

[Company]
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DD MM 2011

Tel: 6823 8980
Fax

Attn: Chief Executive Officer

Dear Sir

**SUPPLEMENTAL LETTER 4 -
MODIFICATIONS TO THE VESTING CONTRACT BETWEEN [NAME OF ENTITY] (“THE HOLDER”)
AND SP SERVICES LIMITED (“THE ISSUER”) DATED 23rd SEPTEMBER 2003 TOGETHER WITH
THE SUPPLEMENTAL LETTERS DATED 25th MAY 2009, 3rd JUNE 2009 AND 15th April 2010
(COLLECTIVELY REFERRED TO AS “VESTING CONTRACT”)**

The Holder and the Issuer have entered into the Vesting Contract.

2. For the avoidance of doubt, Supplemental Letter 4 is supplemental to the Vesting Contract dated 23rd September 2003, Supplemental Letter 1 dated 25th May 2009 and 3rd June 2009, and Supplemental Letter 3 dated 15th April 2010. Unless otherwise defined herein or if the context otherwise requires, the capitalized terms used in this Supplemental Letter shall have the meanings given to them in the Vesting Contract.

3. The Issuer hereby encloses the Modifications set out in Appendix 1, which have been mutually agreed by the Issuer and the Authority arising from the changes to the methodology for forecasting electricity consumption for the purpose of calculating quarterly Vesting Contract quantities. These Modifications shall take effect for the determination of the Vesting Contract quantities for the Hedge Quarter Q4 2011 onwards.

4. Save as otherwise stated herein, all the provisions contained in or subsisting in relation to the Vesting Contract shall continue to be applicable and binding and the Vesting Contract shall remain in full force and effect and shall be read and be construed and enforceable as if the terms of this Supplemental Letter 4 were inserted by way of addition or substitution thereto, as the case may be.

5. Please acknowledge your acceptance of this Supplemental Letter 4 by signing in the section marked below, as well as initialing all the pages in Appendix 1 and returning the attached duplicate of this Supplemental Letter 4 (and the Appendix 1) to the Issuer not later than seven (7) days from the date of this Supplemental Letter.

Yours faithfully

Jeanne Cheng
Managing Director, SP Services Ltd

To:

SP Services Ltd
111 Somerset Road #06-05
TripleOne Somerset
Singapore 238164

ACCEPTANCE OF SUPPLEMENTAL LETTER 4

We acknowledge and accept the provisions of your Supplemental Letter 4 dated DD MM 2011.

Signature: _____

Date of Signature: _____

Signed by: _____

Designation: _____
For and on behalf of **[NAME OF ENTITY]**

Company Stamp: _____

The table below sets out the new sections or other amendments to the Vesting Contract as a consequence of the revisions to the methodology for forecasting electricity consumption for calculating Vesting Contract quantities directed by the Authority.

Save as provided for below, the Contract and all provisions thereof shall continue to be applicable and be in full force and effect as the legal, valid and binding obligations of the Holder and the Issuer.

CLAUSE	AMENDED/ADDITIONAL CLAUSE (s)
SCHEDULE B	PROCEDURE, ALGORITHM AND PARAMETERS FOR HEDGE QUANTITIES
1.2 ELECTRICITY CONSUMPTION LOAD GROWTH FACTORS FORECAST	<p>Refer to the methodology in Appendix C.</p> <p>Load_Growth are the load growth factors to grow the data in LOAD_SET to the next Quarter. These data will be calculated Quarterly.</p>
2.2 LOAD DATA	<p>The set LOAD_SET is basic historic load data for 3 months (of the last Quarter) for use in the next Quarter. These data will come from MSSL. For Generation Registered Facility (GRF) or Generation Settlement Facility (GSF) that provides energy directly to the consumer's installation, this load set shall be the net load a facility consumes (that is total site load less that load supplied by the facilities embedded generation).</p> <p>REPFORCAST_TOTAL_LOAD[Day_Type, Period_Type] is the estimated forecasted total load electricity consumption of all consumers for the corresponding each period type and day type over the Quarter derived from LOAD_SET and adjusted for Load_Growth.</p> <p>The methodology for forecasting total electricity consumption of all consumers and of CC and NCC separately is set out in Appendix C and in particular Tables 4.2, 5.2 and 6 respectively therein.</p>
3. CALCULATING HEDGE QUANTITIES	<p>Step 1</p> <p>Derive from LOAD_SET the historic load data of all consumers for each period type and day type over a Quarter. After scaling these Quarterly data for Load_Growth, the load of all consumers for each period and day type over the Quarter is:</p> <p>Apply the forecasting methodology in Appendix C to derive the</p>

