEQ), WEQ (ΔWEQ) or WCQ</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Submission Time	Content of Metering Data	Purpose	The change in IEQ (Δ IEQ), WEQ (Δ WEQ) or WCQ					<p>B.3.1 <u>Subject to section B.1.2,</u> the <i>market support services licensee</i> shall, in accordance with the schedule below, submit the relevant <i>metering data</i> or corrected <i>metering data</i> to the <i>EMC</i>:</p> <table border="1" data-bbox="1005 1107 1583 1345"> <thead> <tr> <th data-bbox="1005 1107 1135 1345">Submission Time</th> <th data-bbox="1135 1107 1279 1345">Content of Metering Data</th> <th data-bbox="1279 1107 1422 1345">Purpose</th> <th data-bbox="1422 1107 1583 1345">The change in IEQ (ΔIEQ), WEQ (ΔWEQ), <u>WFQ</u></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Submission Time	Content of Metering Data	Purpose	The change in IEQ (Δ IEQ), WEQ (Δ WEQ), <u>WFQ</u>					<p>To replace existing WCQ with WFQ or WMQ where applicable.</p> <p>To subject this section B.3.1 to the new section B.1.2 of Appendix 7B.</p>
Submission Time	Content of Metering Data	Purpose	The change in IEQ (Δ IEQ), WEQ (Δ WEQ) or WCQ															
Submission Time	Content of Metering Data	Purpose	The change in IEQ (Δ IEQ), WEQ (Δ WEQ), <u>WFQ</u>															

Current Market Rules (1 January 2011)				Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)				Reasons for Rule Change
			(AWCQ) for affected settlement accounts to be used for settlement adjustment in B.4.				(AWFQ), WCQ (AWCQ) or WMO (AWMQ) for affected settlement accounts to be used for settlement adjustment in B.4.	
On T+5, no later than 5.00pm	Metering data for all settlement accounts for trading day T.	Preliminary settlement statement for trading day T as set out in section 5.4 of this Chapter.	NA	On T+5, no later than 5.00pm	Metering data for all settlement accounts for trading day T.	Preliminary settlement statement for trading day T as set out in section 5.4 of this Chapter.	NA	

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
<p>B.4 METHODOLOGY OF SETTLEMENT ADJUSTMENT</p>	<p>B.4 METHODOLOGY OF SETTLEMENT ADJUSTMENT</p>	
<p>...</p> <p>B.4.2 The <i>metering error</i> adjustments for each affected <i>settlement account</i> for each <i>settlement interval</i> shall be determined as follows:</p> <p>...</p> <p><i>Load metering error</i> adjustment (LMEA) shall be determined as follows:</p> $LMEA_h^a = [(USEP_h + AFP_h + HEUC_h) \times \Delta WEQ_h^a] + [(MEUC_h + PSOA_h + EMCA_h) \times \Delta WCQ_h^a]$ <p>...</p> <p>Where:</p> <p>...</p> <p>(vi) $\Delta IEQ_h^{m(a)}$, ΔWEQ_h^a and ΔWCQ_h^a are computed based on B.3.1 above.</p>	<p>...</p> <p>B.4.2 <u>Subject to section B.1.2, the</u> The <i>metering error</i> adjustments for each affected <i>settlement account</i> for each <i>settlement interval</i> shall be determined as follows:</p> <p>...</p> <p><i>Load metering error</i> adjustment (LMEA) shall be determined as follows:</p> $\del{LMEA_h^a = [(USEP_h + AFP_h + HEUC_h) \times \Delta WEQ_h^a] + [(MEUC_h + PSOA_h + EMCA_h) \times \Delta WCQ_h^a]}$ $\underline{\underline{LMEA_h^a = [(USEP_h + AFP_h + HEUC_h) \times \Delta WEQ_h^a] + [MEUC_h \times \Delta WMQ_h^a] + [(PSOA_h + EMCA_h) \times \Delta WFQ_h^a]}}$ <p>...</p> <p>Where:</p> <p>...</p> <p>(vi) $\Delta IEQ_h^{m(a)}$, ΔWEQ_h^a, $\del{\Delta WCQ_h^a}$, $\underline{\underline{\Delta WFQ_h^a}}$</p>	<p>To replace existing WCQ with WFQ or WMQ where applicable.</p> <p>To subject this section B.4.2 to the new section B.1.2 of Appendix 7B.</p>

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
	<p align="center"><u>and ΔWMO_i^a</u> are computed based on B.3.1 above.</p>	
<p>B.4.2A Generation <i>metering error</i> adjustment for fees (GMEF) shall not be applicable to a <i>settlement account</i> a associated with a group of embedded <i>generation facilities</i> which is comprised wholly of <i>non-injecting generation facilities</i>.</p>	<p>B.4.2A Subject to section B.1.2, <i>generation</i> Generation <i>metering error</i> adjustment for fees (GMEF) shall not be applicable to a <i>settlement account</i> a associated with a group of embedded generation facilities <u>an EGF group</u> which is comprised wholly of non-injecting generation facilities.</p>	<p>To delete the phrase “a group of embedded generation facilities” and replace it with “EGF group” as it is now to be a defined term in Chapter 8 of the market rules.</p> <p>To delete the phrase “<i>non-injecting generation facilities</i>”.</p> <p>To subject this section to the new section B.1.2 of Appendix 7B.</p> <p>To italicise “generation” as “generate” is a defined term in Chapter 8 of the market rules.</p>
<p align="center">CHAPTER 8 DEFINITIONS</p>	<p align="center">CHAPTER 8 DEFINITIONS</p>	

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
[new definition]	1.1.[] EGF group means a group comprising of one or more embedded generation facilities assigned to such group under section 5.5 of Chapter 2;	To define “EGF group”.
[new definition]	1.1.[] embedded generation facility means a generation facility which is classified as such by the EMC under section 5.5 of Chapter 2;	To define “embedded generation facility”.
1.1.124 <i>load</i> means the withdrawal of <i>energy</i> from the <i>transmission system</i> ;	1.1.124 <i>load</i> means the withdrawal of <i>energy</i> from the <i>transmission system</i> <u>or from any embedded generation facility otherwise than through the transmission system;</u>	To expand the definition of load to include the withdrawal of energy from an EGF otherwise than through the transmission system.

<p align="center">Current Market Rules (1 January 2011)</p>	<p align="center">Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)</p>	<p align="center">Reasons for Rule Change</p>
<p>1.1.125 <i>load facility</i> means a facility that draws <i>energy</i> from the <i>transmission system</i>;</p>	<p>1.1.125 <i>load facility</i> means a facility that draws <u>may withdraw</u> energy from <u>(a) the transmission system;</u> <u>(b) any embedded generation facility otherwise than through the transmission system;</u> or (c) both <u>(a) and (b);</u></p>	<p>To expand the definition of load facility to include a facility which may withdraw energy from an EGF otherwise than through the transmission system, as well as a facility which may withdraw energy from both the transmission system as well as any EGF otherwise than through the transmission system.</p> <p>To change the term “draw” to “withdraw” for consistency with the existing definition of “load” in Chapter 8.</p> <p>To use the words “may withdraw” to indicate that a load facility does not cease to be a load facility even when it does not withdraw from the transmission system or an EGF at any point in time.</p>

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
1.1.165 <i>non-injecting generation facility</i> means a <i>generation facility</i> that is, with the approval of the <i>Authority</i> , for the time being classified as such by the <i>EMC</i> under section 5.5.1 or 5.5.2 of Chapter 2 and is, by virtue of such classification, not permitted to inject <i>electricity</i> into the <i>transmission system</i> under section 5.5.3 of Chapter 2;	1.1.165 <i>non-injecting generation facility</i> means a <i>generation facility</i> that is, with the approval of the <i>Authority</i>, for the time being classified as such by the <i>EMC</i> under section 5.5.1 or 5.5.2 of Chapter 2 and is, by virtue of such classification, not permitted to inject <i>electricity</i> into the <i>transmission system</i> under section 5.5.3 of Chapter 2;	To remove the definition of non-injecting generation facility.
[new definition]	<u>1.1.[] <i>price neutralisation</i> means (USEP+HEUC)/nodal price neutralisation under section 4.4 of Chapter 7;</u>	To define “price neutralisation”.
2. EGF-GRF to Bid for Export Quantities only		
<u>CHAPTER 6 MARKET OPERATION</u>	<u>CHAPTER 6 MARKET OPERATION</u>	
5.2 <u>Form of Energy Offers</u>	5.2 <u>Form of Energy Offers</u>	
[New section]	<u>5.2.5A Notwithstanding sections 5.2.4.3 and 5.2.6, for <i>energy offers</i> in respect of a <i>generation registered facility</i> that is an <i>embedded generation facility</i>:</u>	To prescribe that the quantity value for the first price-quantity price pair in an energy offer of a GRF that is an EGF shall be the intended quantity of electricity which the embedded generation facility is to generate for the associated load of its EGF group.
	<u>5.2.5A.1 subject to section 5.2.5, the quantity (if any) in the first <i>price-quantity pair</i> of an <i>energy offer</i> shall be the quantity of <i>electricity</i> that the <i>embedded generation facility</i> is intended to <i>generate</i> for the associated <i>load</i> of its <i>EGF group</i>; and</u>	

Current Market Rules (1 January 2011)	Proposed Rules Changes (Deletions represented by strikethrough text and additions represented by double underlined text)	Reasons for Rule Change
	<p>5.2.5A.2 the price in the first price-quantity pair of an energy offer shall be set to equal 95% of CDC, where CDC shall be as specified in section J.2 of Appendix 6J.</p>	<p>To prescribe that the price value for the first price-quantity price pair in an energy offer of a GRF that is an EGF shall be set to equal 95% of CDC, where CDC shall be as specified in section J.2 of Appendix 6J.</p>
	<p><u>Explanatory Note: The price in the first price-quantity pair of the energy offer in respect of an generation registered facility that is an embedded generation facility will be set below the lower limit for energy offers so that the energy offered from embedded generation facility for consumption by the associated load of its EGF group will have a higher priority to be dispatched.</u></p>	

Annex 2

Proposed Modifications to Application Form for Generation Facility Registration

Application form for Generation Facility Registration

including explanatory notes

IMPORTANT: Please read this carefully before completing this form. Italicised words and expressions used herein (but not otherwise defined herein) shall have the same meanings respectively ascribed to them in the Singapore Electricity Market Rules.

Why do you need to complete this form?

Under the *market rules*, if you are not a *market support services licensee*, you are **not permitted** to participate in the *real-time markets* or to cause or permit any *physical service* to be conveyed into, through or out of the *transmission system* unless you have been registered by the *EMC* as a *market participant*, and your facility to or from which the *physical service* is to be so conveyed has been registered by the *EMC* as a *registered facility*, a *commissioning generation facility* or as a *generation settlement facility* in accordance with the *market rules*.

The *EMC* is licensed by the Energy Market Authority (the “*Authority*”) to operate the *wholesale electricity markets* (to which the *real-time markets* form a part) in Singapore. One of the *EMC*’s responsibilities is to manage the registration of facilities in the *wholesale electricity markets*. You must complete and submit this form to apply to have a facility registered by the *EMC* if you wish to convey any *physical services* into, through or out of the *transmission system* and that facility is required or permitted to be registered under the *market rules*.

Why did EMC develop this form?

The *EMC* has developed this form for applicants to apply for the relevant facility registration described in the *market rules*. You should read the relevant sections of the *market rules* prior to completing this form. Please also read the *EMC* disclaimer at the end of this form.

Who is eligible to apply for registration?

You must be registered as a *market participant* before you are eligible to apply for registration of your facilities.

If you are only granted *conditional registration* as a *market participant*, you may also apply for registration of your facilities, but your facilities will not be registered unless you become registered as a *market participant* within the relevant conditional registration deadline.

What are the types of facility registration?

The three types of *registered facilities* are:

- *Generation registered facility*
- *Generation settlement facility*
- *Commissioning generation facility* (you need to complete a separate form for this type of registration).

This application form is to be used for application for registration of either a *generation registered facility* or a *generation settlement facility* only. If you wish to register your facility as a *commissioning generation facility*, please use the Application Form for Commissioning Generation Facility Registration.

Generation Registered Facility

If all the *generation facilities* of a *generating station* together have an aggregate name-plate rating of 10 MW or more, all such *generation facilities* must be registered as either a single *generation registered facility* or two or more *generation registered facilities* in accordance with the *market rules*. A *generation registered facility* is subject to *dispatch* by the *PSO*. A *generation registered facility* shall at all times have a valid *standing offer* for each *physical service* that it intends to provide in the *real-time markets*.

Generation Settlement Facility

A *generation settlement facility* is registered for the delivery of *energy* only and is not subject to *dispatch* by the *PSO*. If all the *generation facilities* of a *generating station* together have an aggregate name-plate rating of 1 MW or more but less than 10 MW, all such *generation facilities* must be registered as either a single *generation settlement facility* or two or more *generation settlement facilities* in accordance with the *market rules*. But if any of such *generation facility* is to be subject to *dispatch* by the *PSO*, that *generation facility* must be registered as a *generation registered facility* instead.

When will you know the outcome of your application?

The EMC will notify you in writing of the outcome within 30 *business days* of the EMC being satisfied that your application meets all the requirements for *generation facility* registration under the *market rules*, the applicable *market manuals* and the *system operation manual*. If your application is declined, the notification will identify why this was the case. A duly and accurately completed form will expedite EMC's processing of your application.

What should you do if you have more than one facility to register?

Please fill in a separate form for **each** application for registration of a *generation registered facility* or *generation settlement facility*. You can download additional copies of the form from the EMC website at www.emcsg.com.

Is there an application fee for your application to register your facility?

There is no application fee payable for your application to register your facility.

