991B ALEXANDRA ROAD
#01-29
SINGAPORE 119975

T [illegible]
F [illegible]

WWW.EMA.GOV.SG
WWW.FACEBOOK.COM/ENERGYMARKETAUTHORITY
WWW.TWITTER.COM/EMA_SG

Energy Market Authority

Green Energy, Sustainable Future

SINGAPORE ENERGY STATISTICS

2016

ENERGY MARKET AUTHORITY

The Energy Market Authority (EMA) is a statutory board under the Ministry of Trade and Industry (MTI). Our main goals are to promote effective competition in the energy market, ensure a reliable and secure energy supply, and develop a dynamic energy sector in Singapore. Through our work, we seek to forge a progressive energy landscape for sustained growth.

ISSN 2251-2624

DIRECTOR
PLANNING DEPARTMENT
RESEARCH & STATISTICS UNIT

Energy Market Authority
991G Alexandra Road #02-29
Singapore 119975
Republic of Singapore

The Energy Market Authority of Singapore (EMA) embarked on an annual publication of Singapore Energy Statistics (SES) in 2011. This year, I am pleased to present to you our sixth edition which continues the expanded coverage of 43 data tables presented in 2015. I believe that the data, spanning across seven energy-related topics, will provide a comprehensive and in-depth understanding of Singapore's energy landscape.

This publication starts with an overview of the supply of energy into Singapore (Chapter 1, Energy Supply), followed by its uses in the Transformation sector (Chapter 2, Energy Transformation) and its subsequent consumption by different end-users (Chapter 3, Energy Consumption). We further deep-dive into the commodity balance tables (Chapter 4, Energy Balances) before detailing the prices of these energy products (Chapter 5, Energy Prices). We continue the focus on the Solar Photovoltaic (PV) landscape in Singapore (Chapter 6, Solar) before concluding with key selected energy-related statistics such as the grid emission factor, and power sector manpower data (Chapter 7, Other Energy-Related Statistics).

Technical notes and a glossary accompany this publication to provide a background on the key definitions and concepts used.

The SES 2016 can also be accessed via a dedicated micro-site*. Additional energy-related statistics not covered in the SES 2016 can also be found online^.

The publication of this report is made possible through the co-operation and support of the many organisations, government ministries and statutory boards that have provided information. I would like to express my gratitude to all who have contributed towards this new milestone. We look forward to your continued support.

BERNARD NEE
Assistant Chief Executive
Energy Planning & Development Division
Energy Market Authority
Singapore

June 2016

**http://www.ema.gov.sg/Singapore_Energy_Statistics.aspx*
^https://www.ema.gov.sg/Statistics.aspx

TABLE OF CONTENTS

Notes:
a. This publication contains statistics that are the most recently available at the time of its preparation.
b. Numbers may not add up to the totals due to rounding.
c. Some statistics, particularly for the most recent time periods, are provisional and may be subject to revision in later issues.
d. All statistical tables above are available in machine-readable format on http://www.ema.gov.sg/singapore_energy_statistics.aspx.

Notations:
- nil, negligible or not applicable.
"s" - Suppressed to avoid disclosure of individual data.

2015

ENERGY SNAPSHOT OF SINGAPORE

IMPORTS & EXPORTS

Energy Imports

173.7 Mtoe

Petroleum Products	Crude Oil	Natural Gas (NG)	Coal & Peat	Others
113.4 (65.3%)	49.4 (28.5%)	10.4 (6.0%)	0.4 (0.2%)	0.1 (0.0%)
90.9 (98.8%)	1.1 (1.2%)	-	-	-

Energy Exports

92.0 Mtoe

ENERGY CONSUMPTION

SINGAPORE CONSUMED

47,513.8 GWh

OF ELECTRICITY

Industrial-related	Commerce & Services-related	Transport-related	Households	Others
20,088.0 (42.3%)	17,481.0 (36.8%)	2,444.8 (5.1%)	7,220.9 (15.2%)	279.1 (0.6%)
50,738.6 (87.9%)	3,753.8 (6.5%)	665.2 (1.2%)	2,508.0 (4.3%)	82.5 (0.1%)

57,748.1 TJ

OF NATURAL GAS (NG)

(Excluding NG used in power generation)

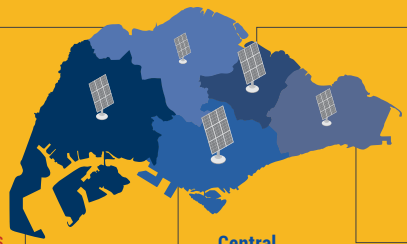
A POWER SECTOR WITH A STRONG SINGAPORE CORE

5,090
Workers As Of 2014

95.9% Singapore Residents

4.1% Non-Residents

SOLAR



North
- 4.2 MWac
- 67 Installations

North-east
- 8.2 MWac
- 253 Installations

Overall
- 45.8 MWac
- 942 Installations

West
- 16.2 MWac
- 182 Installations

East
- 8.9 MWac
- 146 Installations

Central
- 8.3 MWac
- 294 Installations

Installed Capacity | Number of Solar PV Installations

ENERGY FLOWS

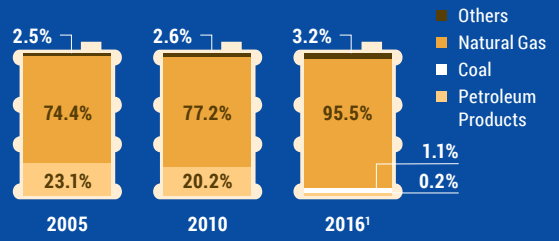
Total Energy Inputs into Electricity Generators

10.2 Mtoe

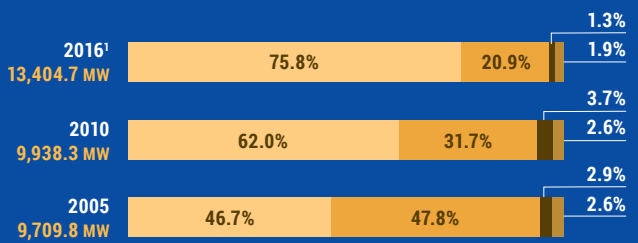
Total Gross Electricity Generated by the Electricity Generators

4.3 Mtoe

ANNUAL FUEL MIX FOR ELECTRICITY GENERATION BY ENERGY PRODUCTS



LICENSED GENERATION CAPACITY BY TECHNOLOGY TYPE



¹ Data for 2016 is as of 1Q 2016.

EXECUTIVE SUMMARY

ENERGY FLOWS

- Singapore's import of energy products grew by 7.2% from 162 Mtoe in 2014 to 174 Mtoe in 2015. The exports of energy products also registered a 6.7% increase, growing from 86 Mtoe in 2014 to 92 Mtoe in 2015. The bulk of energy imports and exports were petroleum products.

- Imports of Natural Gas (NG) marginally increased by 0.4% to 10 Mtoe in 2015, with Liquefied Natural Gas (LNG) accounting for 25% of these imports.