CLAUSE	AMENDED/ADDITIONAL CLAUSE (S)
	<p data-bbox="705 304 1805 331">FORECASTREP_TOTAL_LOAD[Day_Type,Period_Type] as shown in Table 4.2 of Appendix C.</p> <p data-bbox="705 411 786 438">Step 2</p> <p data-bbox="705 472 2007 499">For each day type and period type combination the preliminary load required to be contracted over the Quarter is:</p> $\begin{aligned} \text{PRELIM_MWh_CONTRACT}[\text{Day_Type}, \text{Period_Type}] = \\ \text{CONTRACT_LEVEL}[\text{Day_Type}, \text{Period_Type}] \times \\ \text{REPFORECAST_TOTAL_LOAD}[\text{Day_Type}, \text{Period_Type}] \end{aligned}$ <p data-bbox="705 668 786 695">Step 3</p> <p data-bbox="705 729 2007 783">For each day type and period type combination the load associated with the successful tender tranches over the Quarter is:</p> $\begin{aligned} \text{MWh_TENDER_VESTING}[\text{Day_Type}, \text{Period_Type}] = \\ \text{TENDER_VESTING_LEVEL}[\text{Day_Type}, \text{Period_Type}] \times \\ \text{REPFORECAST_TOTAL_LOAD}[\text{Day_Type}, \text{Period_Type}] \end{aligned}$
	<p data-bbox="705 960 786 987">Step 10</p> <p data-bbox="705 989 1868 1016">The initial allocation of Tender Vesting Quantity to each successful Tenderer over the Quarter is then:</p> $\begin{aligned} \text{TENDER_VESTING_ALLOCATION} [\text{Company}, \text{Day_Type}, \text{Period_Type}] = \\ \text{TENDER_VESTING_LEVEL}[\text{Company}, \text{Day_Type}, \text{Period_Type}] \times \\ \text{REPFORECAST_TOTAL_LOAD}[\text{Day_Type}, \text{Period_Type}] \end{aligned}$ <p data-bbox="705 1169 2007 1224">Using arrays DAY_TYPE[Date], PERIOD_TYPE[Day_Type] and NUM_PERIODS[Day_Type, Period_Type], coverage is calculated for each half hour of each day.</p>
APPENDIX C: METHODOLOGY TO FORECAST ELECTRICITY CONSUMPTION FOR	[New Section]

CLAUSE	AMENDED/ADDITIONAL CLAUSE (S)
CALCULATING VESTING CONTRACT QUANTITIES	

APPENDIX C: METHODOLOGY TO FORECAST ELECTRICITY CONSUMPTION FOR CALCULATING VESTING CONTRACT QUANTITIES

1.1 Electricity consumption is highly correlated¹ with economic growth. Linear regression analysis is used to model the quantitative relationship between quarterly electricity consumption (MWh) [Qtr_Load] and quarterly real GDP (S\$ Million) for Singapore [Qtr_GDP] based on the historical time series of quarterly data since 2004 (refer to [Equation 1](#)). The coefficients a_0 and a_1 of the regression model will be updated each quarter to incorporate the latest available historical data.

$Qtr_Load = a_0 + a_1 Qtr_GDP$	-	Equation 1
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where:

- **Qtr_Load** means the historical time series of quarterly electricity consumption (MWh) from SP Services for the period Q1 2004 up to the quarter 'Q-2' (i.e. the quarter ending three months prior to the Hedge Quarter 'Q'). This takes into account metering adjustments that occurs within D+10 business days² and excludes consumption by embedded generation.

For example, for the Hedge Quarter 'Q2 2011', the historical time series of quarterly electricity consumption (MWh) will be from Q1 2004 up to Q4 2010.

The quarterly electricity consumption (MWh) data from SP Services is available fifteen (15) days after the end of the quarter. SP Services will provide the quarterly electricity consumption (MWh) for the quarter 'Q-2' to EMA not later than fifteen (15) days (or the following Business Day) after the end of the quarter 'Q-2' e.g. the quarterly electricity consumption (MWh) data for Q4 2010 used for the computation of the Vesting Contract quantities for the Hedge Quarter 'Q2 2011' will be provided to EMA not later than 17 January 2011.

- **Qtr_GDP** means the historical time series of the quarterly real GDP (S\$ Million) for the Singapore Economy from the Ministry of Trade and Industry (MTI) for the period Q1 2004 up to the quarter 'Q-2' retrieved via the SingStat Time Series Online System from the Singapore Department of Statistics' web-based time series retrieval system. For example, for the Hedge Quarter 'Q2 2011', the historical time series of quarterly real GDP (S\$ Million) will be from Q1 2004 up to Q4 2010.

The quarterly real GDP (S\$ Million) for the quarter 'Q-2' will be based on the advance real GDP estimate (%)³ released by MTI⁴ not later than two weeks after the end of the quarter 'Q-2'. If information on the advance real GDP Estimate is not available, this would be based

¹ The correlation of historical quarterly electricity consumption (MWh) and quarterly real GDP (S\$ Million) for the period Q1 2004 up to Q4 2010 is about 95%.

² D refers to Trading Day. For example, for Trading Day 1 Sep 2010, meter adjustments that occur within D+10 Business Days will be taken into account.

³ MTI publishes its Advance GDP Estimate in the form of year-on-year real GDP growth rate.

on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter.

Quarterly real GDP (S\$ Million) for the quarter 'Q-2'
 = (1 + Advance real GDP Estimate (%) for the quarter 'Q-2') × real GDP (S\$ Million) for the same quarter as the quarter 'Q-2' in the previous year published by MTI in the Economic Survey of Singapore.

For example, for the Hedge Quarter 'Q2 2011', the quarterly real GDP (S\$ Million) for Q4 2010
 = (1 + Advance real GDP Estimate (%) for Q4 2010) × real GDP (S\$ Million) for Q4 2009.

1.2 EMA will update the historical time series of data for quarterly real GDP (S\$ Million) whenever there are revisions published by MTI to the historical data. The cut-off date for updating the historical time series of quarterly real GDP data will be the latest available data as of 15th of the first month of the quarter preceding each Hedge Quarter.

1.3 [Table 1](#) sets out the source and cut-off date for updating the historical time series of quarterly real GDP data for each Hedge Quarter 'Q'.