Summary of registration requirements for a generation registered facility

The key requirements in the process for the registration of your facility as a *generation registered facility* are outlined in the table below:

A	Meet the EMC's requirements	<p>You must be sure that</p> <ul style="list-style-type: none"> ○ your facilities and equipment meet all applicable technical requirements set forth in the <i>market rules</i>, any applicable <i>market manuals</i> or <i>the system operation manual</i>; and ○ you are able to perform all the functions and obligations applicable to you under the <i>market rules</i>, <i>market manuals</i> or <i>system operation manual</i>. <p>If your facility is located outside of Singapore, the <i>EMC</i> may impose additional requirements for the registration of your facility.</p>
B	Meet the PSO's requirements	<ul style="list-style-type: none"> • You must complete the <i>PSO's</i> Data Form for Generation Facility Registration, meeting all the applicable technical requirements and attaching any required documents during submission. • The registration of your facility is subject to the <i>PSO</i> advising the <i>EMC</i> that such facility poses no threat to the <i>reliability</i> or <i>security</i> of the <i>PSO controlled system</i>.
C	Meet metering requirements	<p>You must secure the <u>market support services licensee's MSSL's</u> written confirmation to the <i>EMC</i> that the <u>market support services licensee MSSL</u> is ready to submit all <u>relevant settlement settlement</u> data required under the <i>market rules</i> for your facility to the <i>EMC</i>.</p>
D	Prepare and attach required documents	<p>You must duly complete this application form in respect of your facility and provide all required supporting documents with your application, including the following:</p> <ul style="list-style-type: none"> • A certified true copy of your duly executed <i>connection agreement</i> with the <i>transmission licensee</i> for your facility. • A certified true copy of your duly executed <i>market participant - market support services support licensee</i> agreement with the MSSL <u>market support services licensee</u> for your facility. • An original duly completed Data Form for Generation Facility Registration required by the <i>PSO</i> (as set out in Appendix C of this application form) for your facility. • An original duly completed and executed Certificate and Undertaking (in the form and terms prescribed in Appendix B of this application form) for your facility.
E	Standing Offer Data	<p>You must comply with section D.</p>
F	Registration as a generation registered facility	<p>Your facility will be registered as a <i>generation registered facility</i> if the <i>EMC</i> is satisfied that your facility meets all the requirements for such facility registration under the <i>market rules</i>, the applicable <i>market manuals</i> or the <i>system operation manual</i>. The <i>EMC</i> will notify you of the terms and conditions of the registration in an official notice to you. If your application is declined, the <i>EMC</i> will write to you stating the reasons.</p>

Summary of registration requirements for a generation settlement facility

The key requirements in the process for the registration of your facility as a *generation settlement facility* are outlined in the table below:

<p>A Meet the EMC's requirements</p>	<p>You must be sure that</p> <ul style="list-style-type: none"> ○ your facility meets all applicable technical requirements set forth in the <i>market rules</i>, any applicable <i>market manuals</i> or the <i>system operation manual</i>; and ○ you are able to perform all the functions and obligations applicable to you under the <i>market rules</i>, <i>market manuals</i> or <i>system operation manual</i>. <p>If your facility is located outside of Singapore, the EMC may impose additional requirements for the registration of your facility.</p>
<p>B Meet the PSO's requirements</p>	<ul style="list-style-type: none"> • You must complete the PSO's Data Form for Generation Facility Registration, meeting all the applicable technical requirements and attaching any required documents during submission. • The registration of your facility is subject to the PSO advising the EMC that such facility poses no threat to the <i>reliability</i> or <i>security</i> of the <i>PSO controlled system</i>.
<p>C Meet metering requirements</p>	<p>You must secure the <i>MSSL's market support services licensee's</i> written confirmation to the EMC that the <i>market support services licensee MSSL</i> is ready to submit all <u>relevant settlement</u> settlement data required under the <i>market rules</i> for your facility to the EMC.</p>
<p>D Prepare and attach required documents</p>	<p>You must duly complete this application form in respect of your facility and provide all required supporting documents with your application, including the following:</p> <ul style="list-style-type: none"> • A certified true copy of your duly executed <i>connection agreement</i> with the <i>transmission licensee</i> for your facility. • A certified true copy of your duly executed <i>market participant - market support services support licensee</i> agreement with the <i>market support services licensee MSSL</i> for your facility. • An original duly completed Data Form for Generation Facility Registration required by the PSO (as set out in Appendix C of this application form) for your facility. • An original duly completed and executed Certificate and Undertaking (in the form and terms prescribed in Appendix B of this application form) for your facility.
<p>E Registration as a generation settlement facility</p>	<p>Your facility will be registered as a <i>generation settlement facility</i> if the EMC is satisfied that your facility meets all the requirements for such facility registration under the <i>market rules</i>, the applicable <i>market manuals</i> or the <i>system operation manual</i>. The EMC will notify you of the terms and conditions of the registration in an official notice to you. If your application is declined, the EMC will write to you stating the reasons.</p>

How can you find more information?

In addition to this form and the *market rules*, you may obtain more information by contacting the EMC Market Administration Team by telephone +65 6779 3000. Alternatively, you may visit the EMC website at [http: www.emcsg.com](http://www.emcsg.com).

Please print clearly. Illegible writing or incomplete forms may delay the processing of your application.

A. APPLICANT DETAILS

Name of applicant: _____

Company registration number: _____

Registered Address: _____

B. REGULATORY DETAILS

1. Authorised activities relating to *electricity* under your *electricity licence(s)*?

Note: You may check one or more of the following boxes indicating the type of activities authorized under your *electricity licence(s)*

- generate *electricity*
- retail *electricity*
- transmit *electricity*
- transmit *electricity* for or on behalf of a *transmission licensee*
- import *electricity*
- export *electricity*
- trade in *wholesale electricity market*

Electricity licence number(s) _____

State activities exempted from licensing requirement _____

Exemption order number _____

2. What type of facility registration are you applying for?

- generation registered facility* *generation settlement facility*

3. Derogation requested Yes No

4. Wholesale Electricity settlement account number: _____

C. FACILITY DETAILS

5. Name of the facility: _____

6. Name of owner of the facility: _____

7. Location of the facility: _____

8. Meter ID number(s) _____
(Please also complete **Appendix A** of this application form.)

9. Dispatch coordinator for the facility: _____

(for registration of *generation registered facility* only)

10. Contacts of the dispatch coordinator for the facility:

	Main Contact	Alternate contact
Full Name & Designation		
Contact Numbers		
Email Address		
Hand phone Nos.		
Fax Nos.		

11. Physical service intended to be provided from the facility:

- Energy
- Reserve (Primary Secondary Contingency)
- Regulation

(In the case of a facility to be registered as a *generation settlement facility*, please tick “energy” only.)

12. Other authorisations/approvals granted by the Authority

- ~~• Authorisation for classification of your facility as an embedded generation facility for the purposes of (USEP+HEUC)/Nodal Price Neutralisation Yes No~~
- Approval for classification of your facility as a ~~non-injecting generation facility~~ an embedded generation facility for the purposes of net treatment on non-reserve charges Yes No

[(If the answer to the above is no, is such approval being sought? Yes No)]
- Approval for your facility to be assigned to an EGF group to be, or an EGF group which has been, granted price neutralisation Yes No

[(If the answer to the above is no, is such approval being sought? Yes No)]

~~(If yes, please provide a copy of the Authority’s written authorisation or approval as the case may be.)~~

D. STANDING OFFER DATA

(This section is only applicable if your facility is to be registered as a *generation registered facility*.)

Please provide a *standing offer* for each *physical service* to be provided from your facility to be registered as a *generation registered facility*. Each such *standing offer* for your facility must be submitted to the EMC in the data format required by and in accordance with the EMC’s Market Operations Market Manual on Standing Offers, Offer Variations and Standing Data (Chapter 6 Market Rules).

**E. GENERATION FACILITY REGISTRATION
(FOR SUBMISSION TO THE PSO)**

Please complete the *PSO Data Form for Generation Facility Registration* which is attached as **Appendix C** of this application form. All relevant sections in the form must be duly completed. The duly completed form must be sent to the *EMC* together with all supporting documentation.

F. CHECKLIST OF SUPPORTING DOCUMENTS REQUIRED

You must attach the following documents to your application form:

- A certified true copy of your duly executed *connection agreement* with the *transmission licensee* for your facility.
- A certified true copy of your duly executed *market participant - market support services licensee agreement* with the ~~MSSL~~ market support services licensee for your facility.
- ~~A certified true copy of written authorisation/approval (if any) from the Authority for~~
 - ~~classification of your facility as an embedded generation facility for the purposes of (USEP+HEUC)/Nodal Price Neutralisation~~
 - ~~classification of your facility as a non-injecting generation facility, for the purposes of net treatment on non-reserve charges~~
- An original duly completed Data Form for Generation Facility Registration required by the *PSO* for your facility.
- An original duly completed and executed Certificate and Undertaking (substantially in the form and terms prescribed in **Appendix B** of this application form) for your facility.

=====

FOR EMC OFFICIAL USE

1. Assigned MNN number(s) for this facility _____

INFORMATION PROVIDED BY THE MSSL TO THE EMC

2. Respective RQM (as defined by MSSL) Id no(s) _____

2.1. Location of the facility _____

G. COVENANT AND DECLARATION

We, the undersigned applicant, having read and fully understood the *market rules*, the terms of this application form, the applicable *market manuals*, the *system operations manual*, the *Electricity Act*, and any other applicable laws, codes, rules, procedures or policies that are relevant to or regulate the *wholesale electricity markets* (collectively the 'Regulations'), and/or having had the benefit of relevant independent advice, hereby apply to register our facility either as a *generation registered facility* or a *generation settlement facility* as stated in this application form.

We hereby agree to be bound by, and to comply with, all the Regulations which may be applicable to us, our registration application herein, our facility and our participation in the relevant *wholesale electricity markets*.

We further hereby declare that the information provided by us (or on our behalf) in or in connection with this registration application is true, complete and accurate and not misleading or omitting any material particular (to the best of our knowledge, information and belief after having carried out all necessary due diligence to determine the same) and hereby covenant to be subject to any sanctions, penalties or orders as may be imposed by the relevant authorities/parties under the Regulations, in the event that such information is found to be untrue, misleading or inaccurate in any material particular.

We further hereby covenant to be legally bound by the relevant dispute resolution provisions under the *market rules* and any applicable *market manual*, in the event that this registration application is denied and a dispute arises from such unsuccessful application.

We confirm and acknowledge that the information provided by us (or on our behalf) in or in connection with this registration application may need to be disclosed, communicated or exchanged by the *EMC* to or with other parties, including but not limited to the *Authority*, the *PSO* and the *market support services licensee MSSL*, as necessary, desirable or expedient for the purposes of processing this registration application under the Regulations and we hereby consent to such disclosure, communication or exchange.

Signed for and on behalf of _____ (name of applicant):

Signature: _____

Name of officer: _____

Position/designation: _____

Date: _____

H. EMC'S DISCLAIMER

Energy Market Company Pte Limited ("*EMC*") has produced this publication for use in connection with the Singapore Electricity Market. This publication is not a substitute for and should not be read in lieu of the Singapore Electricity Market Rules or any other applicable laws, codes, rules, procedures, manuals or policies that are relevant to or regulate the Singapore Electricity Market or the electricity industry. The contents of this publication do not constitute legal or business advice and should not be relied upon as a substitute for obtaining such advice.

EMC, its directors and employees, subsidiaries, associates and affiliates make no representations, endorsements or warranties of any kind whatsoever in relation to the contents of this publication, and in no event shall *EMC*, its directors and employees, subsidiaries, associates and affiliates be liable to any party for any damages, claims, expenses or losses of any kind arising from or in connection with any use of or reliance on the accuracy, availability, currency, title, non-infringement, quality, reliability, suitability and completeness of the contents of this publication.

Any modifications or amendments to this publication shall be made in accordance with the relevant provisions of the Singapore Electricity Market Rules.

Annex 3

Proposed Modifications to Market Manual (Market Operations - Standing Offers, Offer Variations and Standing Data)



Energy
Market
Company

MARKET OPERATIONS MARKET MANUAL

Standing Offers, Offer Variations and
Standing Capability Data
(Chapter 6 Market Rules)

20082011

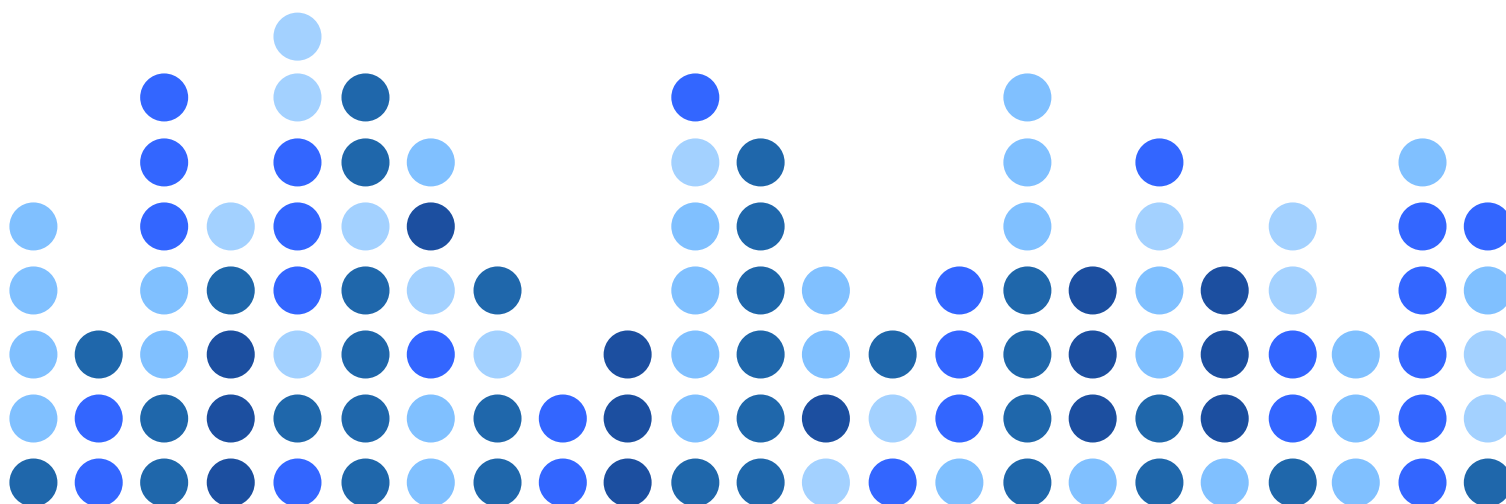


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1 **Definitions**

All terms in italics used in this *market manual* shall have the same meaning as ascribed to them under the Singapore Electricity Market Rules.

2 Standing offers

2.1 What is a “standing offer”?

A *standing offer* refers to an *energy offer*, *reserve offer* or *regulation offer* required to be submitted to the *EMC* in respect of a *generation registered facility* or a *reserve offer* required to be submitted to the *EMC* in respect of a *load registered facility*. Unless the context otherwise requires, references to “*standing offer*” in this *market manual* also include references to “*revised standing offer*”.

A *standing offer* –

- shall be submitted to the *EMC* by the *market participant’s dispatch coordinator* via the *electronic communications system* or secure email;
- shall contain *offers* that comply with the data format in Section 2.6, for each *dispatch period* in each of the seven days of the week;
- may be revised at any time by the *dispatch coordinator* by modifying *offers* comprising the *standing offer* for one or more *dispatch periods* within the seven days covered by the *standing offer*;
- shall, if accepted by the *EMC*, be stored by the *EMC* and be used in the scheduling process unless and until revised by the *dispatch coordinator* and accepted by the *EMC*;
- shall be used in the production of any *market outlook scenarios*, *pre-dispatch schedule scenarios*, *short-term schedules* or *real-time schedules* for those *dispatch periods* for which no valid *offer variations* are held by the *EMC*.

2.2 Methods for submission of standing offers

A *standing offer* may be submitted to the *EMC* in accordance with this *market manual* via:

- the *electronic communications system*, using PowerBid, WebOffer or any other application that is provided or permitted by the *EMC*; or
- secure email in a CSV file format; or
- any other means, in such file format, as may be permitted by the *EMC*.

The **NEMS¹ system** refers to the set of computer systems used by the *EMC* for the purpose of forecasting and scheduling *generation* and *load* in the *wholesale electricity markets*.

PowerBid is an application compatible with the NEMS system that *market participants* may use to create and submit an *offer* to the *EMC*.