- Electricity generation increased by 2.0% from 49 TWh in 2014 to 50 TWh in 2015. Natural gas constituted about 95% of fuel mix, comparable with that recorded in 2014. The six largest Main Power Producers in Singapore accounted for 91% of total electricity generated. The remaining 9% was generated by Autoproducers and waste-to-energy companies.

- Total licensed generation capacity in Singapore was 13,405 MW as of end-March 2016. Combined Cycle Gas Turbines, Co-Generation Plants and/or Tri-Generation Plants accounted for the bulk of this capacity (10,164 MW or 76%).

- Electricity consumption rose by 2.4% from 46 TWh in 2014 to 48 TWh in 2015. Industrial-related, and Commerce & Services-related sectors comprised 42% and 37% of total consumption respectively. 15% was accounted for by Households.

- End-users consumption of NG declined 3.0% from 59,515 TJ in 2014 to 57,748 TJ in 2015, due to weaker demand by the Industrial-related sector. In 2015, Industrial-related consumption of NG was 50,739 TJ. This was 3.5% lower than that a year ago.

SOLAR AND OTHER ENERGY STATISTICS

- The adoption of solar PV systems in Singapore continued to accelerate in 2015 as grid-connected installed capacity of solar PV systems sharply increased from 26 MWac in 2014 to 46 MWac in 2015. This increase was driven by 305 new installations in 2015. By end-2015, there were a total of 942 solar PV installations across Singapore.

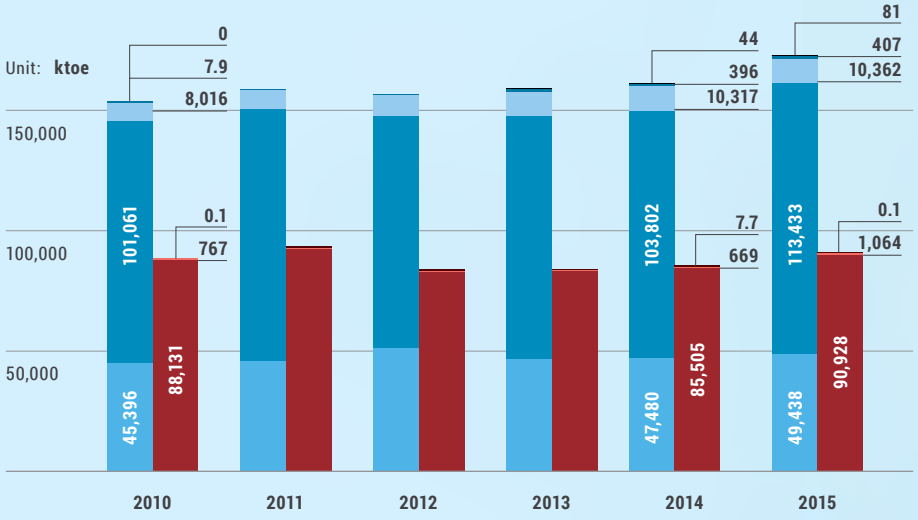
- The Western Region of Singapore had the highest concentration of solar PV, with a total capacity of 16 MWac (35%) distributed across 182 installations, as of end of 2015.

- Singapore's Grid Emission Factor (GEF), which measures emissions per unit of electricity generated, improved from 0.4332 kg CO_2/kWh in 2014 to 0.4313 kg CO_2/kWh in 2015.

01

ENERGY SUPPLY

IMPORTS & EXPORTS OF ENERGY PRODUCTS



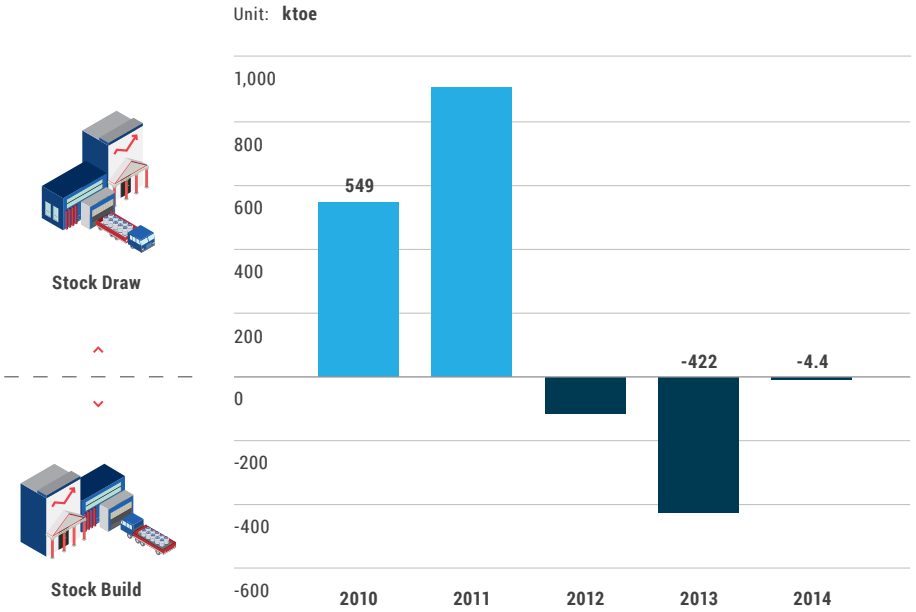
Note: The values for each component in the chart above are ordered according to the legend.

Singapore relies heavily on the import of fuels to ensure a secure, reliable, and diversified supply of competitively-priced energy.

Singapore imported 174 Mtoe of energy products in 2015, 7.2% higher than the 162 Mtoe recorded in the preceding year. Imports of Natural Gas (NG), mainly in the form of Pipeline Natural Gas (PNG), grew by 0.4% to 10 Mtoe. Imports of PNG comprised 75% of total NG imports in 2015. Liquefied Natural Gas (LNG) accounted for the remaining 25%.

Overall energy exports grew by 6.7% to 92 Mtoe in 2015, primarily driven by stronger demand for fuel oil and gas/diesel oil exports. In contrast, declines were registered in the export of jet fuel kerosene, coal and peat.

STOCK CHANGE



Stock build in 2014 totalled 4.4 ktoe of energy products, compared with a stock build of 422 ktoe in 2013. Crude oil & Natural Gas Liquids (NGL) registered a stock build of 156 ktoe in 2014, compared to a stock build of 373 ktoe a year ago. Petroleum products exhibited a reversal in trend as 249 ktoe of stock draw was recorded in 2014 compared to a stock build of 49 ktoe in 2013. In 2014, NG registered a stock build of 98 ktoe.

Stock change is the difference between the opening and closing stock levels on national territory on the first and last day of the calendar year respectively. A net increase in stock change refers to a stock draw as it is an addition to supply. A net decrease in stock change denotes a stock build as supply is withdrawn into inventory. This definition of stock change is in accordance with the International Energy Agency's (IEA) recommendations.