[Table 1: Source and Cut-off Date for Updating Historical Quarterly Real GDP \(S\\$ Million\), Qtr_GDP](#)

Hedge Quarter 'Q' for Year 'Y'	Vesting Contract Quantities [General cut-off date: not later than ten (10) days before the beginning of the second month of the quarter preceding the Hedge Quarter 'Q']	Source and cut-off Date for updating historical time series of quarterly real GDP (S\$ Million), Qtr_GDP [General cut-off date: Latest available data as of 15 th of the first month of the quarter preceding each Hedge Quarter]
Q1 for Year 'Y'	Not Later than 21 Oct of Year 'Y-1'	Update of quarterly real GDP (S\$ Million) from Q1 2004 up to Q3 of the Year 'Y-1'. <u>Cut-off date</u> <ul style="list-style-type: none"> • Latest available data as of 15 Oct of Year 'Y-1' <u>Source</u> <ul style="list-style-type: none"> • Q1 2004 to Q2 of Year 'Y-1': Data from the Economic Survey of Singapore for Q2 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q2 of Year 'Y-1' and retrieved via the SingStat Time Series Online System from the Singapore Department of Statistics' web-based time series retrieval system. • Q3 of Year 'Y-1': Data from (i) MTI Press Release on Advance real GDP Estimate for Q3 for Year 'Y-1' not later than two weeks after the end of Q3 of Year 'Y-1', and (ii) Economic Survey of Singapore for Q2

⁴ If information is not available from MTI, this would be based on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter.

Hedge Quarter 'Q' for Year 'Y'	Vesting Contract Quantities [General cut-off date: not later than ten (10) days before the beginning of the second month of the quarter preceding the Hedge Quarter 'Q']	Source and cut-off Date for updating historical time series of quarterly real GDP (S\$ Million), Qtr_GDP [General cut-off date: Latest available data as of 15 th of the first month of the quarter preceding each Hedge Quarter]
		<p>of Year 'Y-1' released by MTI not later than eight weeks after the end of Q2 of Year 'Y-1' .</p> <ul style="list-style-type: none"> If information on the Advance real GDP Estimate is not available, this would be based on the latest available data released by Consensus Economics⁵ as of 15th of the first month of the quarter preceding each Hedge Quarter <p>E.g. for the Hedge Quarter 'Q1 2011': Data for Q1 2004 up to Q3 2010 is from (i) Economic Survey of Singapore for Q2 2010 released by MTI in Aug 2010 and (ii) MTI Press Release on Advance real GDP Estimate for Q3 2010 in mid-Oct 2010.</p>
Q2 for Year 'Y'	Not Later than 21 Jan of Year 'Y'	<p>Update of quarterly real GDP (S\$ Million) from Q1 2004 up to Q4 of Year 'Y-1'.</p> <p><u>Cut-off date</u></p> <ul style="list-style-type: none"> Latest available data as of 15 Jan of Year 'Y' <p><u>Source</u></p> <ul style="list-style-type: none"> Q1 2004 up to Q3 of Year 'Y-1': Data from the Economic Survey of Singapore for Q3 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q3 of Year 'Y-1' and retrieved via the SingStat Time Series Online System from the Singapore Department of Statistics' web-based time series retrieval system. Q4 of Year 'Y-1': Data from (i) MTI Press Release on Advance real GDP Estimate for Q4 of Year 'Y-1' not later than two weeks after the end of Q4 of Year 'Y-1', and (ii) Economic Survey of Singapore for Q3 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q3 of Year 'Y-1'. If information on the Advance real GDP Estimate is not available, this would be based on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter. <p>E.g. for the Hedge Quarter 'Q2 2011': Data for Q1 2004 up to Q4 2010 is from (i) Economic Survey of Singapore for Q3 2010 released by MTI in Nov 2010 and (ii) MTI Release on Advance real GDP Estimate for Q4 2010 in mid-Jan 2011.</p>
Q3 for Year 'Y'	Not Later than 21 Apr of Year 'Y'	<p>Update of quarterly real GDP (S\$ Million) from Q1 2004 up to Q1 of Year 'Y'.</p> <p><u>Cut-off date</u></p> <ul style="list-style-type: none"> Latest available data as of 15 Apr of Year 'Y'

⁵ The survey by Consensus Economics for the annual real GDP forecast is done on the second Monday of each month of each year and the publication is released 3 days after the survey date.