¹ NEMS refers to National Electricity Market of Singapore

WebOffer² is a Web-based offer mechanism compatible with the EMC's NEMS system that *market participants* may use to create and submit an *offer* to the EMC.

CSV (comma delimited) file format shall be used for *intertie* submissions. *Market participants* can also use it to make *standing offer* submissions in the event of an *electronic communications system* failure.

2.3 Description of submission process for standing offers

2.3.1 Submission process for standing offers

A *dispatch coordinator* may submit a *standing offer* for a *registered facility* to the EMC via the *electronic communications system* using PowerBid or WebOffer or any other application that is provided or permitted by the EMC.

If a *dispatch coordinator* is unable to submit a *standing offer* to the EMC via the *electronic communications system* using PowerBid or WebOffer for any reason whatsoever, the *dispatch coordinator* shall notify the EMC Helpdesk via phone (see section 6 for contact details).

If the *dispatch coordinator* is able to successfully obtain any *standing offer* file generated by PowerBid in XML Format for the relevant *market participant*, the *dispatch coordinator* shall submit those files via secure email to the EMC. If the *dispatch coordinator* is not able to successfully obtain any *standing offer* file generated by PowerBid in XML Format for the relevant *market participant*, the *dispatch coordinator* shall submit the *standing offer* in the CSV (comma delimited) file format (as prescribed by the EMC³) via secure email to the EMC.

For WebOffer, the *dispatch coordinator* shall submit the *standing offer* in the CSV (comma delimited) file format (as prescribed by the EMC³) via secure email to the EMC in the event when the *electronic communications system* fails.

Upon receipt of the *standing offer*, the EMC shall timestamp and validate the *standing offer* and within five minutes of such receipt:

- confirm the receipt of the *standing offer*;
- notify the status of the *standing offer*; and
- give reasons for any rejections of the *standing offer*

via the *electronic communications system* to the *dispatch coordinator*.

A *dispatch coordinator* that does not receive the confirmation or notification shall immediately notify the EMC Helpdesk via phone. The EMC shall, where the problem lies with the EMC's *electronic communications system*, take steps to rectify the problem as soon as possible and inform the *dispatch coordinator* once the problem with the *electronic communications system* has been resolved.

² The advantages of WebOffer over PowerBid lie in at least two areas. Firstly, the MPs need not to configure SoniqMQ and PowerBid to interact with EMC's system; the Internet browser and network accessibility shall be the only requirements. Hence, it allows easy addition of new MPs. Secondly, it also allows MPs to view their offer submission that is submitted into NEMS system.

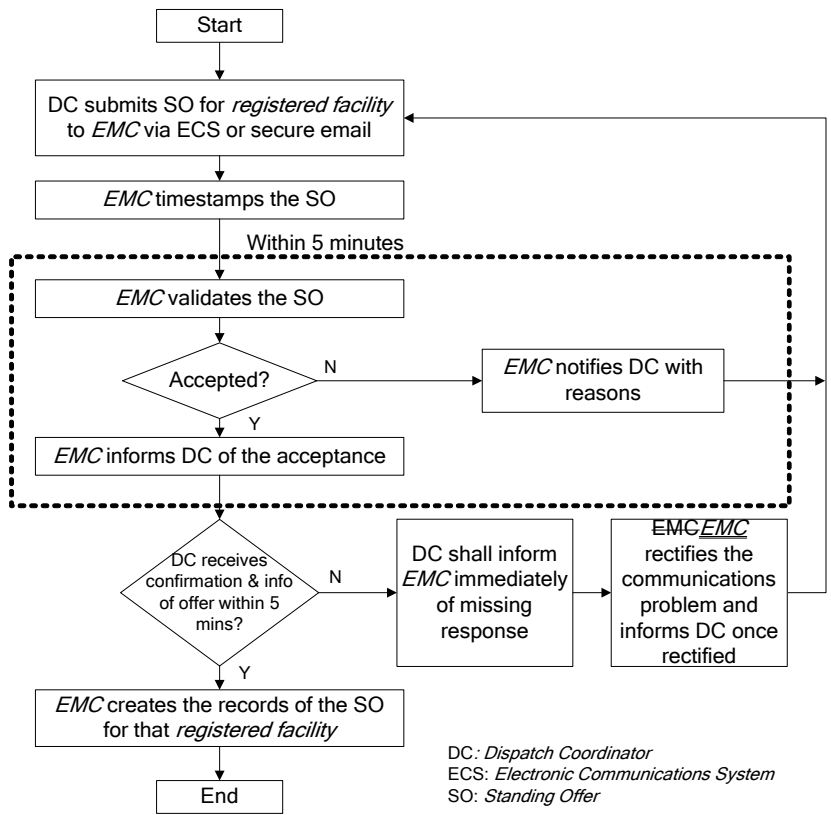
³ The prescribed CSV (comma delimited) file format is available from the EMC. See section 5.2 for more information on how to obtain the prescribed CSV (comma delimited) file format.

If the *EMC* permits a *market participant* to submit *standing offers* via the *electronic communications system* through the use of any alternative application (other than PowerBid and WebOffer), the submission of *standing offers* through the use of such alternative application must comply with all such requirements as the *EMC* may impose from time to time.

Submission of a revised *standing offer* must be made at least 65 minutes before the first *dispatch period* (gate closure) to which that revised *standing offer* is intended to apply. Any revised *standing offers* submitted after gate closure shall be reported to the *market surveillance and compliance panel*.

A flowchart outlining the submission process in respect of *standing offers* is set out in the following section.

2.3.2 Standing offer process flowchart



2.4 Timeline for standing offer submission

Day	Time of Day	Event	Period Covered	Frequency
Prior to facility registration	Any	First <i>standing offer</i> submitted	Until superseded	Once
Any time, until D	T-65 minutes ("gate closure")	Last time at which a valid revised <i>standing offer</i> may be submitted without being reported to the <i>market surveillance and compliance panel</i>	Until superseded	Ongoing/as required
Any time, until D	T-5 minutes	Last time at which a valid revised <i>standing offer</i> is guaranteed to be used in the <i>real-time scheduling</i> process but which shall be reported to the <i>market surveillance and compliance panel</i> if that <i>standing offer</i> was submitted after gate closure	Until superseded	Ongoing/as required

"D" refers to a trading day; and

"T" refers to the beginning of a dispatch period on trading day D.

2.5 Triggers for standing offer submission

A *standing offer* must be submitted prior to registration of a facility with the EMC.

A revised *standing offer* must be submitted when any of the following conditions arises:

- (1) The *registered facility* is not *synchronised* with the *transmission system* and there are no *offer variations*. The *dispatch coordinator* for that *registered facility* shall submit to the EMC a revised *standing offer* where all quantities *offered* for any of *energy*, *reserve* and *regulation* that the *registered facility* is registered to provide shall be zero. These *offer* quantities should be submitted for all *dispatch periods* until the earliest *dispatch period* when it would be possible for that *registered facility* to be *synchronised*.
- (2) The *standing capability data* associated with a *registered facility* is revised and approved. The *dispatch coordinator* for that *registered facility* shall, to the extent necessary for consistency with the revised and approved *standing capability data*, revise and re-submit to the EMC all *standing offers* that apply subsequent to the time at which the revised and approved *standing capability data* takes effect.

2.6 Required form of a standing offer

The *standing offer* submitted by a *market participant* must comply with the data formats described in this *market manual*. If a *standing offer* submission fails to comply with the data requirements, the EMC shall reject the submission and notify the *market participant* within five minutes of receipt of the *standing offer* submission.

There are three types of *standing offers*:

- *energy standing offer*
- *reserve standing offer*
- *regulation standing offer*.

There are three classes of *reserve standing offer*⁴:

- *primary reserve*;
- *secondary reserve*;
- *contingency reserve*.

The *reserve standing offer* may be submitted for either a *generation registered facility* or a *load registered facility*.

The following tables show the data format for *energy*, *reserve* and *regulation standing offers*.

⁴ As referred to in section A.2 of Appendix 5A of the *market rules*.

Table 1 Data format of energy standing offers

Item No	Field	Data Format	Remarks
1	Participant ⁵	Alphanumeric	
2	Type ⁶	Alphanumeric	The value must be: EGO ⁷
3	Unit	Alphanumeric	
4	Day	Mon to Sun	
5	Period	1 to 48	
6	Ramp Up	0 to 99999999999.9	This value is expressed in MW/minute.
7	Ramp Down	0 to 99999999999.9	This value is expressed in MW/minute.
8	Capacity ⁸	0 to 9999999999.9	This value is expressed in MW.
9	Band 1: Price	-9999999999.99 to 9999999999.99	<i>Energy standing offers require 10 price-quantity pairs⁹.</i>
10	Band 1: Quantity	0 to 9999999999.9	Prices are expressed in \$/MWh. Quantities are expressed in MW.

⁵ This field is only applicable to WebOffer.

⁶ This field is only applicable to WebOffer.

⁷ "EGO" refers to *energy offer*.

⁸ "Capacity" refers to the maximum combined capacity referred to in section 5.2.2.5 of Chapter 6 of the market rules.

⁹ For energy standing offers for a generation registered facility that is an embedded generation facility (notwithstanding sections 5.2.4.3 and 5.2.6 of the market rules):

(i) subject to section 5.2.5 of Chapter 6 of the market rules, the quantity (if any) in the first price-quantity pair shall be the quantity of electricity that the embedded generation facility is intended to generate for the associated load of its EGF group; and

(ii) the price in the first price-quantity pair shall be set to equal 95% of CDC, where CDC shall be as specified in section J.2 of Appendix 6J of the market rules.

Table 2 Data format of all classes of reserve standing offers

Item No	Field	Data Format	Remarks
1	Participant ¹⁰	Alphanumeric	
2	Type ¹¹	Alphanumeric	The value must be: RVO ¹²
3	Unit	Alphanumeric	
4	Day	Mon to Sun	
5	Period	1 to 48	
6	Reserve Proportion ¹³	0 to 99.999	<i>Dispatch coordinators of generation registered facilities must take special note of section 5.3.8 of Chapter 6 of the market rules when specifying the reserve proportion.</i>
7	Reserve Class ¹⁴	PRI / SEC / CON ¹⁵	
8	Band 1: Price	0 to 9999999999.99	<i>A reserve standing offer for any reserve class requires 1 to 5 price-quantity pairs.</i>
9	Band 1: Quantity	0 to 999999999.9	Prices are expressed in \$/MWh. Quantities are expressed in MW.

¹⁰ This field is only applicable to WebOffer.

¹¹ This field is only applicable to WebOffer.

¹² "RVO" refers to *reserve offer*.

¹³ This field is not applicable for *standing offers* in respect of *load registered facilities*.

¹⁴ This field is only applicable to WebOffer.

¹⁵ PRI – primary *reserve*; SEC – secondary *reserve*; CON – contingency *reserve*.

Table 3 Data format of regulation standing offers

Item No	Field	Data Format	Remarks
1	Participant ¹⁶	Alphanumeric	
2	Type ¹⁷	Alphanumeric	The value must be: RGO ¹⁸
3	Unit	Alphanumeric	
4	Day	Mon to Sun	
5	Period	1 to 48	
6	Band 1: Price	0 to 99999999999.99	<i>A regulation standing offer requires 1 to 5 price-quantity pairs.</i>
7	Band 1: Quantity	0 to 9999999999.9	Prices are expressed in \$/MWh. Quantities are expressed in MW.

2.7 Rules for validation of standing offers

The validation of *standing offers* ensures that data submitted is (among other things) in the form required for the *market clearing engine*. Upon receiving *standing offers* in the manner prescribed in the provisions of this section 2 above, the NEMS system performs the following validation steps:

1. confirmation that the *standing offers* submission batch record is “well-formed”;
2. confirmation that each *standing offer* record is “well-formed”;
3. validation of the *standing offer* record against the *standing capability data*, the relevant price limits, the relevant quantity limits, and any other applicable requirements set out in the *market rules*.

A “well formed” *standing offer* submission batch record or *standing offer* record means that the record meets the applicable requirements specified in this *market manual*.

Market participants may use PowerBid or WebOffer to submit *standing offers*. PowerBid or WebOffer automatically generates the *standing offer* submission batch in the correct format and this shall be visible to the user.

A *market participant* who is using an alternative application or wishes to develop an alternative application through which a *standing offer* should be submitted via the *electronic communications system* should ensure that the submissions produced by their application meet the applicable requirements specified in this *market manual*.

In steps two and three above, the NEMS system shall validate each *standing offer* submission record according to each of rules one to eleven below as applicable.

¹⁶ This field is only applicable to WebOffer.

¹⁷ This field is only applicable to WebOffer.

¹⁸ “RGO” refers to *regulation offer*.

Rule 1: Validate that all relevant *price-quantity pairs* are populated i.e. not null

Example 1: Invalid

Quantity_1	Price_1	Quantity_2	Price_2	...
50.0	10.00			

Example 2: Valid

Quantity_1	Price_1	Quantity_2	Price_2	...
10.0	50.00	0.0	0.00	

Rule 2: Validate that the ramp rates for *energy offers* are not greater than the relevant *standing capability data* maximum values

This rule only relates to *energy offers*. There are no ramp rate validations for *reserve offers* or *regulation offers*.

For an *energy offer*, the *energy* ramp-up and *energy* ramp-down values in the *energy offer* must be less than or equal to the maximum *energy* ramp-up and maximum *energy* ramp-down rates of the *registered facility* respectively.

Each of the *energy* ramp-up and *energy* ramp-down values in the *energy offer* must be expressed in MW/minute to one decimal place and must not be less than 0.0MW/minute.

Example 1: Invalid

Assume Unit A's *standing capability data* specifies that its maximum *energy* ramp-up rate is 10MW/minute and its maximum *energy* ramp-down rate is 15 MW/minute.

Unit A's *energy offer* would be invalid if:

Max_ramp_up	Max_ramp_down
15.0	10.0

Example 2: Valid

Assume Unit A's *standing capability data* specifies that its maximum *energy* ramp-up rate is 10MW/minute and its maximum *energy* ramp-down rate is 15 MW/minute.

Unit A's *energy offer* would be not be invalid if:

Max_ramp_up	Max_ramp_down
7.0	10.0

Rule 3: Validate that the total quantity offered does not exceed the standing capability data maximum values for generation capacity

- For an *energy offer*, the total quantity of *energy offered* for a *dispatch period* (i.e. the sum of all 10 quantity fields in the *energy offer*) must not exceed:
 - the *registered facility's* maximum *generation capacity* indicated in its *standing capability data* for that *dispatch period*; and
 - the *registered facility's* stated maximum combined capacity for *energy, reserve and regulation* for that *dispatch period*.