Table 1.1 **IMPORTS OF ENERGY PRODUCTS**

Unit: **ktoe**

	2005	2010	2012	2013	2014	2015
Total	**115,166.2**	**154,480.7**	**158,035.1**	**159,561.8**	**162,039.2**	**173,719.9**
Coal & Peat	**8.7**	**7.9**	**25.0**	**266.4**	**396.2**	**406.5**
Crude Oil	**59,673.6**	**45,396.1**	**51,654.9**	**47,214.7**	**47,479.9**	**49,437.7**
Crude Oil	58,884.6	44,332.2	50,430.1	46,920.5	47,147.8	48,089.0
Other Crude Oil	789.0	1,063.9	1,224.8	294.2	332.1	1,348.6
Petroleum Products	**49,293.9**	**101,060.6**	**97,575.6**	**102,180.0**	**103,801.5**	**113,432.9**
Fuel Oil	29,551.2	58,020.0	59,444.4	63,691.9	62,279.9	69,902.8
Gas/Diesel Oil	3,999.7	17,459.2	14,584.4	12,930.3	14,322.8	14,809.2
Gasoline	7,619.5	14,858.7	13,980.8	13,895.5	14,774.5	15,614.9
Jet Fuel Kerosene	2,180.7	3,602.7	1,586.8	1,673.0	2,041.2	2,007.7
Naphtha	4,095.0	5,970.2	6,369.9	7,693.4	8,981.5	9,684.5
Other Petroleum Products	1,847.7	1,149.6	1,609.3	2,295.9	1,401.6	1,413.8
Natural Gas (NG)	**6,190.1**	**8,016.1**	**8,779.6**	**9,874.0**	**10,317.2**	**10,361.7**
Pipeline NG	6,190.1	8,016.1	8,779.6	8,830.8	8,058.0	7,784.1
Liquefied NG	-	-	-	1,043.2	2,259.2	2,577.6
Other Energy Products	**-**	**-**	**-**	**26.7**	**44.4**	**81.1**

Sources: International Enterprise (IE) Singapore & Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. All data are compiled from IE's trade statistics except Natural Gas, Other Energy Products and biomass trade data, which are compiled from EMA's administrative returns.
c. IE releases trade data in mass units. EMA releases similar data in energy units (ktoe).
d. The product classification of energy products differs from that used by IE for trade statistics.
e. Biomass trade recorded is for energy use only.

Notation:
- nil, negligible or not applicable.

Table 1.2 EXPORTS OF ENERGY PRODUCTS

Unit: ktoe

	2005	2010	2012	2013	2014	2015
Total	**64,432.8**	**88,897.5**	**84,488.3**	**84,842.2**	**86,180.7**	**91,992.7**
Coal & Peat	**0.3**	**0.1**	**0.1**	**2.9**	**7.7**	**0.1**
Crude Oil	**819.7**	**766.6**	**793.1**	**671.8**	**668.5**	**1,064.2**
Crude Oil	177.3	40.3	-	0.1	0.1	62.1
Other Crude Oil	642.4	726.2	793.0	671.8	668.5	1,002.2
Petroleum Products	**63,612.8**	**88,130.8**	**83,695.1**	**84,167.5**	**85,504.5**	**90,928.2**
Fuel Oil	16,066.7	21,802.3	22,490.1	26,314.0	24,688.2	28,927.5
Gas/Diesel Oil	15,208.8	27,376.4	23,815.5	21,966.2	22,679.9	23,428.2
Gasoline	15,183.0	24,037.6	24,283.1	23,499.6	25,234.0	25,330.0
Jet Fuel Kerosene	6,955.3	7,208.9	5,117.7	5,015.8	5,050.3	4,953.6
Naphtha	2,470.2	990.4	465.9	463.6	453.4	788.3
Other Petroleum Products	7,728.7	6,715.2	7,522.8	6,908.2	7,398.6	7,500.5

Sources: International Enterprise (IE) Singapore & Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. All data are compiled from IE's trade statistics.
c. IE releases trade data in mass units. EMA releases similar data in energy units (ktoe).
d. The product classification of energy products differs from that used by IE for trade statistics.

Notation:
- nil, negligible or not applicable.

Table 1.2.1 DOMESTIC EXPORTS OF ENERGY PRODUCTS

Unit: ktoe

	2005	2010	2012	2013	2014	2015
Total	**58,060.2**	**55,302.4**	**63,815.6**	**68,573.0**	**71,516.5**	**78,402.6**
Coal & Peat	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.0**
Crude Oil	**425.7**	**479.8**	**484.7**	**566.2**	**584.2**	**753.4**
Crude Oil	-	0.1	0.0	0.0	-	0.7
Other Crude Oil	425.7	479.7	484.7	566.2	584.2	752.7
Petroleum Products	**57,634.5**	**54,822.6**	**63,330.9**	**68,006.8**	**70,932.0**	**77,649.1**
Fuel Oil	14,755.4	11,715.8	20,019.5	25,482.2	23,873.1	27,661.8
Gas/Diesel Oil	14,126.0	19,099.3	16,547.8	14,679.2	14,828.7	17,480.9
Gasoline	12,732.2	11,641.7	14,934.6	17,091.2	20,954.3	20,716.5
Jet Fuel Kerosene	6,114.7	5,033.3	4,441.9	4,028.1	3,932.7	4,136.1
Naphtha	2,448.9	911.7	383.9	336.8	436.6	703.1
Other Petroleum Products	7,457.2	6,420.8	7,003.3	6,389.3	6,906.7	6,950.7

Sources: International Enterprise (IE) Singapore & Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. All data are compiled from IE's trade statistics.
c. IE releases trade data in mass units. EMA releases similar data in energy units (ktoe).
d. The product classification of energy products differs from that used by IE for trade statistics.

Notation:
- nil, negligible or not applicable.

Table **1.2.2** **RE-EXPORTS OF ENERGY PRODUCTS**

Unit: **ktoe**

	2005	2010	2012	2013	2014	2015
Total	**6,372.6**	**33,595.0**	**20,672.6**	**16,269.2**	**14,664.2**	**13,590.1**
Coal & Peat	**0.3**	**0.0**	**0.1**	**2.8**	**7.5**	**0.1**
Crude Oil	**394.0**	**286.8**	**308.4**	**105.6**	**84.3**	**310.8**
Crude Oil	177.3	40.2	0.0	0.0	0.0	61.4
Other Crude Oil	216.7	246.6	308.4	105.6	84.3	249.5
Petroleum Products	**5,978.3**	**33,308.2**	**20,364.2**	**16,160.7**	**14,572.4**	**13,279.1**
Fuel Oil	1,311.3	10,086.5	2,470.6	831.8	815.1	1,265.7
Gas/Diesel Oil	1,082.8	8,277.1	7,267.8	7,287.0	7,851.2	5,947.3
Gasoline	2,450.7	12,395.9	9,348.5	6,408.4	4,279.8	4,613.5
Jet Fuel Kerosene	840.6	2,175.7	675.8	987.7	1,117.6	817.5
Naphtha	21.4	78.7	82.0	126.9	16.9	85.2
Other Petroleum Products	271.5	294.4	519.5	518.9	491.9	549.8

Sources: International Enterprise (IE) Singapore & Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. All data are compiled from IE's trade statistics.
c. IE releases trade data in volumetric units. EMA releases similar data in energy units (ktoe).
d. The product classification of energy products differs from that used by IE for trade statistics.