Hedge Quarter 'Q' for Year 'Y'	Vesting Contract Quantities [General cut-off date: not later than ten (10) days before the beginning of the second month of the quarter preceding the Hedge Quarter 'Q']	Source and cut-off Date for updating historical time series of quarterly real GDP (S\$ Million), Qtr_GDP [General cut-off date: Latest available data as of 15 th of the first month of the quarter preceding each Hedge Quarter]
		<p><u>Source</u></p> <ul style="list-style-type: none"> Q1 2004 up to Q4 of Year 'Y-1': Data from the Economic Survey of Singapore for Q4 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q4 of Year 'Y-1' and retrieved via the SingStat Time Series Online System from the Singapore Department of Statistics' web-based time series retrieval system. Q1 of Year 'Y': Data from (i) MTI Press Release on Advance real GDP Estimate for Q1 of Year 'Y' not later than two weeks after the end of Q1 of Year 'Y', and (ii) Economic Survey of Singapore for Q4 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q4 of Year 'Y-1'. If information on the Advance real GDP Estimate is not available, this would be based on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter. <p>E.g. for the Hedge Quarter 'Q3 2011': Data for Q1 2004 up to Q1 2011 is from (i) Economic Survey of Singapore 2010 released by MTI in Feb 2011 and (ii) MTI Press Release on Advance real GDP Estimate for Q1 2011 in mid-Apr 2011.</p>
Q4 for Year 'Y'	Not Later than 21 Jul of Year 'Y'	<p>Update of quarterly real GDP (S\$ Million) from Q1 2004 up to Q2 of Year 'Y'</p> <p><u>Cut-off date</u></p> <ul style="list-style-type: none"> Latest available data as of 15 Jul of Year 'Y' <p><u>Source</u></p> <ul style="list-style-type: none"> Q1 2004 up to Q1 of Year 'Y': Data from the Economic Survey of Singapore for Q1 of Year 'Y' released by MTI not later than eight weeks after the end of Q1 of Year 'Y' and retrieved via the SingStat Time Series Online System from the Singapore Department of Statistics' web-based time series retrieval system. Q2 of Year 'Y': Data from (i) MTI Press Release on Advance real GDP Estimate for Q2 of Year 'Y' not later than two weeks after the end of Q2 of Year 'Y', and (ii) Economic Survey of Singapore for Q1 of Year 'Y' released by MTI not later than eight weeks after the end of Q1 of Year 'Y'. In the event where the Advance real GDP Estimate is not available, this would be based on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter. <p>E.g. for the Hedge Quarter 'Q4 2011': Data for Q1 2004 up to Q2 2011 is from (i) Economic Survey of Singapore for Q1 2011 released by MTI in May 2011 and (ii) MTI Press Release on Advance real GDP Estimate for Q2 2011 in mid-Jul 2011</p>

1.4 The forecasted total electricity consumption (MWh) for the quarter under review 'Q' [For_Load^Q] is computed based on [Equation 2](#):

$$\text{For_Load}^Q = a_0 + a_1 \text{For_GDP}^Q \quad - \quad \text{Equation 2}$$

where:

- For_Load^Q means the forecasted total electricity consumption (MWh) for the Hedge Quarter 'Q' in Year 'Y';
- a₀ from Equation 1;
- a₁ from Equation 1;
- For_GDP^Q means the forecasted quarterly real GDP (S\$ Million) for the Hedge Quarter 'Q' and is determined according to [Equation 3](#).

$$\text{For_GDP}^Q = \text{His_Qtr_GDP_Con}_{\text{YearY-1 to YearY-3}} \times \text{For_GDP}^Y \quad - \quad \text{Equation 3}$$

where:

- His_Qtr_GDP_Con_{YearY-1 to YearY-3} means the average of the percentage contribution of the quarterly real GDP (S\$ Million) to the annual real GDP (S\$ Million), for the same quarter as the Hedge Quarter 'Q' in the previous three years from Year 'Y-1' to Year 'Y-3'.

Source and cut-off date
Latest available data as of 15th of the first month of the quarter preceding each Hedge Quarter from the Economic Survey of Singapore released by MTI and retrieved via the SingStat Time Series Online System from the Singapore Department of Statistics' web-based time series retrieval system.

For example, for the Hedge Quarter 'Q2 2011', the percentage contribution of Q2 2011 real GDP to the forecasted annual real GDP (S\$ Million) for 2011 is calculated as the average of the percentage contribution of Q2 real GDP (S\$ Million) to annual real GDP (S\$ Million) in the previous three years from 2008 to 2010.
- For_GDP^Y means the annual real GDP forecast (S\$ Million) for the current year 'Y' and is calculated according to [Equation 4](#).

$$\text{For_GDP}^Y = \text{His_GDP}^{Y-1} \times (1 + \text{For_GDP_Growth}^Y) \quad - \quad \text{Equation 4}$$

where:

- His_GDP^{Y-1} means the annual real GDP (S\$ Million) for the Year 'Y-1'.

Source and cut-off date

Latest available data as of 15th of the first month of the quarter preceding each Hedge Quarter from the Economic Survey of Singapore released by MTI.

For the Hedge Quarters Q1 and Q2 of Year 'Y', the annual real GDP (S\$ Million) for the Year 'Y-1' [His_GDP^{Y-1}] is normally not yet published by MTI at the point of calculation. In view of this, the following details the steps to determine His_GDP^{Y-1} for the Hedge Quarters Q1 and Q2 for the Year 'Y-1':