Example 1: Invalid

Unit A's maximum *generation capacity* indicated in its *standing capability data* is 130MW. Unit A's stated maximum combined capacity for *energy, reserve and regulation* is 80MW. Unit A's *energy offer* would be invalid if:

Quantity_1	Quantity_2	Quantity_3	...
50.0	40.0	40.0	

Example 2: Valid

Unit A's maximum *generation capacity* indicated in its *standing capability data* is 130MW. Unit A's stated maximum combined capacity for *energy, reserve and regulation* is 80MW. Unit A's *energy offer* would be valid if:

Quantity_1	Quantity_2	Quantity_3	...
50.0	10.0	10.0	

Rule 4: Validate that the total quantity offered does not exceed the standing capability data maximum values for reserve and regulation capacity

- For a *reserve offer*, the total quantity of *reserve offered* for a *reserve class* for a *dispatch period* (i.e. the sum of all 5 quantity fields in the *reserve offer*) must not exceed the *registered facility's* maximum *reserve capacity* for that *reserve class* indicated in its *standing capability data* for that *dispatch period*.
- For a *regulation offer*, the total quantity of *regulation offered* for a *dispatch period* (i.e. the sum of all 5 quantity fields in the *regulation offer*) must not exceed the *registered facility's* maximum *regulation capacity* indicated in its *standing capability data* for that *dispatch period*.

Example 1: Invalid

Unit A's maximum *reserve capacity* for a given *reserve class* indicated in its *standing capability data* is 10MW. Unit A's *reserve offer* for that *reserve class* would be invalid if:

Quantity_1	Quantity_2	Quantity_3	...

5.0 4.0 4.0

Unit A's maximum *regulation* capacity indicated in its *standing capability data* is 10MW. Unit A's *regulation offer* would be invalid if:

Quantity_1	Quantity_2	Quantity_3	...
5.0	4.0	4.0	

Example 2: Valid

Unit A's maximum *reserve* capacity for a given *reserve class* indicated in its *standing capability data* is 10MW. Unit A's *reserve offer* for that *reserve class* would be valid if:

Quantity_1	Quantity_2	Quantity_3	...
5.0	4.0	1.0	

Unit A's maximum *regulation* capacity indicated in its *standing capability data* is 10MW. Unit A's *regulation offer* would be valid if:

Quantity_1	Quantity_2	Quantity_3	...
5.0	4.0	1.0	

Rule 5: Validate that prices are increasing or decreasing as appropriate

- For each *offer*, all *price-quantity pairs* must be stated in increasing order of price (i.e., the price in each *price-quantity pair* must be greater than the price in the preceding *price-quantity pair*).

Example 1: Invalid

In Unit A's *offer*:

Price_1	Price_2...
50.00	40.00

Example 2: Valid

In Unit A's *offer*:

Price_1	Price_2...
40.00	50.00

Rule 6: Validate that non-zero prices are attached to non-zero quantities

A *price-quantity pair* in an *offer* must specify a price value of zero if it has a quantity value of zero.

Example 1: Invalid

Quantity_1	Price_1	Quantity_2	Price_2...
50.0	100.00	0.0	50.00

Example 2: Valid

Quantity_1	Price_1	Quantity_2	Price_2...
50.0	100.00	0.0	0.00

The above provisions of this Rule 6 do not apply to the first *price-quantity pair* of an *energy offer* for a *generation registered facility* that is an *embedded generation facility*. The price in such first *price-quantity pair* shall be set to equal 95% of CDC, where CDC shall be as specified in section J.2 of Appendix 6J of the *market rules*.

Rule 7: Validate that quantity values are within market boundaries

All *offered* quantities must lie within the market boundaries.

- The quantity value of each *price-quantity pair* shall be validated against lower and upper limits for quantity. At present, the *market rules* only define a lower limit of zero for quantities. The upper limit is constrained by the maximum quantities that are validated in Rule 3 or Rule 4.
- The quantity value of each *price-quantity pair* shall be expressed up to one

decimal place only, in accordance with the *market rules*.

Rule 8: Validate that price values are within market boundaries

All *offered* prices must be within the market boundaries.

- For *energy offers*, the upper and lower limits on *energy prices* are EnergyPriceMax and EnergyPriceMin respectively.
- For *reserve offers*, the respective upper limit on *reserve prices* for each reserve class is as follows: (1) for primary *reserve* – Res1PriceMax; (2) for secondary *reserve* – Res2PriceMax; and (3) for contingency *reserve* – Res3PriceMax. The lower limit on *reserve prices* is zero.
- For *regulation offers*, the upper limit on *regulation prices* is RegPriceMax. The lower limit on *regulation prices* is zero.

The above provisions of this Rule 8 does not apply to the first *price-quantity pair* of an *energy offer* for a *generation registered facility* that is an *embedded generation facility*. The price in such first *price-quantity pair* shall be set to equal 95% of CDC, where CDC shall be as specified in section J.2 of Appendix 6J of the *market rules*.

Rule 9: Validate that the *reserve class* is correctly specified

- For *reserve offers*, the *reserve class* should be specified accordingly as per item 7 in table 2.

Rule 10: Validate the facility and its eligibility for the type (and class) of service referred to in the *offer* submitted

This rule concerns the validation of an *offer* made for a facility against that facility's registration and its *standing capability data*. Two main checks are performed. The first check ensures that the facility referenced in the offer submission is a *registered facility*. The second check ensures that the facility is registered to provide the type of service referenced in the *offer* submission (*energy, reserve or regulation*) and, in the case of *reserve offer*, the *reserve class* referenced in the *offer* submission.

Rule 11: Validate that the *reserve* proportion is within the *standing capability data* limits

The *reserve* proportion must be stated for *reserve offers* made for each *generation registered facility*. The *reserve* proportion stated in each *reserve offer* must be within the *standing capability data* limits of the *generation registered facility*.

For *reserve offers* made for a *generation registered facility*, the *reserve* proportion must not be less than zero and must not exceed the *reserve* proportion defined in the *standing capability data* of the *generation registered facility*.

This Rule 11 does not apply to *reserve offers* made for *load registered facilities*.

Rule 12: Validate that the *offer* submission is not a duplicate of the last submitted valid *standing offer*

The *offer* submission should not be a duplicate of the last submitted valid *standing offer*. This could occur where the participant erroneously creates and submits the same submission more than once.

2.8 Use of validated standing offers

Once a *standing offer* or revised *standing offer* has been successfully validated, it shall be used in the production of *market schedules* for those *dispatch periods* where no valid *offer variations* are held by the *EMC*. If however there is a valid *offer variation* applicable for the given *dispatch period*, then such *offer variation* shall be used instead. The foregoing is however subject to the following exceptions:

- (a) if the *offer* for a *dispatch period* was accepted as valid less than five minutes before the production of a *market schedule* containing that *dispatch period*, that *offer* is not guaranteed to be used by the *EMC* in the production of that *market schedule*; and
- (b) if an *offer variation* for a *dispatch period* was submitted after that *dispatch period* had begun, the *EMC* shall not use that *offer variation* in the production of any *market schedule* containing that *dispatch period*.

2.9 Intertie submissions

The *intertie* submissions shall be taken as zero MW unless the *EMC* is otherwise informed by the *PSO*. The *EMC* requires two *business days* notice to incorporate any *intertie* submissions that is provided by the *PSO*. The *EMC* shall confirm receipt and update these into the *market clearing engine* as soon as practical.

3 Offers variations

3.1 What is an “offer variation”?

Offer variation refers to an *energy offer*, a *reserve offer* or a *regulation offer* submitted to the *EMC* in respect of a *generation registered facility* or a *reserve offer* submitted to the *EMC* in respect of a *load registered facility* that varies the terms of a previous *energy offer*, *reserve offer* or *regulation offer*, as the case may be, submitted to the *EMC* in respect of that *generation registered facility* or *load registered facility* for the same *dispatch period*.

The *offer variation* is used as a means to make an *offer* which is different from the current *standing offer*. The *offer variation* applies to a specific *dispatch period* on a specific date only, without affecting the applicability of the existing *standing order* for other dates or other *dispatch periods*.

3.2 Method for submission of offer variations

An *offer variation* may be submitted to the *EMC* in accordance with this *market manual* via:

- the *electronic communications system*, using PowerBid, WebOffer or any other application that is provided or permitted by the *EMC*; or
- secure email in a CSV file format; or
- any other means, in such file format, as may be permitted by the *EMC*.

3.3 Description of submission process of offer variations

3.3.1 Submission process for offer variations

A *dispatch coordinator* may submit an *offer variation* for a *registered facility* to the *EMC* via the *electronic communications system* using PowerBid or WebOffer or any other application that is provided or permitted by the *EMC*.

If a *dispatch coordinator* is unable to submit an *offer variation* to the *EMC* via the *electronic communications system* using PowerBid or WebOffer for any reason whatsoever, the *dispatch coordinator* shall notify the *EMC Helpdesk* via phone (see section 6 for contact details).

If the *dispatch coordinator* is able to successfully obtain any *offer variation* file generated by PowerBid in XML Format for the relevant *market participant*, the *dispatch coordinator* shall submit those files via secure email to the *EMC*. If the *dispatch coordinator* is not able to successfully obtain any *offer variation* file generated by PowerBid in XML Format for the relevant *market participant*, the *dispatch coordinator* shall submit the *offer variation* in the CSV (comma delimited) file format (as prescribed by the *EMC*¹⁹) via secure email to the *EMC*.

¹⁹ The prescribed CSV (comma delimited) file format is available from the *EMC*. See section 5.2 for more information on how to obtain the prescribed CSV (comma delimited) file format.

For WebOffer, the *dispatch coordinator* shall submit the *standing offer* in the CSV (comma delimited) file format (as prescribed by the EMC²⁰) via secure email to the EMC in the event when the *electronic communications system* fails

Upon receipt of the *offer variation*, the EMC shall timestamp and validate the *offer variation* and within five minutes of such receipt:

- confirm the receipt of the *offer variation*;
- notify the status of the *offer variation*; and
- give reasons for any rejections of the *offer variation*,

via the *electronic communications system* to the *dispatch coordinator*.

A *dispatch coordinator* that does not receive the confirmation or notification shall immediately notify the EMC Helpdesk via phone. The EMC shall, where the problem lies with the EMC's *electronic communications system*, take steps to rectify the problem as soon as possible and inform the *dispatch coordinator* once the problem with the *electronic communications system* has been resolved.

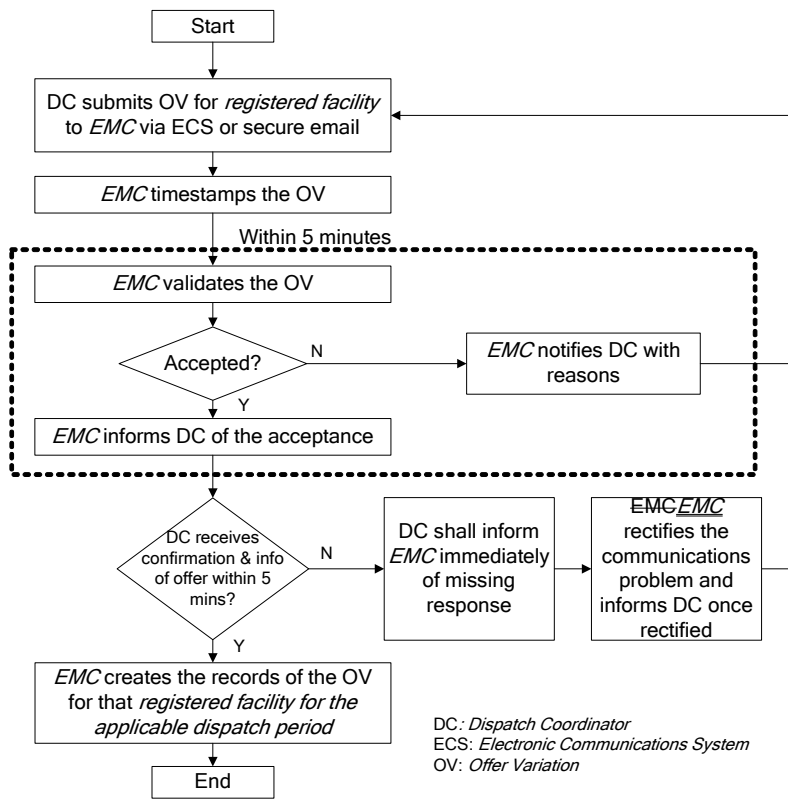
Submission of an *offer variation* must be made at least 65 minutes before the *dispatch period* (gate closure) to which that *offer variation* is intended to apply. Any *offer variation* submitted after gate closure shall be reported to the *market surveillance and compliance panel*.

If the EMC permits a *market participant* to submit *offer variations* via the *electronic communications system* through the use of any alternative application (other than PowerBid and WebOffer), the submission of *offer variations* through the use of such alternative application must comply with all such requirements as the EMC may impose from time to time.

A flowchart outlining the submission process in respect of *offer variation* is set out in the following section.

²⁰ The prescribed CSV (comma delimited) file format is available from the EMC. See section 5.2 for more information on how to obtain the prescribed CSV (comma delimited) file format.

3.3.2 Offer variation submission process flowchart



3.4 Timeline for offer variation submission

Day	Time of Day	Event	Period Covered	Frequency
D – 8 days	09:00	The <i>EMC</i> begins accepting <i>offer variations</i> for <i>dispatch periods</i> during <i>trading day D</i>	D	Ongoing
D-8 days to D	From 09:00 on D-8, within 5 minutes of receipt	Notification of acceptance/rejection of <i>offer variation</i>	D	Ongoing
D	T-65 minutes (“gate closure”)	Last time at which an <i>offer variation</i> may be submitted without being reported to the <i>market surveillance and compliance panel</i>	T + 30 minutes	Ongoing
D	T-5 minutes	Last time at which an <i>offer variation</i> is guaranteed to be used in the <i>real-time scheduling</i> process but which shall be reported to the <i>market surveillance and compliance panel</i> if the <i>offer variation</i> was submitted after gate closure	T + 30 minutes	Ongoing

“D” refers to a trading day; and

“T” refers to the beginning of a dispatch period on trading day D.

3.5 Triggers for mandatory offer variation submission

Offer variation(s) must be submitted by the *dispatch coordinator* of a *registered facility* to the *EMC* when any of the following conditions arise -

- (1) For a *dispatch period* in the current *market outlook horizon*, if the quantity currently *offered* in a valid *offer* for a *registered facility* exceeds the quantity that the *registered facility’s dispatch coordinator* reasonably expects to be available from the *registered facility* by more than the greater of:

- 10 MW; or
- 5 percent of the quantity currently *offered*,

an *offer variation* must be immediately submitted by the *dispatch coordinator* of the *registered facility* to the *EMC* for the above *dispatch period*.

In the case where a *generation registered facility* has been derated, the *dispatch coordinator* must immediately submit an *offer variation* reflecting the reduced capacity of the facility to the *EMC*. It is essential to note that in such a case it is not necessary for the maximum *generation capacity* and maximum combined *generation capacity* and

reserve capacity in the standing capability data of the generation registered facility to be revised.

- (2) For each *dispatch period* that the *registered facility* is not *synchronised* with the *transmission system* – until the earliest *dispatch period* in which it would be possible for the *registered facility* to be *synchronised*.

In such a case, if there are existing *offer variations* for any such *dispatch periods*, the *dispatch coordinator* for that *registered facility* shall submit to the *EMC* an *offer variation* for each such *dispatch period* so that all *offered quantities for energy, reserve and regulation* are zero.