Table **1.3** **STOCK CHANGE**

Unit: **ktoe**

	2010	2011	2012	2013	2014
Total	**548.7**	**907.3**	**-115.8**	**-421.8**	**-4.4**
Crude Oil & Natural Gas Liquids (NGL)	**-54.8**	**290.8**	**59.2**	**-372.8**	**-155.7**
Petroleum Products	**603.4**	**616.4**	**-175.0**	**-48.9**	**249.3**
Light Distillates	42.5	-206.1	180.0	-181.6	-155.2
Middle Distillates	-2.6	465.1	-280.3	470.4	-18.5
Heavy Distillates & Residuum	563.5	357.4	-74.7	-337.7	422.9
Natural Gas	**-**	**-**	**-**	**-**	**-98.0**

Source: Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Stock change refers to the net increase (stock draw) or net decrease (stock build) in the quantity of energy products over the reference year. They are calculated as a difference between the opening and closing inventory at the start and end of the calendar year respectively.
c. A negative figure denotes a stock build. A positive figure denotes a stock draw.

02

ENERGY TRANSFORMATION

ELECTRICITY GENERATION

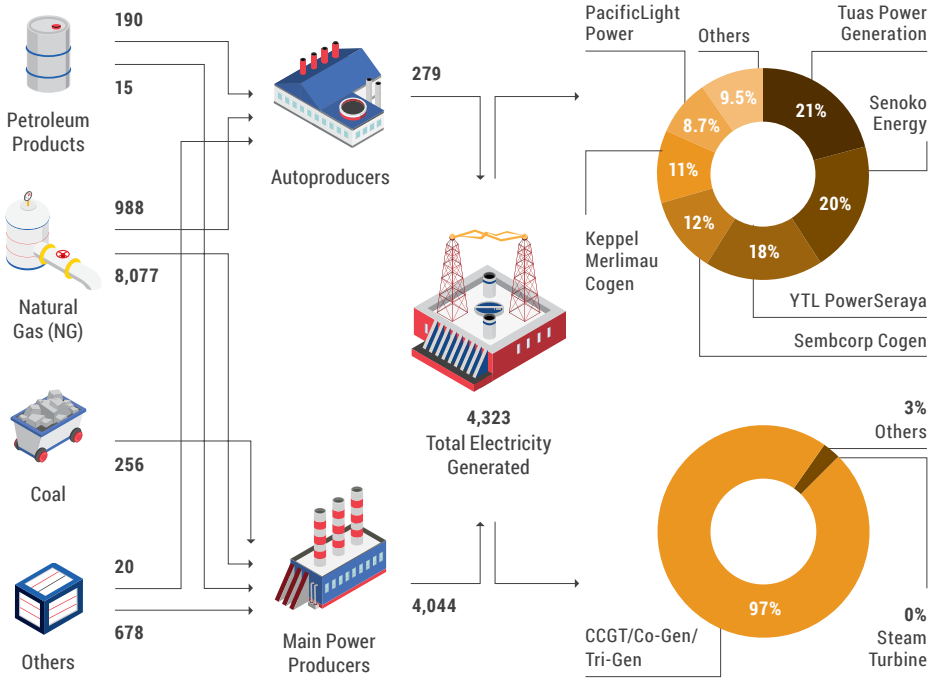
Around 4,323 ktoe (50 TWh) of electricity was generated in 2015, an increase of 2.0% from the 4,240 ktoe (49 TWh) produced in 2014. Main Power Producers (MPPs) contributed 94% (4,044 ktoe) of total electricity generation. The remaining 6.4% (279 ktoe) was accounted for by Autoproducers[1].

Autoproducers' share of electricity generation grew steadily from 2.8% in 2010 to 6.4% in 2015, with a year-on-year percentage increase of 9.0% from 2014.

Unit: **ktoe**

2015	Petroleum Products	Natural Gas	Coal	Others	Electricity
Total Electricity Generation	-204.8	-9,064.8	-255.9	-698.2	4,322.6
Main Power Producers	-14.9	-8,076.5	-255.9	-678.4	4,043.9
Autoproducers	-189.9	-988.3	-	-19.8	278.6

Note: A negative sign indicates a withdrawal/ input into the system.



[1] *Autoproducers are enterprises that produce electricity but for whom the production is not their principal activity.*

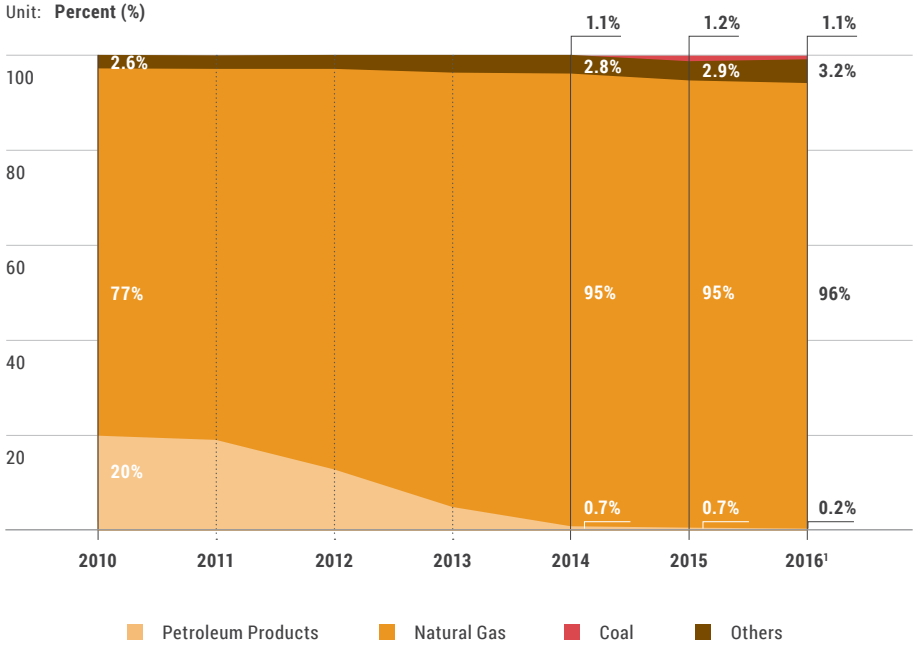
FUEL MIX FOR ELECTRICITY GENERATION

Singapore's electricity generation industry has over time moved away from oil-fired steam turbine plants by building new Combined Cycle Gas Turbine (CCGT) plants or repowering existing ones.

CCGTs use Natural Gas (NG) as its primary fuel, in contrast to steam turbine plants powered mainly by fuel oil. The increased availability of worldwide natural gas supplies through LNG imports has furthered the rise of NG's share of Singapore's electricity generation fuel mix.

In 2015, NG accounted for about 95% of fuel mix, comparable with that recorded in 2014. Petroleum products, mainly in the form of diesel and fuel oil, made up 0.7% of the fuel mix. Other energy products (e.g. municipal waste, coal and biomass) accounted for 2.9% while the remaining 1.2% was from coal.