1. For the Hedge Quarter Q1 of Year 'Y', the annual real GDP (S\$ Million) for the Year 'Y-1' [His_GDP^{Y-1}] will be the summation of the quarterly real GDP derived as follows:
 - a. Real GDP (S\$ Million) for Q1 and Q2 of Year 'Y-1' from the Economic Survey of Singapore for Q2 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q2 of Year 'Y-1'.
 - b. Real GDP (S\$ Million) for Q3 of Year 'Y-1' = $(1 + \text{Advance real GDP Estimate (\%)} \text{ for Q3 of Year 'Y-1'}) \times \text{real GDP (S\$ Million) for Q3 in Year 'Y-2'}$
 - Data from (i) MTI Press Release on Advance real GDP Estimate (%) for Q3 of Year 'Y-1' not later than two weeks after the end of Q3 of Year 'Y-1', and (ii) Economic Survey of Singapore for Q2 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q2 of Year 'Y-1'.
 - If information on the Advance real GDP Estimate is not available, this would be based on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter.
 - c. Real GDP (S\$ Million) for Q4 of Year 'Y-1' = $(1 + \text{real GDP Forecast (\%)} \text{ for Q4 of Year 'Y-1'}) \times \text{real GDP (S\$ Million) for Q4 in Year 'Y-2'}$
 - Latest available data as of 15th of the first month of the quarter preceding each Hedge Quarter from (i) Consensus Economics' release of the year-on-year real GDP forecast (%) for Q4 of Year 'Y-1', and (ii) Economic Survey of Singapore for Q2 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q2 of Year 'Y-1'.
2. For the Hedge Quarter Q2 of Year 'Y', the annual real GDP (S\$ Million) for the Year 'Y-1' [His_GDP^{Y-1}] will be the summation of the quarterly real GDP derived as follows:
 - a. Real GDP (S\$ Million) for Q1, Q2 and Q3 of Year 'Y-1' from the Economic Survey of Singapore for Q3 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q3 of Year 'Y-1'.
 - b. Real GDP (S\$ Million) for Q4 of Year 'Y-1' = $(1 + \text{Advance real GDP Estimate (\%)} \text{ for Q4 of Year 'Y-1'}) \times \text{real GDP (S\$ Million) for Q4 in Year 'Y-2'}$
 - Data from (i) MTI Press Release on Advance real GDP Estimate (%) for Q4 of Year 'Y-1' not later than two weeks after the end of Q4 of Year 'Y-1', and (ii) Economic Survey of Singapore for Q3 of Year 'Y-1' released by MTI not later than eight weeks after the end of Q3 of Year 'Y-1'.
 - If information on the Advance real GDP Estimate is not available, this would be based on the latest available data released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter.
3. For the Hedge Quarter Q3 of Year 'Y', the annual real GDP (S\$ Million) for the Year 'Y-1' [His_GDP^{Y-1}] will be the summation of the quarterly real GDP derived as follows:
 - a. Real GDP (S\$ Million) for Q1 to Q4 of Year 'Y-1' from the Economic Survey of Singapore for Q4 of

Year 'Y-1' released by MTI not later than eight weeks after the end of Q4 of Year 'Y-1'.

4. For the Hedge Quarter Q4 of Year 'Y', the annual real GDP (S\$ Million) for the 'Year Y-1' [His_GDP^{Y-1}] will be the summation of the quarterly real GDP derived as follows:
 - a. Real GDP (S\$ Million) for Q1 to Q4 of Year 'Y-1' from the Economic Survey of Singapore for Q1 of Year 'Y' released by MTI not later than eight weeks after the end of Q1 of Year 'Y'.

- For_GDP_Growth^Y means the annual real GDP forecast (%) for the Year 'Y'.

Source and cut-off date

Latest available forecast released by Consensus Economics as of 15th of the first month of the quarter preceding each Hedge Quarter.

1.5 The forecasted electricity consumption of non-contestable consumers [For_Load^Q_{NCC}] and of contestable consumers [For_Load^Q_{CC}] for the Hedge Quarter 'Q' will be calculated according to Equations 5 and 6.

For_Load^Q_{CC} = His_Qtr_CC_Con_{YearY-1 to YearY-3} × For_Load^Q	- Equation 5
For_Load^Q_{NCC} = For_Load^Q - For_Load^Q_{CC}	- Equation 6

where:

- For_Load^Q_{CC} means the forecasted electricity consumption of contestable consumers (MWh) for the Hedge Quarter 'Q' in Year 'Y'.
- For_Load^Q_{NCC} means the forecasted electricity consumption of non-contestable consumers (MWh) for the Hedge Quarter 'Q' in Year 'Y'.
- His_Qtr_CC_Con_{YearY-1 to YearY-3} means the average of the percentage contribution of the electricity consumption of contestable consumers (MWh) to the total electricity consumption (MWh) of both contestable and non-contestable consumers, for the same quarter as the Hedge Quarter 'Q' in the previous three years from Year 'Y-1' to Year 'Y-3'.

Source

Data from SP Services which will include account metering adjustments that occur within D+10 business days⁶ and excludes consumption by embedded generation.

For example, for the Hedge Quarter 'Q2 2011', the percentage contribution of the electricity consumption of contestable consumers (MWh) to the total electricity consumption (MWh) of both contestable and non-contestable consumers for Q2 2011 is calculated as the average of the percentage contribution in Q2 in the

⁶ D refers to Trading Day. For example, for Trading Day 1 Sept 2010, meter adjustments that occur within D+10 Business Days will be taken into account.

previous three years from 2008 to 2010.

The quarterly electricity consumption (MWh) data from SP Services is available fifteen (15) days after the end of the quarter. SP Services will provide the quarterly electricity consumption (MWh) for the quarter 'Q-2' to EMA not later than fifteen (15) days (or the following Business Day) after the end of the quarter 'Q-2' e.g. the quarterly electricity consumption (MWh) data for Q4 2010 used for the computation of the Vesting Contract quantities for the Hedge Quarter 'Q2 2011' will be provided to EMA not later than 17 January 2011.

- For_Load^Q means the forecasted total electricity consumption (MWh) for the Hedge Quarter 'Q' obtained from [Equation 2](#).