- (3) The *dispatch coordinator* for that *registered facility* shall, to the extent necessary for consistency with the revised *standing capability data*, revise and re-submit to the *EMC* a revised standing offer (as per section 2.5) and all *offer variations* that apply subsequent to the time at which the revision to the *standing capability data* applies.

3.6 Required form of an offer variation

The *offer variation* data format is very similar to the data format for a *standing offer*. There are also three *offer variation* types, that is, *energy, reserve and regulation offer variations*. The difference between a *standing offer* and an *offer variation* is that the latter shall only be applied to a specific *dispatch period*. The “day” field in the *standing offer* submission is therefore replaced by a “date” field in the case of an *offer variation*.

The data formats for an *offer variation* for each of *energy, reserve and regulation* are set out in the tables below.

Table 4 Data format of energy offer variation

Item No	Field	Data Format	Remarks
1	Participant ²¹	Alphanumeric	
2	Type ²²	Alphanumeric	The value must be: EGO ²³
3	Unit	Alphanumeric	
4	Date	dd/mm/yyyy	
5	Period	1 to 48	
6	Ramp Up	0 to 99999999999.9	This value is expressed in MW/minute.
7	Ramp Down	0 to 99999999999.9	This value is expressed in MW/minute.
8	Capacity ²⁴	0 to 9999999999.9	This value is expressed in MW.
9	Band 1: Price	-9999999999.99 to 9999999999.99	<i>An energy offer variation requires 1 to 10 price-quantity pairs²⁵.</i>
10	Band 1: Quantity	0 to 9999999999.9	Prices are expressed in \$/MWh. Quantities are expressed in MW.

²¹ This field is only applicable to WebOffer.

²² This field is only applicable to WebOffer.

²³ "EGO" refers to *energy offer*.

²⁴ "Capacity" refers to the maximum combined capacity referred to in section 5.2.2.5 of Chapter 6 of the market rules.

²⁵ For an energy offer variation for a generation registered facility that is an embedded generation facility (notwithstanding sections 5.2.4.3 and 5.2.6 of the market rules):

(i) subject to section 5.2.5 of Chapter 6 of the market rules, the quantity (if any) in the first price-quantity pair shall be the quantity of electricity that the embedded generation facility is intended to generate for the associated load of its EGF group. and

(ii) the price in the first price-quantity pair shall be set to equal 95% of CDC, where CDC shall be as specified in section J.2 of Appendix 6J of the market rules.

Table 5 Data format of all classes of reserve offer variation

Item No	Field	Data Format	Remarks
1	Participant ²⁶	Alphanumeric	
2	Type ²⁷	Alphanumeric	The value must be: RVO ²⁸
3	Unit	Alphanumeric	
4	Date	dd/mm/yyyy	
5	Period	1 to 48	
6	Reserve Proportion ²⁹	0 to 99.999	<i>Dispatch coordinators of generation registered facilities must take special note of section 5.3.8 of Chapter 6 of the market rules when specifying the reserve proportion.</i>
7	Reserve Class ³⁰	PRI / SEC / CON ³¹	
8	Band 1: Price	0 to 99999999999.99	<i>A reserve offer variation for any reserve class requires 1 to 5 price-quantity bands. Prices are expressed in \$/MWh. Quantities are expressed in MW.</i>
9	Band 1: Quantity	0 to 9999999999.9	

²⁶ This field is only applicable to WebOffer.

²⁷ This field is only applicable to WebOffer.

²⁸ "RVO" refers to *reserve offer*.

²⁹ For Load Registered Facility, this field is not applicable.

³⁰ This field is only applicable to WebOffer.

³¹ PRI – primary *reserve*; SEC – secondary *reserve*; CON – contingency *reserve*.

Table 6 Data format of regulation offer variation

Item No	Field	Data Format	Remarks
1	Participant ³²	Alphanumeric	
2	Type ³³	Alphanumeric	The value must be: RGO ³⁴
3	Unit	Alphanumeric	
4	Date	dd/mm/yyyy	
5	Period	1 to 48	
6	Quantity 1	0 to 999999999.9	A regulation offer variation requires 1 to 5 price-quantity pairs. Prices are expressed in \$/MWh. Quantities are expressed in MW.
7	Price 1	0 to 999999999.99	

3.7 Process for validation of an offer variation

All the validation rules mentioned in Section 2.7 shall also apply to the validation of an *offer variation*. However, there shall be an additional rule twelve for validation for an *offer variation*, which is shown below.

Rule 13: Validate that the submission date is within the valid timeframe

A submission of an *offer variation* after the start of a *dispatch period* to which the *offer variation* applies is not permitted. In practice this rule prevents *market participants* from submitting an *offer variation* after the submission cut-off time for the current *trading period* or any prior *trading period*.

The submission date must be greater than or equal to the current date.

If the submission date is the current date the submission period must not start prior to the current time less the submission cut-off time.

If the period is the first period the current time must be prior to midnight less the submission cut-off time.

³² This field is only applicable to WebOffer.

³³ This field is only applicable to WebOffer.

³⁴ "RGO" refers to *regulation offer*.

3.8 Use of validated offer variations

The use of validated *offer variations* by the *EMC* in the production of a *market schedule* is described in Section 2.8 above.

3.9 Intertie submissions

The *intertie* submissions shall be taken as zero MW unless the *EMC* is otherwise informed by the *PSO*. The *EMC* requires two *business days* notice to incorporate any *intertie* submissions that is provided by the *PSO*. The *EMC* shall confirm receipt and update these into the *market clearing engine* as soon as practical.

4 Standing capability data

4.1 Process for submission of standing capability data

4.1.1 Initial standing capability data submission

When a *market participant* applies to register a facility under section 5 of Chapter 2, it shall at the same time submit that facility's initial *standing capability data* to the *PSO* for approval.

If the initial *standing capability data* is approved by the *PSO*, the *PSO* shall forward the *standing capability data* to the *EMC*. Upon receipt of the initial *standing capability data*, the *EMC* shall confirm its receipt to both the *PSO* and the *market participant*. This confirmation of receipt shall be by way of email or facsimile transmission and shall be given as soon as practical.

If the *market participant* or the *dispatch coordinator* (as the case may be) does not receive such confirmation of receipt from the *EMC*, the *market participant* or the *dispatch coordinator* (as the case may be) shall immediately inform the *EMC* of the non-receipt by way of email or facsimile transmission.

If the *PSO* rejects the initial *standing capability data*, the *PSO* shall notify the *market participant* of the *PSO*'s rejection and the reasons for its rejection as soon as practical.

4.1.2 Revised standing capability data submission

If there is a change in the physical capability of a *registered facility*, its *dispatch coordinator* shall submit revised *standing capability data* as necessary to reflect the change, to the *PSO* for approval.

If the *PSO* requires a *dispatch coordinator* to provide revised *standing capability data* under section 9.6.5 of Chapter 5, it shall do so within the time specified by the *PSO*.

If the revised *standing capability data* is approved by the *PSO*, the *PSO* shall forward the *standing capability data* to the *EMC*. Upon receipt of the revised *standing capability data*, the *EMC* shall confirm its receipt to both the *PSO* and the *dispatch coordinator*. This confirmation of receipt shall be by way of email or facsimile transmission and shall be given as soon as practical.

If the *PSO* rejects the revised *standing capability data*, the *PSO* shall notify the *dispatch coordinator* of the *PSO*'s rejection and the reasons for its rejection.

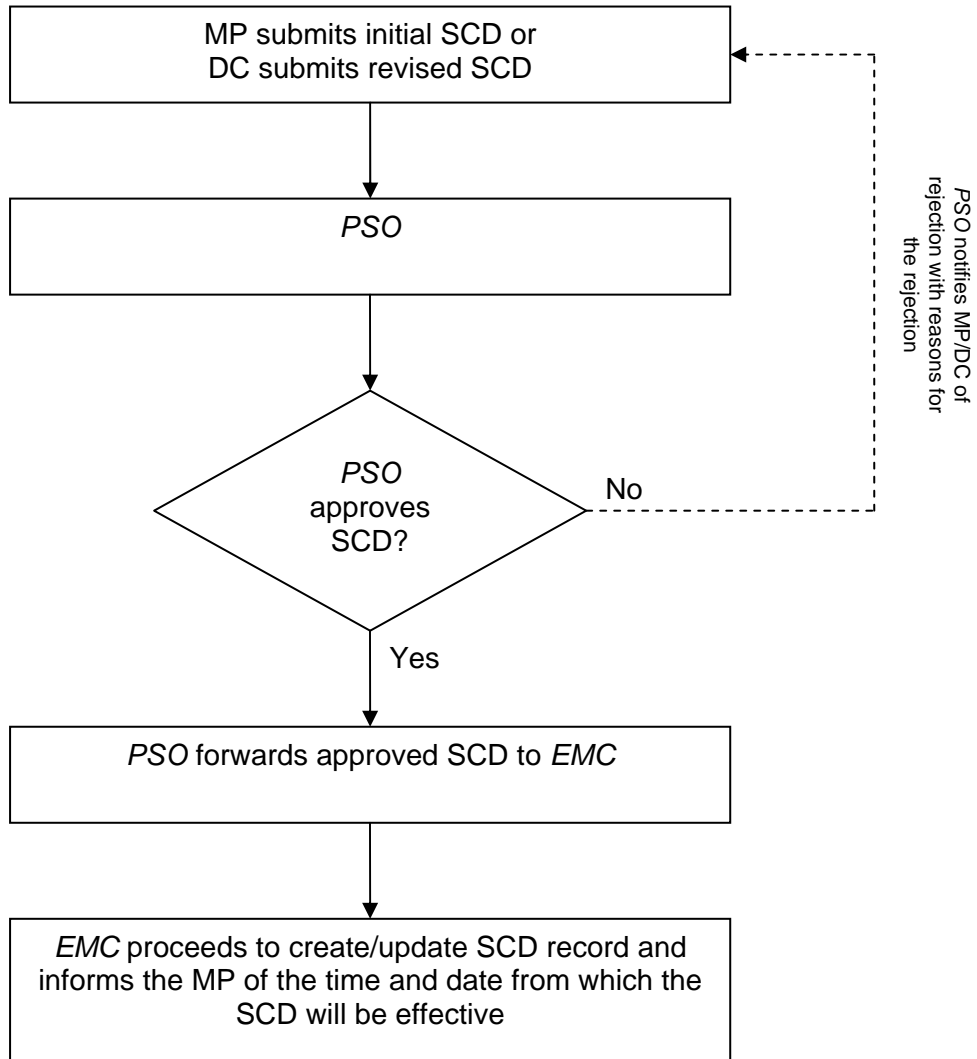
4.1.3 Effective use of initial and revised standing capability data in the market clearing engine

The *EMC* shall, as soon as practicable and upon receiving any approved *standing capability data* in respect of a facility from the *PSO*, create or update its records of that facility's *standing capability data* to be used by the

market clearing engine. Typically, it takes ten *business days*³⁵ for approved initial *standing capability data* to be updated into the NEMS system upon the *EMC's* receipt of the same from the *PSO*. The *EMC* shall notify the applicable *market participant* of the date and time on which the revised *standing capability data* shall be effective.

³⁵ In the event where receipt of approved data is incomplete or is not in the required form, the date for effective use of the *standing capability data* shall be delayed. Hence, market participants are advised to ensure that the *standing capability data* submitted uses the latest business forms and the data provided is complete, clear and correct.

4.1.4 Submission process flowchart for initial and revised standing capability data



MP: Market Participant
DC: Dispatch Coordinator
SCD: Standing Capability Data

4.2 Timeline for standing capability data submission

Day	Time of Day	Event	Period Covered	Frequency
Prior to facility registration	At the same time as the submission of an application for registration of the facility is submitted to the EMC	Provide initial <i>standing capability data</i> where such data shall have been provided to the <i>PSO</i> by a <i>market participant</i> , and approved by the <i>PSO</i> , in accordance with the <i>system operation manual</i> .	From first day of participation and until superseded.	Once
Before D, trading day	Any time	Provide revised <i>standing capability data</i> where such data shall have been provided to the <i>PSO</i> by a <i>dispatch coordinator</i> , and approved by the <i>PSO</i> , in accordance with the <i>system operation manual</i> .	From day D until superseded	As required

“D” refers to a trading day

4.3 Triggers for standing capability data submission

Initial *standing capability data* must be submitted to the *PSO* at the same time as when the application for registration of a facility is submitted to the *EMC*. The *PSO* will then approve such data and pass it on to the *EMC*.

4.4 Required form of standing capability data

The *standing capability data* is derived from the following data sources:

SNo	Type of <i>standing capability data</i>	Data Sources
1	Facilities Data	Facility registration forms <i>System Operation Manual (SOM)</i>
2	Network Model Data	<i>Transmission Licensee</i> <i>PSO - Energy Management System (EMS)</i> <i>System Operation Manual (SOM)</i>
3	System Requirement Data	<i>System Operation Manual (SOM)</i> Agreed <i>PSO – EMC</i> forms <i>Market rules</i>

All *registered facilities* and *transmission licensees* shall submit their *standing capability data* to the *PSO* via the facility registration forms found in the *system operation manual*. The data from these forms are mapped to the forms used by the *EMC* to enter data into the *market clearing engine* shown below.