ELECTRICITY GENERATION FUEL MIX



[1] *Data for 2016 is as of 1Q 2016.*

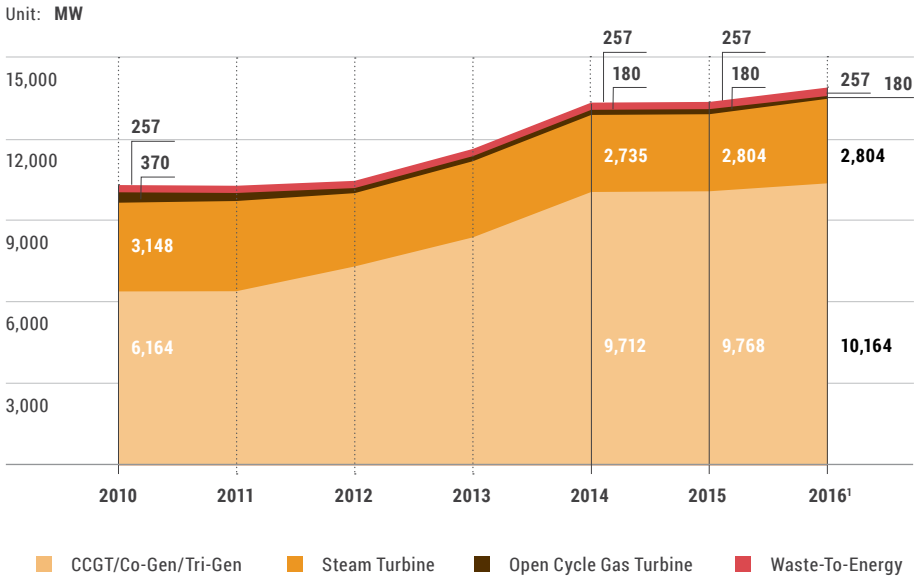
ELECTRICITY GENERATION INDUSTRY

The total licensed generation capacity in Singapore climbed to 13,405 MW as of end-March 2016. This was a 3.0% increase from 13,009 MW in 2015.

The licensed generation capacity of newer CCGT, Co-Generation Plants and/or Tri-Generation Plants (CCGT/Co-Gen/Tri-Gen) plants stood at 10,164 MW in the first quarter of 2016. This was more than double the 4,534 MW of capacity registered for such similar plant types in 2005. The proportion of CCGT/Co-Gen/Tri-Gen plants in overall capacity rose from 47% in 2005 to 76% in 2016.

The licensed generation capacity of steam turbine plants, which typically run on fuel oil and diesel, declined over the last decade. This dropped from 4,640 MW in 2005 to 2,804 MW as of end-March 2016, representing a fall of 40% over about 10 years. This was due to more steam turbine plants being repowered into more efficient CCGT/Co-Gen/Tri-Gen plants. Open cycle gas turbine plants continued to remain a small component of Singapore's electricity generation capacity. They accounted for only 1.3% (180 MW) of overall capacity as of end-March 2016.

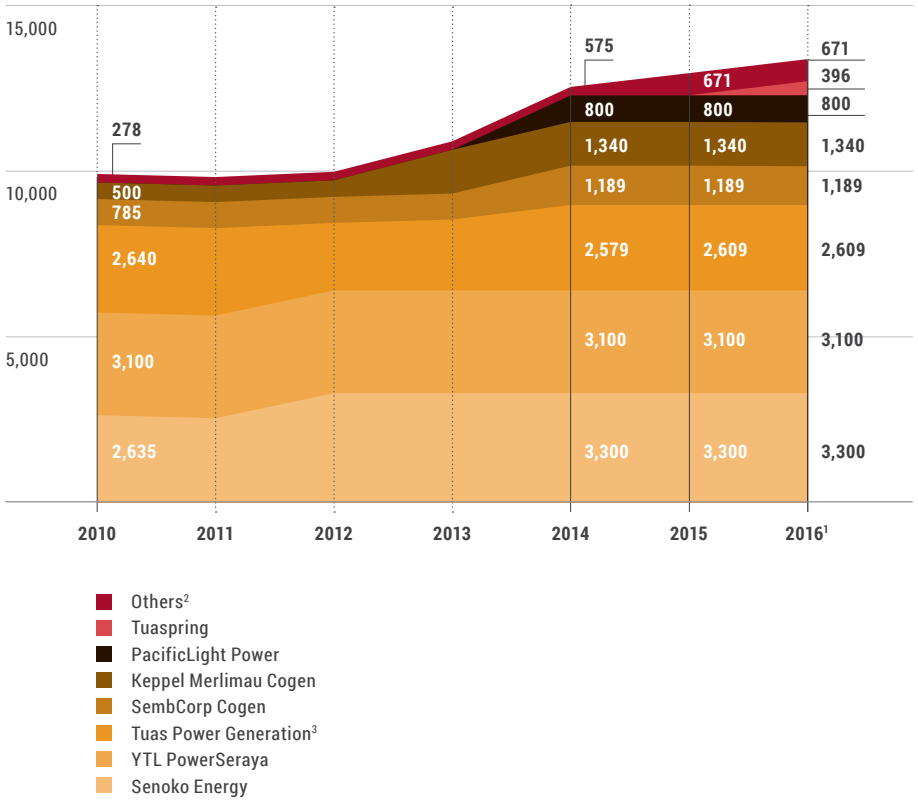
LICENSED GENERATION CAPACITY BY TECHNOLOGY TYPE



[1] *Data for 2016 is as of 1Q 2016.*

MPPs accounted for 97% (or 12,991 MW) of total licensed generation capacity. Autoproducers made up the remaining 3.1% (414 MW).

LICENSED GENERATION CAPACITY BY GENERATION COMPANY

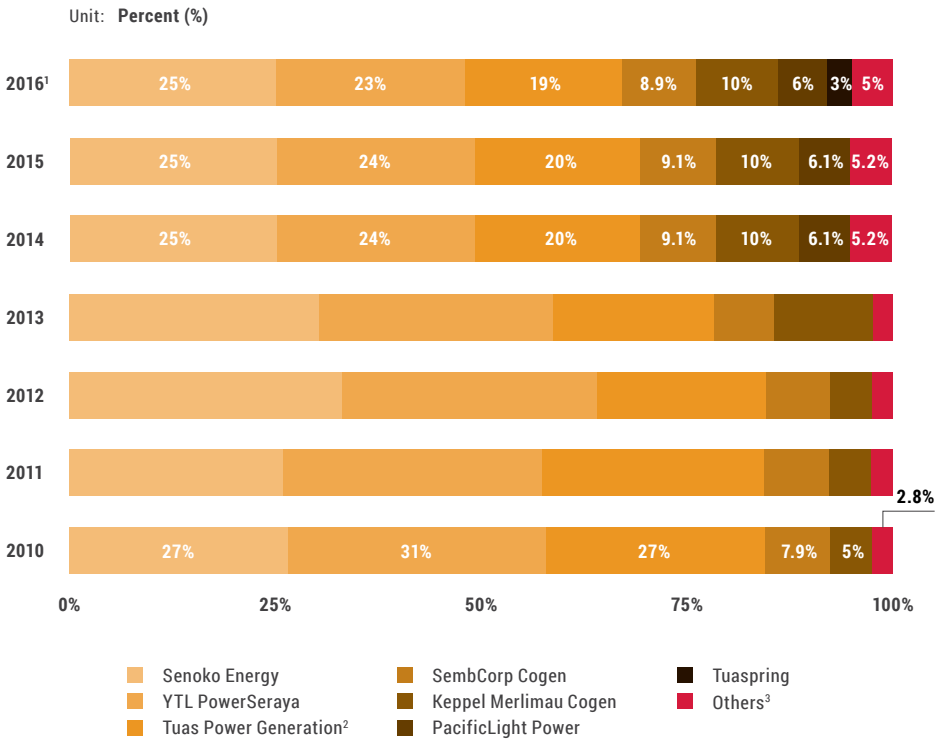


Note: The values for each component in the chart above are ordered according to the legend.