1.6 SP Services will profile the forecasted quarterly electricity consumption of non-contestable consumers [For_Load^Q_{NCC}] and contestable consumers [For_Load^Q_{CC}] by period type (Peak, Off-Peak and Shoulder)⁷ and day type (Sunday/Public Holiday, Saturday and Weekday) for the Hedge Quarter 'Q'.

1.7 The methodology for profiling is illustrated using the Hedge Quarter 'Q2 2011' as an example, is set out below:

a. Forecast of Quarterly Total Electricity Consumption and Day Profile for Hedge Quarter 'Q2 2011'

Table 3.1: Forecast of Quarterly Total Electricity Consumption (MWh) for the Hedge Quarter 'Q2 2011'

	MWh
Total Forecasted Electricity Consumption (from Equation 2)	For_Load ^{Q2 2011}
Total Forecasted Electricity Consumption for Contestable Consumers (from Equation 5)	For_Load ^{Q2 2011} _{CC}
Total Forecasted Electricity Consumption for Non-Contestable Consumers (from Equation 6)	For_Load ^{Q2 2011} _{NCC}

Table 3.2: Day Profile for the Hedge Quarter 'Q2 2011'

	Sunday/Public Holiday	Weekday	Saturday
Peak	H ^{Q2 2011} _{P,Sun/PH}	H ^{Q2 2011} _{P,W}	H ^{Q2 2011} _{P,S}
Off-Peak	H ^{Q2 2011} _{OP,Sun/PH}	H ^{Q2 2011} _{OP,W}	H ^{Q2 2011} _{OP,S}
Shoulder	H ^{Q2 2011} _{S,Sun/PH}	H ^{Q2 2011} _{S,W}	H ^{Q2 2011} _{S,S}

where:

- H^{Q2 2011}_{ij} is the total number of half-hours 'H' in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'

⁷ The Period Type and Day Type is defined according to Section 3.1 of the EMA's Procedures for Calculating the Components of the Vesting Contracts

- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for the Hedge Quarter 'Q2 2011'
- Day Type and Period Type is based on the Day Type and Period Type for the Hedge Quarter 'Q2 2011'

b. Profile of Forecasted Total Electricity Consumption for Hedge Quarter 'Q2 2011'

Table 4.1: Profile of Historical Total Electricity Consumption (MWh) for the same quarter as the Hedge Quarter 'Q' in the previous year 'Y-1' i.e. 'Q2 2010'

	Sunday/Public Holiday	Weekday	Saturday
Peak	$HTEC^{Q2\ 2010}_{P,Sun/PH}$	$HTEC^{Q2\ 2010}_{P,W}$	$HTEC^{Q2\ 2010}_{P,S}$
Off-Peak	$HTEC^{Q2\ 2010}_{OP,Sun/PH}$	$HTEC^{Q2\ 2010}_{OP,W}$	$HTEC^{Q2\ 2010}_{OP,S}$
Shoulder	$HTEC^{Q2\ 2010}_{S,Sun/PH}$	$HTEC^{Q2\ 2010}_{S,W}$	$HTEC^{Q2\ 2010}_{S,S}$

where:

- $HTEC^{Q2\ 2010}$ is the aggregate of the historical total electricity consumption (MWh) for 'Q2 2010'
- $HTEC^{Q2\ 2010}_{i,j}$ is the aggregate of the historical total electricity consumption (MWh) in period type 'i' and day type 'j' for 'Q2 2010'
- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for 'Q2 2010'
- Period Type classification for this whole table (including for 'Q2 2010') is based on the Period Type classification for the Hedge Quarter 'Q2 2011'
- Aggregate of the Historical Total Electricity Consumption for 'Q2 2010' = $\sum HTEC^{Q2\ 2010}_{i,j} = HTEC^{Q2\ 2010}$

Table 4.2: Profile of Forecasted Total Electricity Consumption (MWh) for the Hedge Quarter 'Q2 2011'

	Sunday/Public Holiday	Weekday	Saturday
Peak	$FTEC^{Q2\ 2011}_{P,Sun/PH}$ $= \frac{HTEC^{Q2\ 2010}_{P,Sun/PH}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$	$FTEC^{Q2\ 2011}_{P,W}$ $= \frac{HTEC^{Q2\ 2010}_{P,W}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$	$FTEC^{Q2\ 2011}_{P,S}$ $= \frac{HTEC^{Q2\ 2010}_{P,S}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$
Off-Peak	$FTEC^{Q2\ 2011}_{OP,Sun/PH}$ $= \frac{HTEC^{Q2\ 2010}_{OP,Sun/PH}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$	$FTEC^{Q2\ 2011}_{OP,W}$ $= \frac{HTEC^{Q2\ 2010}_{OP,W}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$	$FTEC^{Q2\ 2011}_{OP,S}$ $= \frac{HTEC^{Q2\ 2010}_{OP,S}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$
Shoulder	$FTEC^{Q2\ 2011}_{S,Sun/PH}$ $= \frac{HTEC^{Q2\ 2010}_{S,Sun/PH}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$	$FTEC^{Q2\ 2011}_{S,W}$ $= \frac{HTEC^{Q2\ 2010}_{S,W}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$	$FTEC^{Q2\ 2011}_{S,S}$ $= \frac{HTEC^{Q2\ 2010}_{S,S}}{HTEC^{Q2\ 2010}} \times For_Load^{Q2\ 2011}$

where:

- $FTEC^{Q2\ 2011}_{ij}$ is the aggregate of the forecasted total electricity consumption (MWh) in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'
- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for the Hedge Quarter 'Q2 2011'
- From Table 3.1:
 - $For_Load^{Q2\ 2011}$ is the aggregate of the forecasted total electricity consumption (MWh) for the Hedge Quarter 'Q2 2011'
- From Table 4.1:
 - $HTEC^{Q2\ 2010}$ is the aggregate of the historical total electricity consumption (MWh) for 'Q2 2010'
 - $HTEC^{Q2\ 2010}_{ij}$ is the aggregate of the historical total electricity consumption (MWh) in period type 'i' and day type 'j' for 'Q2 2010'
 - 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
 - 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for 'Q2 2010'

Table 4.3: Profile of Forecasted Total Electricity Consumption (MWh) per half-hour period for the Hedge Quarter 'Q2 2011'

	Sunday/Public Holiday	Weekday	Saturday
Peak	$\frac{FTEC^{Q2\ 2011}_{P,Sun/PH}}{H^{Q2\ 2011}_{P,Sun/PH}}$	$\frac{FTEC^{Q2\ 2011}_{P,W}}{H^{Q2\ 2011}_{P,W}}$	$\frac{FTEC^{Q2\ 2011}_{P,S}}{H^{Q2\ 2011}_{P,S}}$
Off-Peak	$\frac{FTEC^{Q2\ 2011}_{OP,Sun/PH}}{H^{Q2\ 2011}_{OP,Sun/PH}}$	$\frac{FTEC^{Q2\ 2011}_{OP,W}}{H^{Q2\ 2011}_{OP,W}}$	$\frac{FTEC^{Q2\ 2011}_{OP,S}}{H^{Q2\ 2011}_{OP,S}}$
Shoulder	$\frac{FTEC^{Q2\ 2011}_{S,Sun/PH}}{H^{Q2\ 2011}_{S,Sun/PH}}$	$\frac{FTEC^{Q2\ 2011}_{S,W}}{H^{Q2\ 2011}_{S,W}}$	$\frac{FTEC^{Q2\ 2011}_{S,S}}{H^{Q2\ 2011}_{S,S}}$

where:

- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for the Hedge Quarter 'Q2 2011'
- From Table 3.2:
 - $H^{Q2\ 2011}_{ij}$ is the number of half-hours 'H' in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'
- From Table 4.2:
 - $FTEC^{Q2\ 2011}_{ij}$ is the aggregate of the forecasted total electricity consumption (MWh) in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'

c. Profile of Forecasted Total Electricity Consumption of Contestable Consumers (CC)

Table 5.1: Profile of Historical Total Electricity Consumption (MWh) of CCs for same quarter as the Hedge Quarter 'Q' in the previous year 'Y-1' i.e. 'Q2 2010'

	Sunday/Public Holiday	Weekday	Saturday
Peak	$HTEC_{CC,P,Sun/PH}^{Q2\ 2010}$	$HTEC_{CC,P,W}^{Q2\ 2010}$	$HTEC_{CC,P,S}^{Q2\ 2010}$
Off-Peak	$HTEC_{CC,OP,Sun/PH}^{Q2\ 2010}$	$HTEC_{CC,OP,W}^{Q2\ 2010}$	$TEC_{CC,OP,S}^{Q2\ 2010}$
Shoulder	$HTEC_{CC,S,Sun/PH}^{Q2\ 2010}$	$HTEC_{CC,S,W}^{Q2\ 2010}$	$HTEC_{CC,S,S}^{Q2\ 2010}$

where:

- $HTEC_{CC}^{Q2\ 2010}$ is the aggregate of the historical total electricity consumption (MWh) of 'CC' for 'Q2 2010'
- $HTEC_{CC,i,j}^{Q2\ 2010}$ is the aggregate of the historical total electricity consumption (MWh) of 'CC' in period type 'i' and day type 'j' for 'Q2 2010'
- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for 'Q2 2010'
- Period Type classification for this whole table (including for 'Q2 2010') is based on the Period Type classification for the Hedge Quarter 'Q2 2011'
- Aggregate of the Historical Total Electricity Consumption for 'Q2 2010' = $\sum HTEC_{CC,i,j}^{Q2\ 2010} = HTEC_{CC}^{Q2\ 2010}$

Table 5.2: Profile of Forecasted Total Electricity Consumption (MWh) of 'CC' for the Hedge Quarter 'Q2 2011'

	Sunday/Public Holiday	Weekday	Saturday
Peak	$FTEC_{CC,P,Sun/PH}^{Q2\ 2011}$ = $\frac{HTEC_{CC,P,Sun/PH}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$	$FTEC_{CC,P,W}^{Q2\ 2011}$ = $\frac{HTEC_{CC,P,W}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$	$FTEC_{CC,P,S}^{Q2\ 2011}$ = $\frac{HTEC_{CC,P,S}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$
Off-Peak	$FTEC_{CC,OP,Sun/PH}^{Q2\ 2011}$ = $\frac{HTEC_{CC,OP,Sun/PH}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$	$FTEC_{CC,OP,W}^{Q2\ 2011}$ = $\frac{HTEC_{CC,OP,W}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$	$FTEC_{CC,OP,S}^{Q2\ 2011}$ = $\frac{HTEC_{CC,OP,S}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$
Shoulder	$FTEC_{CC,S,Sun/PH}^{Q2\ 2011}$ = $\frac{HTEC_{CC,S,Sun/PH}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$	$FTEC_{CC,S,W}^{Q2\ 2011}$ = $\frac{HTEC_{CC,S,W}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$	$FTEC_{CC,S,S}^{Q2\ 2011}$ = $\frac{HTEC_{CC,S,S}^{Q2\ 2010}}{HTEC_{CC}^{Q2\ 2010}} \times For_Load_{CC}^{Q2\ 2011}$

where:

- $FTEC_{CC,i,j}^{Q2\ 2011}$ is the aggregate of the forecasted total electricity consumption (MWh) of 'CC' in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'
- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for the Hedge Quarter 'Q2 2011'
- From Table 3.1:

- For_Load^{Q2 2011}_{CC} is the aggregate of the forecasted total electricity consumption (MWh) of 'CC' for the Hedge Quarter 'Q2 2011'
- From [Table 5.1](#):
 - HTEC^{Q2 2010}_{CC} is the aggregate of the historical total electricity consumption (MWh) of 'CC' for 'Q2 2010'
 - HTEC^{Q2 2010}_{CC,i,j} is the aggregate of the historical total electricity consumption (MWh) of 'CC' in period type 'i' and day type 'j' for 'Q2 2010'
 - i is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
 - j is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for 'Q2 2010'

Table 5.3: Profile of Forecasted Total Electricity Consumption (MWh) of CCs per half-hour period for the Hedge Quarter 'Q2 2011'

	Sunday/Public Holiday	Weekday	Saturday
Peak	$\frac{FTEC_{CC,P,Sun/PH}^{Q2\ 2011}}{H_{P,Sun/PH}^{Q2\ 2011}}$	$\frac{FTEC_{CC,P,W}^{Q2\ 2011}}{H_{P,W}^{Q2\ 2011}}$	$\frac{FTEC_{CC,P,S}^{Q2\ 2011}}{H_{P,S}^{Q2\ 2011}}$
Off-Peak	$\frac{FTEC_{CC,OP,Sun/PH}^{Q2\ 2011}}{H_{OP,Sun/PH}^{Q2\ 2011}}$	$\frac{FTEC_{CC,OP,W}^{Q2\ 2011}}{H_{OP,W}^{Q2\ 2011}}$	$\frac{FTEC_{CC,OP,S}^{Q2\ 2011}}{H_{OP,S}^{Q2\ 2011}}$
Shoulder	$\frac{FTEC_{CC,S,Sun/PH}^{Q2\ 2011}}{H_{S,Sun/PH}^{Q2\ 2011}}$	$\frac{FTEC_{CC,S,W}^{Q2\ 2011}}{H_{S,W}^{Q2\ 2011}}$	$\frac{FTEC_{CC,S,S}^{Q2\ 2011}}{H_{S,S}^{Q2\ 2011}}$

where:

- 'i' is the period type classification i.e. Peak 'P', Off-Peak 'OP' and Shoulder 'S' for the Hedge Quarter 'Q2 2011'
- 'j' is the day type classification i.e. Sunday/Public Holiday 'Sun/PH', Weekday 'W' and Saturday 'S' for the Hedge Quarter 'Q2 2011'
- From [Table 3.2](#):
 - $H_{i,j}^{Q2\ 2011}$ is the number of half-hours 'H' in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'
- From [Table 5.2](#):
 - $FTEC_{CC,i,j}^{Q2\ 2011}$ is the aggregate of the forecasted total electricity consumption (MWh) of 'CC' in period type 'i' and day type 'j' for the Hedge Quarter 'Q2 2011'

d. Profile of Total Electricity Consumption of Non-Contestable Consumers ('NCC')

Table 6: Profile of Forecasted Total Electricity Consumption of 'NCC' (MWh) per half-hourly period for the Hedge Quarter 'Q2 2011'
 (Note: Forecasted total electricity consumption of 'NCC' is calculated as the difference between forecasted total electricity consumption and forecasted electricity consumption of 'CC')

	Sunday/Public Holiday	Weekday	Saturday
Peak	Forecasted Total Electricity Consumption per half-hour period (from Table 4.3 , Sunday/Public Holiday, Peak)	Forecasted Total Electricity Consumption per half-hour period (from Table 4.3 , Weekday, Peak)	Forecasted Total Electricity Consumption per half-hour period (from Table 4.3 , Saturday, Peak)

	Sunday/Public Holiday	Weekday	Saturday
	minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Sunday/Public Holiday, Peak)	minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Weekday, Peak)	minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Saturday, Peak)
Off-Peak	Forecasted Total Electricity Consumption per half-hourly period (from Table 4.3 , Sunday/Public Holiday, Off-Peak) minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Sunday/Public Holiday, Off-Peak)	Forecasted Total Electricity Consumption per half-hour period (from Table 4.3 , Weekday, Off-Peak) minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Weekday, Off-Peak)	Forecasted Total Electricity Consumption per half-hour period (from Table 4.3 , Saturday, Off-Peak) minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Saturday, Off-Peak)
Shoulder	Forecasted Total Electricity Consumption per half-hourly period (from Table 4.3 , Sunday/Public Holiday, Shoulder) minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Sunday/Public Holiday, Shoulder)	Forecasted Total Electricity Consumption per half-hourly period (from Table 4.3 , Weekday, Shoulder) minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Weekday, Shoulder)	Forecasted Total Electricity Consumption per half-hour period (from Table 4.3 , Saturday, Shoulder) minus Forecasted Total Electricity Consumption of Contestable Consumers per half-hour period (from Table 5.3 , Saturday, Shoulder)