4.5 Forms used by the EMC to update standing capability data, network model data and system requirement data into the market clearing engine

4.5.1 Ancillary service provider (reserve) form

Ancillary Provider Details		
Field Names on Data Admin Screen	DATA	Unit
ANCILLARY TYPE		N/A
FACILITY		N/A
ANCILLARY GROUP		N/A
MAX. RATING		MW
RSRV GENERATION MAX		MW
RESPONSE DELAY		Sec
RSV. PROPORTION		%
LOW LOAD		N/A
LOW LOAD RESERVE		N/A
MEDIUM LOAD RESERVE		N/A
HIGH LOAD RESERVE		N/A

4.5.2 Ancillary service provider (regulation) form

Ancillary Provider Details		
Field Names on Data Admin Screen	DATA	Unit
ANCILLARY TYPE		N/A
FACILITY		N/A
ANCILLARY GROUP		N/A
MAX. RATING		MW
REGULATION MIN		MW
REGULATION MAX		MW

4.5.3 Ancillary service form

Ancillary Service Details		
Field Names on Data Admin Screen	DATA	Unit
ANCILLARY TYPE		N/A
NAME		N/A
RESERVE CLASS CODE		N/A
DESCRIPTION		N/A
MINIMUM RISK		MW
RESPONSE PERIOD		Sec
MAXIMUM PRICE		\$
PENALTY		N/A
MAXIMUM IL PROPORTION		%

4.5.4 Ancillary zone form³⁶

Ancillary Zone Details		
Field Names on Data Admin Screen		N/A
RESERVE CLASS		N/A
ANCILLARY ZONE		N/A
ANCILLARY ZONE LIMIT		MW

³⁶ For generators, this form is not applicable

4.5.5 Branch (Line) form

Branch Details		
Field Names on Data Admin Screen	DATA	Unit
B1		N/A
B2		N/A
B3		N/A
BRANCH TYPE	Line/ Transformer	N/A
RESISTANCE		p.u.
REACTANCE		p.u.
FIXED LOSS		MW
MAX. RATING FORWARD		MVA
MAX. RATING REVERSE		MVA
REDUND. FACTOR FWD	1	N/A
REDUND. FACTOR REV.	1	N/A
THERMAL RATING FWD.		MVA
THERMAL RATING REV.		MVA
PENALTY		N/A
CONNECTOR FROM		N/A
CONNECTOR TO		N/A
BUS FROM		N/A
BUS TO		N/A

4.5.6 Branch (Transformer) form

Branch Details		
Field Names on Data Admin Screen	DATA	Unit
B1		N/A
B2		N/A
B3		N/A
BRANCH TYPE	Line/ Transformer	N/A
RESISTANCE		p.u.
REACTANCE		p.u.
FIXED LOSS		MW
MAX. RATING FORWARD		MVA
MAX. RATING REVERSE		MVA
REDUND. FACTOR FWD	1	N/A
REDUND. FACTOR REV.	1	N/A
THERMAL RATING FWD.		MVA
THERMAL RATING REV.		MVA
PENALTY		N/A
CONNECTOR FROM		N/A
CONNECTOR TO		N/A
BUS FROM		N/A
BUS TO		N/A
PST INDICATOR		N/A

4.5.7 Bus form

Bus Details		
Field Names on Data Admin Screen	DATA	Unit
B1		N/A
B2		N/A
B3		N/A
REFERENCE NODE PRIORITY		N/A
FICTIONAL IND		N/A
EXCESS PENALTY		N/A
DEFICIT PENALTY		N/A

4.5.8 Connector form

Connector Details		
Field Names on Data Admin Screen	DATA	Unit
B1		N/A
B2		N/A
B3		N/A

4.5.9 Generation Registered Facility form

Facility Details		
Field Names on Data Admin Screen	DATA	Unit
FACILITY TYPE	UNIT	N/A
UNIT TYPE	REGISTERED	N/A
B1		N/A
B2		N/A
B3		N/A
FACILITY NAME		N/A
INTERTIE INDICATOR	Y / N	N/A
NODE NAME		N/A
MAXIMUM RATING		MW
NORMAL RAMP DOWN		MW/m
REGULAT. RAMP DOWN		MW/m
NORMAL RAMP UP		MW/m
REGULATED RAMP UP		MW/m
PRIMARY RISK	Y / N	N/A
SECONDARY RISK	Y / N	N/A
FAILURE PROBABILITY		%
DAMPING GENERATOR	Y / N	N/A
PENALTY NAME		N/A

4.5.10 Generation Settlement Facility form

Facility Details		
Field Names on Data Admin Screen	DATA	Unit
FACILITY TYPE	UNIT	N/A
UNIT TYPE	SETTLEMENT	N/A
B1		N/A
B2		N/A
B3		N/A
FACILITY NAME		N/A
NODE NAME		N/A
MAXIMUM RATING		MW
NORMAL RAMP DOWN		MW/m
REGULAT. RAMP DOWN		MW/m
NORMAL RAMP UP		MW/m
REGULATED RAMP UP		MW/m
PRIMARY RISK †	Y / N	N/A
SECONDARY RISK †	Y / N	N/A
FAILURE PROBABILITY		%
DAMPING GENERATOR	Y / N	N/A

4.5.11 Dispatch Load registered facility form

Facility Details		
Field Names on Data Admin Screen	DATA	Unit
FACILITY TYPE	Dispatch Load ³⁷	N/A
B1		N/A
B2		N/A
B3		N/A
INTERTIE INDICATOR	Y/N	N/A.
NODE NAME		
MAXIMUM RATING		MVA
IL RECORDER ID		

4.5.12 Offtake Load registered facility form

Facility Details		
Field Names on Data Admin Screen	DATA	Unit
FACILITY TYPE	Offtake load	N/A
B1		N/A
B2		N/A
B3		N/A
SETTLEMENT ACCT.		N/A.
MAXIMUM RATING		MVA
UNIT TRANSFORMER INDICATOR	Y/N	N/A

³⁷ Note that Interruptible Load (IL) belongs to Dispatch Load (DPL) facility type.

4.5.13 Node form

Node Details		
Field Names on Data Admin Screen	DATA	Unit
NODE NAME		N/A
NODE TYPE	GPOS/ LPOS/ IPOS/ DPOS	N/A
SETTLEMENT ACCT.		N/A

4.5.14 Participant and Accounts form – Embedded Generator

Participant Details		
Field Names on Data Admin Screen	DATA	Unit
PARTICIPANT NAME		N/A
LICENCE NUMBER		N/A
PRUDENTIAL LIMIT		\$
Settlement Accounts		
ACCOUNT NAME		N/A
ACCOUNT ID		N/A
PARTICIPANT TYPE	Embedded Generator	N/A
UNDER A RETAILER	Y/N	N/A
RETAILER VALUE		N/A
NET SETTLEMENT		N/A
PRICE NEUTRALISATION		N/A

4.5.15 Participant and Accounts form – All other genres

Participant Details		
Field Names on Data Admin Screen	DATA	Unit
PARTICIPANT NAME		N/A
LICENCE NUMBER		N/A
PRUDENTIAL LIMIT		\$
Settlement Accounts		
ACCOUNT NAME		N/A
ACCOUNT ID		N/A
PARTICIPANT TYPE	Broker/ EMC Internal Account/ Generator/ Interruptible Load/ MSSL/ PSO/ PowerGrid/ Retailer	N/A

4.5.16 Participation factors form

Day Types		
Field Names on Data Admin Screen	DATA	Unit
NAME		N/A
Custom Day Calendar		
SCHEDULED DATE		Date

4.5.17 Penalty and tranches form

Penalty Details		
Field Names on Data Admin Screen	DATA	Unit
PENALTY NAME		N/A
PENALTY TYPE	Ancillary Service/ Bus Deficit/ Bus Excess/ Branch/ Facility/ Security Constraint	N/A
Penalty Tranches		
TRANCHE		N/A
QUANTITY		MW
AMOUNT		\$

4.5.18 Reserve group and effectiveness form

Reserve Group Details		
Field Names on Data Admin Screen	DATA	Unit
RESERVE CLASS		N/A
RESERVE GROUP		N/A
ANCILLARY TYPE		N/A
Group Effectiveness		
QUANTITY		MW
EFFECTIVENESS		N/A

4.5.19 SCADA unit form - normal facility

Scada Unit Details		
Field Names on Data Admin Screen	DATA	Unit
UNIT TYPE	Independent	N/A
B1		N/A
B2		N/A
B3		N/A
MAPPING	R	N/A
MNN BUS		N/A
ALT BUS		N/A
DEFAULT BRANCH		N/A
UNIT TRANSFORMER MAPPING TYPE	NM/ DM	N/A
FACILITY		N/A

4.5.20 SCADA unit form - CCP - GT

Scada Unit Details		
Field Names on Data Admin Screen	DATA	Unit
UNIT TYPE	Independent	N/A
B1		N/A
B2		N/A
B3		N/A
MAPPING	I	N/A
MNN BUS		N/A
ALT BUS		
DEFAULT BRANCH		
PPF		N/A
UNIT TRANSFORMER MAPPING	DM/ NM	N/A
UNIT TRANSFORMER		N/A
DEPENDENT UNIT		N/A
FACILITY		N/A

4.5.21 SCADA unit form - CCP - ST

Scada Unit Details		
Field Names on Data Admin Screen	DATA	Unit
UNIT TYPE	Dependent	N/A
B1		N/A
B2		N/A
B3		N/A
MAPPING	I	N/A
MNN BUS		N/A
ALT BUS		N/A
DEFAULT BRANCH		N/A
UNIT TRANSFORMER MAPPING TYPE	DM/ NM	N/A
UNIT TRANSFORMER		N/A

4.5.22 Control parameters form

Control Parameters		
Field Names on Data Admin Screen	DATA	Unit
8 SECOND RISK ADJUSTMENT FACTOR – INTERTIE ON		N/A
30 SECOND RISK ADJUSTMENT FACTOR – INTERTIE ON		N/A
10 MINUTE RISK ADJUSTMENT FACTOR – INTERTIE ON		N/A
8 SECOND FREQUENCY DEVIATION -INTERTIE OFF		N/A
30 SECOND FREQUENCY DEVIATION -INTERTIE OFF		N/A
10 MINUTE FREQUENCY DEVIATION -INTERTIE OFF		N/A
8 SECOND ESTIMATED LOAD DAMPING		N/A
30 SECOND ESTIMATED LOAD DAMPING		N/A
10 MINUTE ESTIMATED LOAD DAMPING		N/A
8 SECOND ESTIMATED GT OUTPUT DAMPING		N/A
30 SECOND ESTIMATED GT OUTPUT DAMPING		N/A
10 MINUTE ESTIMATED GT OUTPUT DAMPING		N/A
ESTIMATED INTERTIE CONTRIBUTION		N/A
DPR AUTOMATIC RUN FLAG		N/A
DAR AUTOMATIC RUN FLAG		N/A
WAR AUTOMATIC RUN FLAG		N/A
DPR AUTOMATIC APPROVAL FLAG		N/A
DAR AUTOMATIC APPROVAL FLAG		N/A
WAR AUTOMATIC APPROVAL FLAG		N/A
LOAD FORECAST LOSS ADJUSTMENT FACTOR		%
LOAD SENSITIVITY FACTOR		MW
RESERVE ENVELOPE HIGH RESERVE		N/A
RESERVE ENVELOPE MEDIUM RESERVE		N/A

4.5.23 Scheduled parameters – Station Load Factor

Scheduled Parameters – Parameter Details		
Field Names on Data Admin Screen	DATA	Unit
PARAMETER NAME	STATION LOAD FACTOR	N/A
START PERIOD		Date, Period
VALUE		%

4.5.24 Scheduled parameters – Risk Adjustment Factors

Scheduled Parameters – Parameter Details		
Field Names on Data Admin Screen	DATA	Unit
PARAMETER NAME	8 Second RAF/ 30 Second RAF/ 10 minute RAF	N/A
START PERIOD		Date, Period
VALUE		N/A

4.5.25 Scheduled Tap Position

Scheduled Tap Position		
Field Names on Data Admin Screen	DATA	Unit
B1		N/A
B2		N/A
B3		N/A
START PERIOD		Date, Period
END PERIOD		Date, Period
TAP MIN		N/A
TAP MAX		N/A
TAP POSITION		N/A
USE NWSTAT	Y/N	N/A
COMMENT		N/A

4.5.26 Regulation Requirement

Regulation Requirement		
Field Names on Data Admin Screen	DATA	Unit
EFFECTIVE DATE		Date
EFFECTIVE PERIOD		Period
COMMENTS		N/A
REGULATION FOR EACH CORRESPONDING PERIOD 1-48		MW

5 Electronic Communications System

5.1 Protocols and procedures for the use of the electronic communications system used for the submission of standing offers and offer variations

Offer submissions to the *EMC*, using PowerBid, is currently a three step process:

- a. A web request is made to the *EMC*'s trading website (www.sem.emcsg.com) to generate a unique batch number that shall identify the submitted *offer* batch. This request is over SSL as the trading website is a secure web site.
- b. An *offer* is constructed in a predefined XML format that includes the batch number.
- c. This XML file is then sent to the *EMC*'s SonicMQ server. This occurs over an SSL connection as well, and requires the sender to have a correctly configured SonicMQ server.

More information on how PowerBid works is available in the PowerBid user guide included in/with the PowerBid CD, or may be requested from *EMC*.

Offer submissions to the *EMC*, using WebOffer, is currently a three step process:

- a. The authorized user logs into the *EMC*'s trading website using a security certificate issued by the *EMC*.
- b. Under the web offering section of the *EMC*'s trading website, the user selects an offer file which is constructed externally either in CSV or XML format to submit the *offers*. Along with the submission of the *offers*, the user must include the password assigned to him/her.
- c. If the submitted offer file type is CSV then the file shall be sent to the *EMC*'s SonicMQ Server whereas if the submitted file type is XML then the data shall be loaded using web services.

Once the *offer* has been submitted, the results of the processing and validation of the *offer* would be made available on the trading website. The submitted *offers* are identified by the batch number.

5.2 Communication protocols for standing offers and offer variations when the electronic communications system has failed

Please refer to Market Participant Backup Submission Guide which is available on the *EMC* Website at www.emcsg.com, About the Market, Market Systems and Backup Submission Guide.

6 Contact Details for EMC Helpdesk

Helpdesk Coordinator

Phone: +65 6779 3000

Fax: +65 6779 3030

Mobile: +65 ~~9731 9928~~ 9173 8082

Annex 4

Proposed Modification to Market Manual (Market Operations – Settlement)

MARKET OPERATIONS MARKET MANUAL

SETTLEMENT (Chapter 7 Settlement)

01 April 20102011

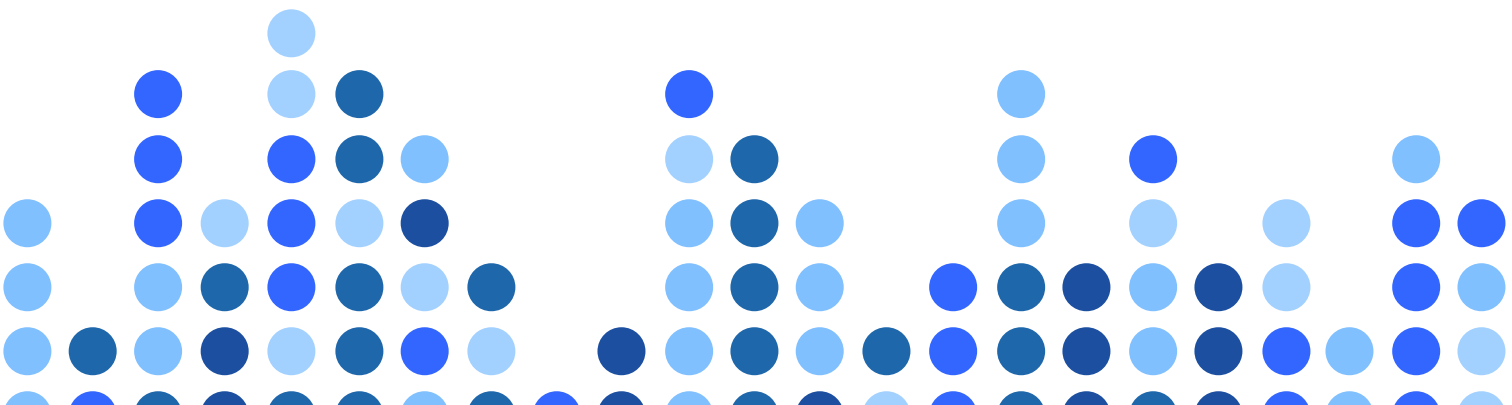


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1 Definitions

All terms in italics used in this *market manual* shall have the same meaning as ascribed to them under the *market rules*.

2 Bilateral contracts

2.1 Deadline for submission of bilateral contract data

The *selling market participant* may, submit their *bilateral contract data* (and if submitted, such submission shall be made any time prior to but no later than four *business days* after the *dispatch day* to which the *bilateral contract data* apply) in accordance with section 2.3 of Chapter 7 of the *market rules*.