[1] *Data for 2016 is as of 1Q 2016.*
[2] *Includes electricity generation capacities by Wholesaler Licensees and Waste-To-Energy Plants.*
[3] *Includes electricity generation capacity by TP Utilities.*

Since 2010, expansion of smaller existing MPPs, and the entry of new players (PacificLight Power in 2014, and Tuaspring in 2015) have introduced new competition to the power generation market. The generation capacity market share of the three major MPPs – Senoko Energy, YTL PowerSeraya and Tuas Power – consequently fell from 84% in 2010 to 67% in the first quarter of 2016.

PERCENTAGE CONTRIBUTION BY GENERATION COMPANY

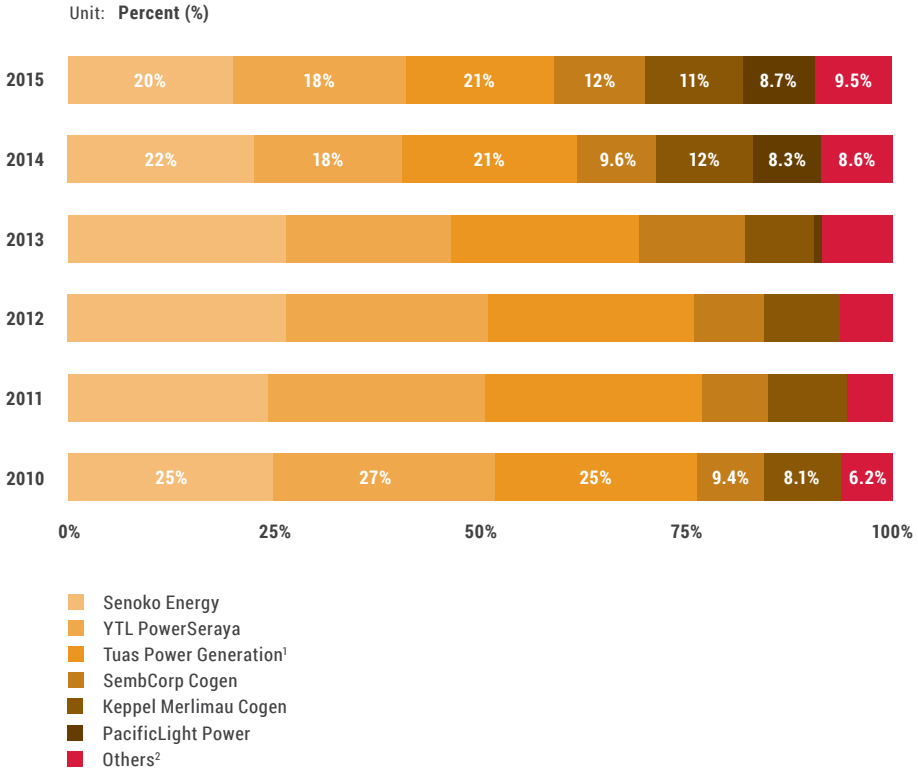


Note: The values for each component in the chart above are ordered according to the legend.

[1] Data for 2016 is as of 1Q 2016.
[2] Includes electricity generation capacity by TP Utilities.
[3] Includes electricity generation capacity by Wholesaler Licensees and Waste-To-Energy Plants

The electricity generation market share for the three major MPPs also saw a decline since 2010. This was in line with their decreasing share of generation capacity. Their combined share fell from 76% in 2010 to 59% in 2015. Conversely, the next largest MPPs - Keppel Merlimau Cogen and Sembcorp Cogen - gradually expanded their combined market share from 18% in 2010 to 23% in 2015.

MARKET SHARE FOR ELECTRICITY GENERATION



Note: The values for each component in the chart above are ordered according to the legend.

[1] Includes electricity generation by TP Utilities.
[2] Includes electricity generation by Wholesale Licensees and Waste-To-Energy Plants.

ENERGY FLOW IN OIL REFINING SECTOR

About 49 Mtoe of refinery inputs was consumed by the oil refining sector in 2014, a 5.8% fall from 52 Mtoe recorded in 2013. These inputs yielded 47 Mtoe of refinery outputs, 7.0% lower than the corresponding output a year earlier.

Light Distillates outputs increased by 9.0% to 14 Mtoe in 2014. However, Middle Distillates and Heavy Distillates & Residuum outputs recorded declines of 9.4% and 17% respectively. In 2014, Middle Distillates output totalled 21 Mtoe while that for Heavy Distillates & Residuum totalled 12 Mtoe.