The *selling market participant* shall submit *bilateral contract data* to the *EMC*-settlement personnel by 5.00pm on the fourth *business day* after the *dispatch day*.

2.2 Method of submission of bilateral contract data

Bilateral contract data in CSV file shall be submitted to the *EMC*-Settlement personnel through *secure email* addressed to settdata@emcsg.com.

2.3 Confirmation of receipt of bilateral contract data

An auto-acknowledgement will be generated by the *EMC*-Settlement personnel for the *selling market participant*.

2.4 Procedure in the event of system failure for bilateral contract data submission

In the event that there is a failure in the *electronic information system*, then the *selling market participant* shall submit its *bilateral contract data* to the *EMC*-settlement personnel by facsimile and phone the *EMC*-Settlement personnel to confirm receipt prior the stipulated deadline.

Contact details for the *EMC*-Settlement personnel are contained in chapter 8 of this *market manual*. Required formats for CSV files and facsimile communication for *bilateral contract data* are included in section 2.6 of this *market manual*.

2.5 Details of bilateral data

Bilateral contract data must be submitted to the *EMC* in the following form:

- *Bilateral Absolute Quantity* (BAQ): Submit absolute figure in MWh
- *Bilateral Withdrawal Fraction* (BWF): Submit in percentage (%)
- *Bilateral Injection Fraction* (BIF): Submit in percentage (%).

Type of physical services

- *Energy*: Market participants may contract for BAQ (absolute figure in MWh), BWF (percentage) or BIF (percentage)
- *Reserve*: Only BRQ contract is acceptable (absolute figure in MWh)
- *Regulation*: Only BFQ contract is acceptable (absolute figure in MWh).

Further information about bilateral settlement is on the EMC's website:
www.emcsg.com.

2.6 Format for communication of bilateral contract data

2.6.1 Format of the CSV file

Name	Type	Mandatory	Description
contract name	VARCHAR2(30)	Y	A name for this particular contract
seller_account	VARCHAR2(30)	Y	the Settlement Account assigned to the selling Market Participant on successful registration
buyer_account	VARCHAR2(30)	Y	the Settlement Account assigned to the buying Market Participant on successful registration
contract_type	VARCHAR(10)	Y	One of: 'Energy' 'Load' 'Injection' 'Regulation' 'Reserve'
reserve_group	VARCHAR2(30)	N	Required if this contract is of type 'Reserve'. This relates to one of the Reserve Groups published on the EMC website.
start_date	DATE	Y	The starting date of this contract. Must be specified in DD - MMM - YYYY format.
end_date	DATE	Y	The ending date of this contract. Must be specified in DD - MMM - YYYY format.
Period	Number(2)	Y	Half hour trading period: 1 - 48
Quantity	Number	Y	These varies for: Energy = MWh figure Load = % of buyers load (WEQ) Injection = % of sellers injection (IEQ) Reserve = MWh figure Regulation = MWh figure

Copy of the File Format:

```

En: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Energy, 01-MAR-2002,
31-DEC-2002, 17, 150
En: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Energy, 01-MAR-2002,
31-DEC-2002, 18, 154
..
Lo: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Load, 01-MAR-2002, 31-
DEC-2002, 17, 15
Lo: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Load, 01-MAR-2002, 31-
DEC-2002, 18, 50
..
In: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Injection, 01-MAR-2002,
31-DEC-2002, 17, 15
In: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Injection, 01-MAR-2002,
31-DEC-2002, 18, 50
..
Rg: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Regulation, 01-MAR-
2002, 31-DEC-2002, 17, 15
Rg: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, , Regulation, 01-MAR-
2002, 31-DEC-2002, 18, 50
..
Rv: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, SLOW RESERVE, Reserve,
01-MAR-2002, 31-DEC-2002, 17, 15
Rv: Kakapo - Ngaio: Work Peak, KAKAPO, NGAIO, SLOW RESERVE, Reserve,
01-MAR-2002, 31-DEC-2002, 18, 50
..

```

2.6.2 Format of bilateral contract by facsimile

Submission of Bilateral Contracts

Buying Acct	:	
Selling Acct	:	

EMC Office Use	
Reference	:

Contract Type **	:	
Contract Name	:	
Start Date	:	
End Date	:	

Bilateral Contract by period (in MWh/ Fraction)

Period	:	Value	Period	:	Value	Period	:	Value
1	:		17	:		33	:	
2	:		18	:		34	:	
3	:		19	:		35	:	
4	:		20	:		36	:	
5	:		21	:		37	:	
6	:		22	:		38	:	
7	:		23	:		39	:	
8	:		24	:		40	:	
9	:		25	:		41	:	
10	:		26	:		42	:	
11	:		27	:		43	:	
12	:		28	:		44	:	
13	:		29	:		45	:	
14	:		30	:		46	:	
15	:		31	:		47	:	
16	:		32	:		48	:	

** Market Participant may select one of the below “Contract Type”:

- a) Energy – bilateral absolute quantity of energy (in MWh) being sold by seller to buyer
- b) Injection – bilateral injection fraction of the total injection energy quantity being sold by seller to buyer
- c) Load – bilateral withdrawal fraction of the total withdrawal energy quantity of buyer being purchased by buyer from seller
- d) Regulation – bilateral regulation quantity (in MWh) being sold by seller to buyer
- e) Reserve – bilateral reserve quantity (in MWh) being sold by seller to buyer

3 Vesting contracts

3.1 Deadline for submission of vesting contract quantities and prices

The *MSSL counterparty* shall, up to seven *business days* before and by 5:00pm on the fifth *business day* after the *dispatch day*, provide the *EMC* with *vesting contract* quantities and prices (including any revisions to such *vesting contract* quantities and prices) in accordance with section 2.5.3 or 2.5.5, Chapter 7 of the *market rules*.

In the event of a force majeure adjustment event as defined in the applicable *vesting contract*, the *MSSL counterparty* shall provide the *EMC* with *vesting contract* quantities and prices (including any revisions to such *vesting contract* quantities and prices) by no later than 5:00pm on the ninth *business day* after the *dispatch day*.

3.2 Confirmation of receipt of vesting contract quantities and prices

An auto-acknowledgement will be generated by the *EMC* for the *MSSL counterparty* following the receipt of the *vesting contract* or revised *vesting contract* quantities and prices in accordance with section 2.5.4, Chapter 7 of the *market rules*.

3.3 Format of Vesting Contract Data

The *MSSL* shall provide the *EMC* with *vesting contract data* in ASCII format via the Market Participant Server (“MPS”).

In the event that there is a failure in the *electronic information system*, the *MSSL* shall submit the *vesting contract data* to the *EMC* in CSV file format through secure email to settdata@emcsg.com, and telephone EMC-Settlement personnel to confirm receipt prior to deadline stipulated in this market manuals. As the last resort, the *MSSL* may submit *vesting contract data* in CD format.

Format of the vesting contract data in CSV file:

Table Format Example

Data Item	Field Description	Field Format	Field Type and Length	M/O	Valid Field Values
Reference	An arbitrary value used to identify Vesting Contract data.		VARCHAR2(12)	M	<p>Each vesting contract data reference would be represented in the form “GGYYMMDD-CCC”, where:</p> <p>GG refers to the unique generator;</p> <p>YYMMDD refers to given year, month and date;</p> <p>A CCC that starts with a number refers to Vesting Contract data with an Allocated Vesting Quantity with an associated Allocated Vesting Price;</p> <p>A CCC that begins with “T” refers to Vesting Contract data with a Tender Vesting Quantity and an associated Tender Vesting Quantity;</p> <p>The running numbers that follow “T” distinguishes between Tender Vesting Quantities under different tranches.</p>
Name	A description of the contract		VARCHAR2(30)	M	
Settlement Account	The unique Settlement Account identifier that matches that within the NEM System.		VARCHAR2(12)	M	
Settlement Date	The Settlement Date	DD-Mon-YYYY	DATE	M	
Settlement Period	The period number the quantity relates to.		NUMBER(2)	M	1 to 48
Contract Price	The Allocated Vesting Price or		NUMBER(13,2)	M	The Allocated Vesting Price is fixed for the

Data Item	Field Description	Field Format	Field Type and Length	M/O	Valid Field Values
	Tender Vesting Price in \$/MWh				<p>quarter, but could vary across quarters.</p> <p>The Tender Vesting Price could vary across tender tranches and quarters.</p>
Contract Quantity	<p>The Allocated Vesting Quantity or Tender Vesting Quantity</p> <p>This should be a positive number in kWh in each half-hour period.</p>		NUMBER(13,2)	M	<p>The Allocated Vesting Quantity can vary over each Settlement Interval, and the quantity cannot be negative.</p> <p>The Tender Vesting Quantity can vary over each Settlement Interval and the quantity cannot be negative.</p>

4 Metering Data

4.1 Deadline for submission of vesting contract quantities and prices

The *MSSL* shall provide the *EMC* with *metering data* in accordance with section 2.1.1.1, Chapter 7 of the *market rules* in ASCII format via the Market Participant Server (“MPS”) no later than 5:00pm, five *business days* after *trading day*.

4.2 Confirmation of receipt of metering data

Following the receipt of the *metering data*, an auto acknowledgement shall be sent to the *MSSL* to confirm the receipt of such data.

4.3 Procedure in the event of system failure for metering data submission

In the event that there is a failure in the *electronic information system*, then the *MSSL* shall submit the *metering data* to the *EMC* in CSV file format through secure email t: settdata@emcsg.com and telephone EMC-Settlement personnel to confirm receipt prior to the deadline stipulated in this *market manual*. As the last resort, the *MSSL* may submit *metering data* in CD format as the last resort.

Format of the *metering data* in CSV file:

Table Format Example

Data Item	Field Description	Field Format	Field Type and Length	M/O*	Valid Field Values
Quantity Type	The type of energy, injected or withdrawn from the grid.		varchar <u>VARCHAR</u> <u>AR2(32)</u>	M	IEQ – Injection Energy Quantity by a Generation Registered Facility. WEQ – Withdrawal Energy Quantity for a Settlement Account. IIQ – Net Imported Intertie Quantity from the Singapore Intertie <u>WPQ - Withdrawal Price Quantity</u> <u>WMQ - Withdrawal MEUC Quantity</u> <u>WFQ - Withdrawal Fee Quantity</u>
Settlement Date	<u>The Settlement Date</u>	DD-MON-YYYY	DATE	M	
Period	The period number the quantity relates to		number <u>NUMBER</u> <u>R</u>	M	1 to 48
Quantity	The loss adjusted quantity of energy injected or withdrawn in to the Market in Megawatt Hours (MWh). <u>When the quantity type is IEQ or IIQ, a negative value denotes a withdrawal; a positive value denotes an injection.</u>		number <u>NUMBER</u> <u>R (13,2)</u>	M	
Node ID	The unique node identifier that matches that within the NEM System. Used for only IEQ and IIQ Records,		varchar <u>VARCHAR</u> <u>AR2(32)</u>	O	The node values are yet to be defined.

Data Item	Field Description	Field Format	Field Type and Length	M/O*	Valid Field Values
	otherwise field is left NULL				
Settlement Account Id	The unique Settlement Account identifier that matches that within the NEM System. Used for WEQ Records only, otherwise this field is left NULL		varchar <u>VARCH</u> <u>AR2(32)</u>	O	The Settlement Account ID's are yet to be defined.
Reading Type	A flag that determines whether the quantity readings are from actual meter readings or are estimated.		varchar2(2)	M	A = Actual Meter Reading E = Estimated Meter Reading