Unit: **Mtoe**

REFINERY INPUTS & OUTPUTS

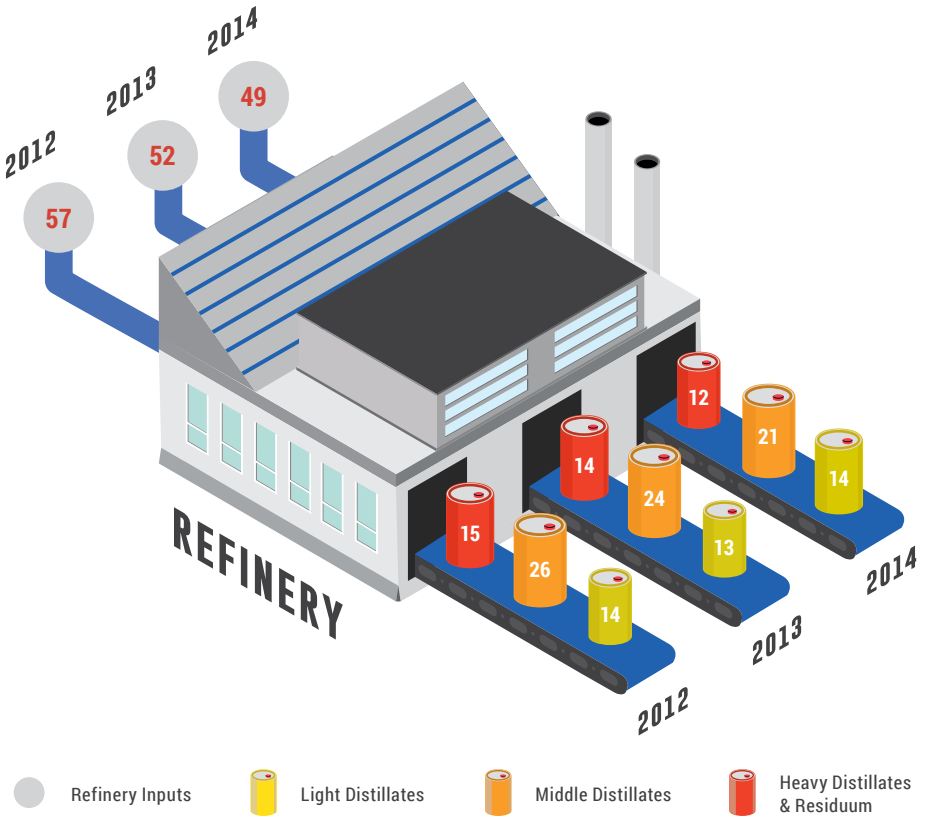


Table **2.1** ENERGY FLOWS FOR ELECTRICITY GENERATORS

Unit: **ktoe**

	2005	2010	2012	2013	2014	2015
Total Energy Inputs into Electricity Generators	**7,717.4**	**9,444.0**	**9,747.7**	**9,975.0**	**10,118.7**	**10,223.7**
Total Gross Electricity Generated by the Electricity Generators	**3,285.7**	**3,900.3**	**4,038.8**	**4,124.1**	**4,239.9**	**4,322.6**
Energy Inputs into Main Power Producers	**7,717.4**	**8,872.3**	**9,011.7**	**8,869.8**	**9,014.1**	**9,025.7**
Petroleum Products	2,445.6	1,915.2	1,278.2	454.7	28.5	14.9
Natural Gas	5,271.8	6,369.8	7,110.4	7,611.0	8,065.5	8,076.5
Coal & Peat	-	-	1.9	134.5	229.3	255.9
Others	0.0	587.3	621.2	669.6	690.8	678.4
Of Which: Biomass Excluding Municipal Waste	-	-	-	26.7	44.4	63.4
Gross Electricity Generated by Main Power Producers	**3,285.7**	**3,791.7**	**3,886.2**	**3,883.1**	**3,984.2**	**4,043.9**
Energy Inputs into Autoproducers	**-**	**571.7**	**736.0**	**1,105.2**	**1,104.6**	**1,198.0**
Petroleum Products	-	313.2	341.3	262.8	203.0	189.9
Natural Gas	-	258.5	394.7	842.4	901.6	988.3
Others	-	-	-	-	-	19.8
Gross Electricity Generated by Autoproducers	**-**	**108.6**	**152.6**	**241.1**	**255.7**	**278.6**

Source: Energy Market Authority (EMA)

Note:
a. Numbers may not add up to the totals due to rounding.

Notation:
- nil, negligible or not applicable.

Table 2.2 ANNUAL FUEL MIX FOR ELECTRICITY GENERATION BY ENERGY PRODUCTS Unit: Percent (%)

	2005	2010	2012	2013	2014	2015	2016[1]
Petroleum Products	23.1	20.2	13.0	4.7	0.7	0.7	0.2
Natural Gas	74.4	77.2	84.3	91.8	95.4	95.3	95.5
Coal	-	-	-	-	1.1	1.2	1.1
Others	2.5	2.6	2.7	3.5	2.8	2.9	3.2

Source: Energy Market Authority (EMA)

[1] Data for 2016 is as of 1Q 2016.

Notes:
a. Numbers may not add up to the totals due to rounding.
b. The Fuel Mix presented in this table is calculated using the Output Method. The Output Method uses the amount of electricity generated and the corresponding type of fuel used to calculate the fuel mix for the generation of electricity. It takes into account the domestic fuel-to-electricity conversion efficiency of the generating plants and the plant technology.
c. From 2016, the category "Others" includes solar.

Table 2.2.1 MONTHLY FUEL MIX FOR ELECTRICITY GENERATION BY ENERGY PRODUCTS Unit: Percent (%)

2014												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Petroleum Products	0.5	0.4	0.5	1.4	0.8	1.5	0.9	0.8	0.3	0.5	0.4	0.3
Natural Gas	95.3	96.0	96.0	94.7	95.3	94.4	95.1	95.5	95.7	95.4	95.7	95.6
Coal	1.1	0.9	0.7	1.1	1.2	1.3	1.3	1.2	1.3	1.2	1.2	1.2
Others	3.1	2.7	2.8	2.8	2.7	2.8	2.7	2.6	2.8	2.9	2.8	2.8
2015												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Petroleum Products	0.4	0.7	0.5	0.5	0.7	0.5	0.9	1.1	0.9	0.7	0.3	0.3
Natural Gas	95.9	95.4	95.2	95.4	95.1	95.3	94.8	94.5	95.2	95.3	95.8	95.4
Coal	0.7	0.9	1.3	1.2	1.3	1.3	1.3	1.4	1.2	1.2	1.0	1.2
Others	2.6	3.1	3.0	2.9	3.0	2.9	3.0	3.1	2.7	2.9	2.8	3.1

Source: Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. The Fuel Mix presented in this table is calculated using the Output Method. The Output Method uses the amount of electricity generated and the corresponding type of fuel used to calculate the fuel mix for the generation of electricity. It takes into account the domestic fuel-to-electricity conversion efficiency of the generating plants and the plant technology.
c. From 2016, the category "Others" includes solar.

Table 2.2.1 MONTHLY FUEL MIX FOR ELECTRICITY GENERATION BY ENERGY PRODUCTS (CONTINUED) Unit: Percent (%)

2016			
	Jan	Feb	Mar
Petroleum Products	0.1	0.3	0.2
Natural Gas	95.7	95.3	95.4
Coal	1.0	1.1	1.3
Others	3.2	3.4	3.0

Source: Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. The Fuel Mix presented in this table is calculated using the Output Method. The Output Method uses the amount of electricity generated and the corresponding type of fuel used to calculate the fuel mix for the generation of electricity. It takes into account the domestic fuel-to-electricity conversion efficiency of the generating plants and the plant technology.
c. From 2016, the category "Others" includes solar.

Table 2.3 LICENSED GENERATION CAPACITY BY TECHNOLOGY TYPE Unit: MW

	2005	2010	2012	2013	2014	2015	2016[1]
Total Licensed Generation Capacity	**9,709.8**	**9,938.3**	**10,087.8**	**11,241.1**	**12,883.3**	**13,009.0**	**13,404.7**
CCGT/Co-Gen/Tri-Gen	4,534.0	6,163.5	7,050.0	8,102.3	9,712.0	9,768.4	10,164.1
Steam Turbine	4,640.0	3,148.0	2,601.0	2,702.0	2,734.5	2,803.8	2,803.8
Open Cycle Gas Turbine	285.0	370.0	180.0	180.0	180.0	180.0	180.0
Waste-To-Energy	250.8	256.8	256.8	256.8	256.8	256.8	256.8
Of Which: Main Power Producers	**9,709.8**	**9,916.8**	**9,981.8**	**10,922.8**	**12,545.0**	**12,595.0**	**12,990.7**
CCGT/Co-Gen/Tri-Gen	4,534.0	6,142.0	7,004.0	7,844.0	9,453.7	9,483.7	9,879.4
Steam Turbine	4,640.0	3,148.0	2,541.0	2,642.0	2,674.5	2,674.5	2,674.5
Open Cycle Gas Turbine	285.0	370.0	180.0	180.0	180.0	180.0	180.0
Waste-To-Energy	250.8	256.8	256.8	256.8	256.8	256.8	256.8
Of Which: Autoproducers	**-**	**21.5**	**106.0**	**318.3**	**318.3**	**414.0**	**414.0**
CCGT/Co-Gen/Tri-Gen	-	21.5	46.0	258.3	258.3	284.7	284.7
Steam Turbine	-	-	60.0	60.0	60.0	129.3	129.3
Open Cycle Gas Turbine	-	-	-	-	-	-	-

[1] Data for 2016 is as of end-March 2016.