M denotes Mandatory; O denotes Optional

As an example, the meter records would appear as shown below if they were sent to the EMC in an ASCII format:

```

"IEQ","01-MAR-2001","1","1245","NODEX",""
"IEQ","01-MAR-2001","2","1245","NODEX",""
"IEQ","01-MAR-2001","3","1245","NODEX",""
"IEQ","01-MAR-2001","4","1245","NODEX",""
"IEQ","01-MAR-2001","5","1245","NODEX",""
"IEQ","01-MAR-2001","6","1245","NODEX",""
"IEQ","01-MAR-2001","7","1245","NODEX",""
"IEQ","01-MAR-2001","8","1245","NODEX",""
"IEQ","01-MAR-2001","9","1245","NODEX",""
"IEQ","01-MAR-2001","10","12445","NODEX",""
"IEQ","01-MAR-2001","11","12445","NODEX",""
"IEQ","01-MAR-2001","12","12545","NODEX",""
"IEQ","01-MAR-2001","13","15245","NODEX",""
"IEQ","01-MAR-2001","14","1245","NODEX",""
"IEQ","01-MAR-2001","15","15245","NODEX",""
"IEQ","01-MAR-2001","16","16245","NODEX",""
"IEQ","01-MAR-2001","17","1245","NODEX",""
"IEQ","01-MAR-2001","18","16245","NODEX",""
"IEQ","01-MAR-2001","19","16245","NODEX",""
"IEQ","01-MAR-2001","20","12745","NODEX",""
"IEQ","01-MAR-2001","21","12845","NODEX",""
"IEQ","01-MAR-2001","22","1245","NODEX",""
"IEQ","01-MAR-2001","23","12945","NODEX",""
"IEQ","01-MAR-2001","24","12945","NODEX",""
"IEQ","01-MAR-2001","25","12045","NODEX",""
"IEQ","01-MAR-2001","26","12045","NODEX",""
"IEQ","01-MAR-2001","27","1245","NODEX",""
"IEQ","01-MAR-2001","28","12945","NODEX",""
"IEQ","01-MAR-2001","29","12645","NODEX",""
"IEQ","01-MAR-2001","30","12545","NODEX",""
...
...
"IEQ","01-MAR-2001","48","12445","NODEX",""
"IQ","01-MAR-2001","1","12453","NODEX",""
"IQ","01-MAR-2001","2","1245","NODEX",""
"IQ","01-MAR-2001","3","14245","NODEX",""
"IQ","01-MAR-2001","4","13245","NODEX",""
"IQ","01-MAR-2001","5","134245","NODEX",""
"IQ","01-MAR-2001","6","124345","NODEX",""
"IQ","01-MAR-2001","7","12445","NODEX",""
"IQ","01-MAR-2001","8","12445","NODEX",""
"IQ","01-MAR-2001","9","12445","NODEX",""
"IQ","01-MAR-2001","10","124345","NODEX",""
"IQ","01-MAR-2001","11","12645","NODEX",""
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"IEQ","27-MAY-2011","4","0.000","NODEX",""
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5 Communication of settlement information

5.1 Process for communication regarding settlement between market participants and the EMC

All communication between *market participants* and the *EMC* relating to the *settlement* process shall use the *electronic information system* in accordance with the table below.

5.2 Process for communication regarding settlement in the event of electronic information system failure

In the event of a failure of the *electronic information system*, the *EMC* or the *market participant* shall communicate by facsimile or in accordance with the table below.

5.3 Summary of settlement information communication processes

No	Type of issue	From	To	Means of Communications
1	Enquiries on <i>preliminary</i> and <i>final settlement statement</i> and <i>invoices</i>	MSSL MP	EMC	Email to email address: settlement@emcsg.com Facsimile and phone EMC-Settlement personnel to confirm receipt (alternate)
2	Notice of disagreement on <i>preliminary</i> and <i>final settlement statements</i>	MSSL MP	EMC	Email to email address: settlement@emcsg.com Facsimile and phone EMC-Settlement personnel to confirm receipt (alternate)
3	General settlement enquiries	MSSL MP	EMC	Email to email address: settlement@emcsg.com Facsimile and phone EMC-Settlement personnel to confirm receipt (alternate)

6 Settlement statements

6.1 Deadline for issuing preliminary and final settlement statements

The *EMC* shall issue a *preliminary settlement statement* on the sixth *business day* after the *trading day* and the *final settlement statement* on the tenth *business day* after the *trading day*, in accordance with sections 5.2.1 and section 5.2.3, Chapter 7 of the *market rules*.

6.2 Method of issuing preliminary and final settlement statements

Preliminary and final settlement statements will be posted on each *market participant's* private website as follows:

Preliminary settlement statement: *Trading day + 6 business days, 5:00pm*

Final settlement statement: *Trading day + 10 business days, 5:00pm*

The *EMC* shall identify and communicate to *market participants* the precise nature and root cause of any late-delivery of the *preliminary and final settlement statement* and/ or shall use its reasonable endeavours to rectify the situation or take any other steps as may be reasonably required.

6.3 Failure to receive preliminary or final settlement statement

In the event that a *market participant* does not see the *preliminary or final settlement statement* by the stipulated deadline, the *market participant* shall inform the *EMC-Settlement* personnel by email addressed to settlement@emcsg.com and telephone *EMC-Settlement* personnel.

Upon receiving notification from the *market participant*, the *EMC-Settlement* personnel shall re-post the relevant *settlement statement* onto the *market participant's* private website.

The *EMC-Settlement* personnel will then inform the *market participant* of the re-posting by email and telephone the *market participant*.

7 Invoices

7.1 Issuance of invoices

7.1.1 The *EMC* has undertaken to perform self-billing for goods and services tax for goods and services traded or settled in the *wholesale electricity market*. The provision in this section is to comply with the requirement of the Inland Revenue Authority of Singapore.

7.1.2 The *EMC* shall issue *invoices* to *market participants* on the tenth *business day* after the *trading day*. Where applicable, *invoices* include tax invoices and buyer-created tax invoices issued on *market participants'* behalf.

7.1.3 *Market participants* shall:

- a) not issue tax invoices to the *EMC* if a buyer-created tax invoice has been issued by the *EMC* on their behalf; and
- b) notify the *EMC* immediately, if their GST registration is cancelled or if they are issued with a new GST registration number.

7.2 Method of issuing invoices

The *invoice* will be sent to each *market participant* by secured e-mail in accordance with the time stated below:

Invoice: *Trading day + 10 business days, 5:00 pm*

If secured e-mail is not successful, the *invoice* will be sent by facsimile and followed by ordinary mail in accordance with the time stated above.

The *EMC* shall identify and communicate to the *market participants* the precise nature and root cause of any late-delivery of the settlement *invoice* and/ or shall use its reasonable endeavours to rectify the situation or take any other steps as may be reasonably required.

7.3 Failure to receive invoice

In the event that the *market participant* does not receive an *invoice* by the stipulated deadline, the *market participant* shall inform the *EMC-Settlement* personnel by email addressed to settlement@emcsg.com and telephone the *EMC-Settlement* personnel.

Upon receiving notification from the *market participant*, the *EMC-Settlement* personnel shall re-send the *invoice* by secured e-mail. If secured e-mail is not successful, the *invoice* will be sent by facsimile and followed by ordinary mail. The *EMC-Settlement* personnel will then telephone the *market participant* to confirm receipt.

8 Notice of disagreement

8.1 Notice of disagreement on preliminary settlement statement

Market participants shall have three *business days* from the day that the *preliminary settlement statement* is issued, in accordance with section 5.2.2, Chapter 7 of the *market rules*, to notify the EMC-Settlement personnel of errors in the *preliminary settlement statement* in accordance with section 5.5 of the *market rules*.

The deadline for such a *notice of disagreement* to reach the EMC-Settlement personnel is as follows:

Notice of disagreement: *Trading day + 9 business days, 5:00pm*

8.2 Notice of disagreement on final settlement statement

[Subject to rule change on section 5.6.5 and 5.6.6, Chapter 7]

No *market participant* may submit a *notice of disagreement* pertaining to a *final settlement statement* if, in accordance with section 5.6.6, Chapter 7 of the *market rules*:

- a) the dispute relates to the accuracy of metering data and more than forty *business days* have elapsed since the date on which the *final settlement statement* to which the *notice of disagreement* relates was issued; or
- b) in all other cases, more than twenty *business days* have elapsed since the date on which the *final settlement statement* to which the notice of disagreement relates was issued.

8.3 Conditions for submitting a notice of disagreement on final settlement statement

[Subject to rule change on section 5.6.5 and 5.6.6, Chapter 7]

A *market participant* may submit a *notice of disagreement* pertaining to a *final settlement statement* pursuant to section 5.6.5, Chapter 7 of the *market rules*, if the subject matter of the notice is not:

- a) in respect of the calculation of the element referred to in section 5.5.9.1 to 5.5.9.3 of section 5.6.5, Chapter 7 of the *market rules*; or

- b) identical to the subject matter filed by the *market participant* under section 5.5.2. Chapter 7 of the *market rules*; or

- c) the same subject matter that has been investigated and closed pursuant to section 5.5.2 and 5.5.6, Chapter 7 of the *market rules*.

8.4 Cost incurred during investigation

In the event that the *EMC* concludes that no errors have occurred in the *preliminary or final settlement statements*, and has incurred costs during the investigation, such cost will be passed on as an out-of-pocket expense to the *market participant* who submitted the *notice of disagreement*.

The *EMC* shall notify the *market participant* of such out-of-pocket expenses and include the out-of-pocket expenses in the next available *final settlement statement*.

8.5 Format of notice of disagreement

A *market participant* shall submit a *notice of disagreement* in the format below along with supporting documents to settlement@emcsg.com.

[Note: This form will eventually be downloadable from the EMC Website, www.emcsg.com]

Notice of Disagreement

Submitted by:

Company :

Settlement A/C : Run Identifier :

Settlement Date: Run Date :

Run Type :

Description of disagreement

Proposed Adjustment to the data used to calculate any relevant settlement amount

Proposed Correction to any calculation of the relevant settlement amount

The market participant must provide relevant materials to support this Notice.

9 Electronic funds transfer

9.1 Bank accounts

The *EMC* shall appoint a clearing bank to manage the clearing and *settlement* of the Singapore *wholesale electricity market*.

9.1.1 The EMC's bank account details

The *EMC* maintains *bank accounts* with the clearing bank to facilitate the clearing and *settlement* process.

The *EMC's bank account* information will be made available on the *EMC* website, www.emcsg.com.

9.1.2 Market participant bank accounts

Each *market participant* shall be required to open and maintain a *bank account* with the clearing bank appointed by the *EMC* and specified in 8.1.1 of this *market manual*.

Each *market participant* shall arrange with the clearing bank to authorize the *EMC* to direct debit the said *bank account* to facilitate the clearing and settlement of NEM.

Each *market participant* shall inform the *EMC* of all applicable information (*bank account* number inclusive) pursuant to section 5.16.11, Chapter 7 of the *market rules*.

9.2 Electronic funds transfer process

The *EMC* shall issue an *invoice* and *electronic funds transfer* instructions to the clearing bank on the tenth *business day* after each *trading day* in accordance with sections 5.2.3 and 5.2.4, Chapter 7 of the *market rules*.

The *EMC* shall instruct the clearing bank as follows:

- a) For a *market participant* owing to the *EMC*, the clearing bank shall be instructed to debit the *market participant's bank account* for the specified dollar amounts on the *market participant payment date*, pursuant to section 5.8.2, Chapter 7 of the *market rules*.

The *market participant payment date* shall be the twentieth day after *trading day* subject to *business day* convention.

[Explanatory note: Business day convention means that if the stipulated day falls on a non-business day, the required action will take place on the following business day.]

- b) For a *market participant* owed by the *EMC*, the clearing bank shall be instructed to credit the *bank account* of the *market participant* for the specified dollar amount on the *EMC payment date*, pursuant to section 5.8.2, Chapter 7 of the *market rules*.

The *EMC payment date* shall be the twenty-first day after the trading day subject to business day convention.

A *market participant* shall pay the full amount owing to the *EMC* and ensure that there are sufficient funds in the *market participant's bank account* with the clearing bank, prior to the close of banking business 5:00pm, on the twentieth day after the *trading day* subject to business day convention.

The clearing bank, based on the “direct debit authorization” arrangement in place, shall debit the *market participant's bank account* and credit the *EMC bank account* on the close of the twentieth day after the trading day subject to business day convention.

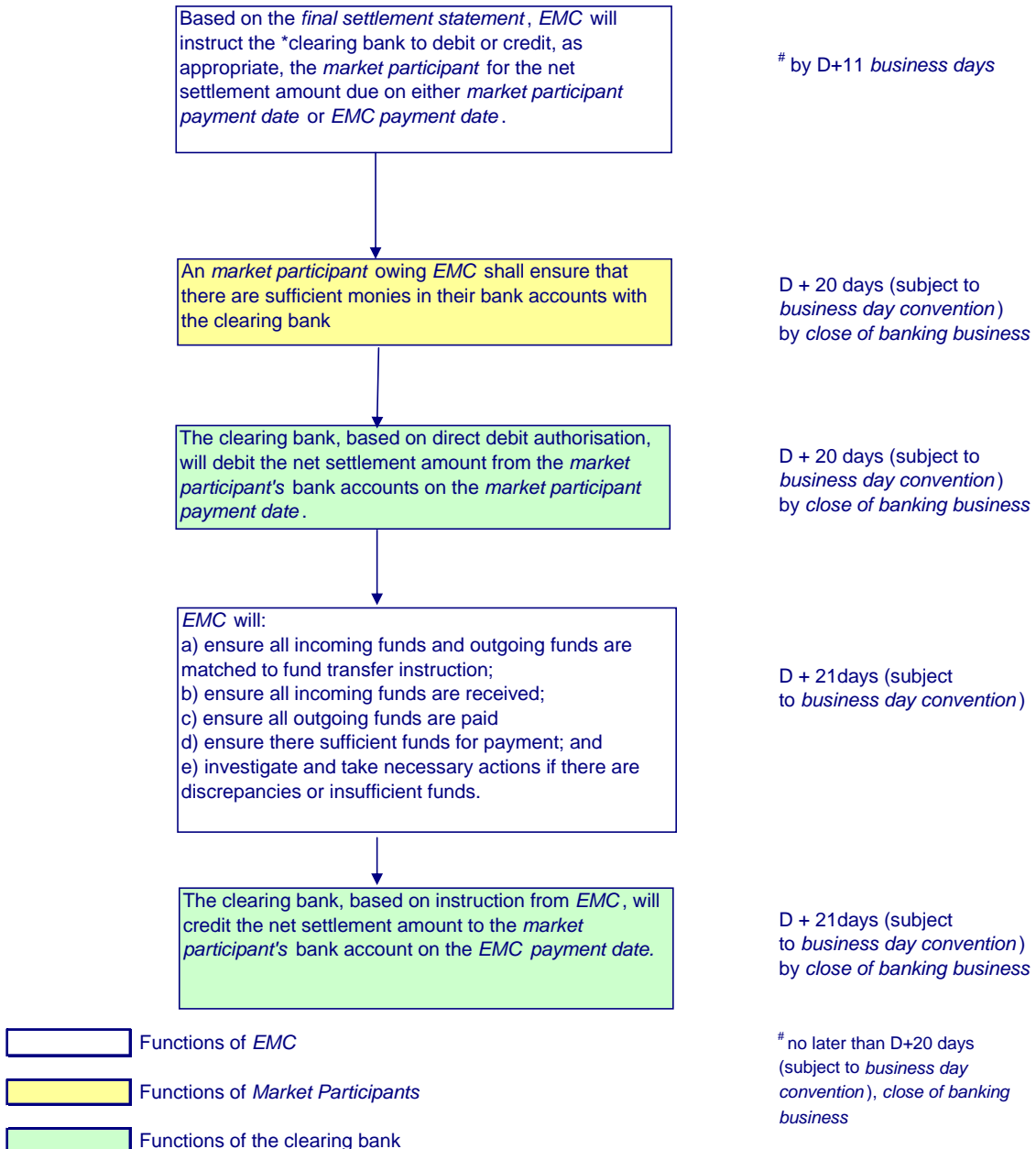
The following day after the *market participant* payment date, the EMC shall perform reconciliation to:

- ensure all outgoing funds are paid.
- ensure all incoming funds are received.
- ensure there are sufficient funds to payment.
- investigate and take necessary actions if there are discrepancies or insufficient funds for payment.

The clearing bank shall debit the *EMC bank account* and credit the *market participant's bank account* by the close of the twenty-first day after the *trading day* subject to business day convention.

9.3 Flowchart of electronic funds transfer process

FUND TRANSFER PROCESS



* refers to the single bank or financial institution that EMC maintains its bank accounts with under Section 5.16.2 of Chapter 7 of the *market rules*.

10 Set up of settlement account

Any interested party who wishes to participate in the *wholesale electricity market* will register with the *EMC*.

The *market participant* shall be required to provide the relevant information under the registration form or upon the request by the *EMC* to set up the *settlement account* and *bank account*. The required documents are as follows:

- *Market participant's bank account* details with the Clearing Bank
- "Direct Debit Authorisation" form duly completed and signed by the *market participant*. This form is required to authorize the *EMC* to debit/credit the *market participant's* account with the Clearing Bank for the settlement of *physical services* and charges of the *electricity market*.
- A list of the meter ids (applicable to *market participants* who are registering their *generation facilities*).

Upon receipt of the required documentations, the *EMC* shall:

- set up the *settlement account* in its *settlement* system and assign *settlement id*;
- assign MNNs to meter ids where applicable;
- submit "Direct Debit Authorisation" form, duly completed and signed by the *market participant*, to the Clearing Bank to activate the auto-debit/credit service; and
- advise the *MSSL* of the *market participant* of the settlement id and MNNs in accordance with chapter 7 of this *market manual*.

The *MSSL* upon receipt of the list of meter ids and the related MNNs, shall verify the meter ids and confirm to the *EMC* the accuracy of the meter ids.

The Clearing Bank upon receipt of the completed and signed "Direct Debit Authorisation" from the *EMC*, shall activate the auto-debit on the *market participant's bank account* and advise the *EMC*.

Upon receipt of confirmation from the *MSSL* and the Clearing Bank, the *EMC* shall:

- advise the *settlement id* to the *market participant*; and
- advise the MNNs to the *market participant* who has registered its *generation facilities*.

11 EMC-settlement personnel contact details

Contact:	Settlement personnel
Address:	Market Operations – Settlement Energy Market Company 238A Thomson Road #11-01 Novena Square Tower A Singapore 307684
Telephone:	+65 6779 3000
Facsimile:	+65 6779 3030
Website:	www.emcsg.com
For settlement enquiries :	email to settlement@emcsg.com
For submission of settlement data :	email to settdata@emcsg.com