Source: Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. CCGT/Co-Gen/Tri-Gen refers to Combined Cycle Gas Turbines, Co-Generation Plants and/or Tri-Generation Plants.

Notation:
- nil, negligible or not applicable.

Table 2.3.1 LICENSED GENERATION CAPACITY BY GENERATION COMPANY

Unit: MW

	2005	2010	2012	2013	2014	2015	2016[1]
Total Licensed Generation Capacity	9,709.8	9,938.3	10,087.8	11,241.1	12,883.3	13,009.0	13,404.7
Of Which: Main Power Producers							
Senoko Energy	3,300.0	2,635.0	3,300.0	3,300.0	3,300.0	3,300.0	3,300.0
CCGT/Co-Gen/Tri-Gen	1,945.0	1,945.0	2,807.0	2,807.0	2,807.0	2,807.0	2,807.0
Steam Turbine	1,250.0	500.0	493.0	493.0	493.0	493.0	493.0
Open Cycle Gas Turbine	105.0	190.0	-	-	-	-	-
YTL PowerSeraya	2,734.0	3,100.0	3,100.0	3,100.0	3,100.0	3,100.0	3,100.0
CCGT/Co-Gen/Tri-Gen	364.0	1,472.0	1,472.0	1,472.0	1,472.0	1,472.0	1,472.0
Steam Turbine	2,190.0	1,448.0	1,448.0	1,448.0	1,448.0	1,448.0	1,448.0
Open Cycle Gas Turbine	180.0	180.0	180.0	180.0	180.0	180.0	180.0
Tuas Power Generation[2]	2,640.0	2,640.0	2,040.0	2,141.0	2,579.4	2,609.4	2,609.4
CCGT/Co-Gen/Tri-Gen	1,440.0	1,440.0	1,440.0	1,440.0	1,845.9	1,875.9	1,875.9
Steam Turbine	1,200.0	1,200.0	600.0	701.0	733.5	733.5	733.5
Open Cycle Gas Turbine	-	-	-	-	-	-	-
SembCorp Cogen	785.0	785.0	785.0	785.0	1,188.8	1,188.8	1,188.8
CCGT/Co-Gen/Tri-Gen	785.0	785.0	785.0	785.0	1,188.8	1,188.8	1,188.8
Steam Turbine	-	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-	-
Keppel Merlimau Cogen	-	500.0	500.0	1,340.0	1,340.0	1,340.0	1,340.0
CCGT/Co-Gen/Tri-Gen	-	500.0	500.0	1,340.0	1,340.0	1,340.0	1,340.0
Steam Turbine	-	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-	-
PacificLight Power	-	-	-	-	800.0	800.0	800.0
CCGT/Co-Gen/Tri-Gen	-	-	-	-	800.0	800.0	800.0
Steam Turbine	-	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-	-

Source: Energy Market Authority (EMA)

[1] *Data for 2016 is as of 1Q 2016.*
[2] *Includes electricity generation capacity by TP Utilities.*

Notes:
a. Numbers may not add up to the totals due to rounding.
b. CCGT/Co-Gen/Tri-Gen refers to Combined Cycle Gas Turbines, Co-Generation Plants and/or Tri-Generation Plants.

Notation:
- nil, negligible or not applicable.

Table 2.3.1 LICENSED GENERATION CAPACITY BY GENERATION COMPANY (CONTINUED)

Unit: MW

	2005	2010	2012	2013	2014	2015	2016[1]
Tuaspring	-	-	-	-	-	-	395.7
CCGT/Co-Gen/Tri-Gen	-	-	-	-	-	-	395.7
Steam Turbine	-	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-	-
National Environment Agency	250.8	179.8	179.8	179.8	179.8	179.8	179.8
Waste-To-Energy	250.8	179.8	179.8	179.8	179.8	179.8	179.8
Keppel Seghers Tuas WTE	-	22.0	22.0	22.0	22.0	22.0	22.0
Waste-To-Energy	-	22.0	22.0	22.0	22.0	22.0	22.0
Senoko WTE	-	55.0	55.0	55.0	55.0	55.0	55.0
Waste-To-Energy	-	55.0	55.0	55.0	55.0	55.0	55.0
Of Which: Autoproducers	-	21.5	106.0	318.3	318.3	414.0	414.0
CCGT/Co-Gen/Tri-Gen	-	21.5	46.0	258.3	258.3	284.7	284.7
Steam Turbine	-	-	60.0	60.0	60.0	129.3	129.3
Open Cycle Gas Turbine	-	-	-	-	-	-	-

Source: Energy Market Authority (EMA)

[1] *Data for 2016 is as of 1Q 2016.*

Notes:
a. Numbers may not add up to the totals due to rounding.
b. CCGT/Co-Gen/Tri-Gen refers to Combined Cycle Gas Turbines, Co-Generation Plants and/or Tri-Generation Plants.

Notation:
- nil, negligible or not applicable.

Table 2.4 PLANT TECHNOLOGY SHARE OF ELECTRICITY GENERATION

Unit: Percent (%)

	2010	2011	2012	2013	2014	2015
CCGT/Co-Gen/Tri-Gen	80.0	82.0	86.8	93.8	97.4	97.3
Steam Turbines	17.0	16.0	10.5	3.6	0.0	0.0
Others	3.0	2.0	2.7	2.6	2.6	2.6

Source: Energy Market Authority (EMA)

Note:
a. Numbers may not add up to the totals due to rounding.

Table **2.5** MARKET SHARE FOR ELECTRICITY GENERATION

Unit: **Percent (%)**

	2005	2010	2012	2013	2014	2015
Tuas Power Generation[1]	23.2	24.6	24.5	20.1	21.3	21.0
Senoko Energy	31.7	25.0	26.3	26.2	22.4	20.1
YTL PowerSeraya	28.1	26.7	25.1	22.9	18.0	17.9
SembCorp Cogen	12.1	9.4	9.2	8.4	9.6	11.6
Keppel Merlimau Cogen	-	8.1	8.6	12.9	11.8	11.2
PacificLight Power	-	-	-	1.0	8.3	8.7
Others[2]	4.8	6.2	6.4	8.5	8.6	9.5

Source: Energy Market Authority (EMA)

[1] Includes electricity generation by TP Utilities.
[2] Includes electricity generation by Wholesale Licensees and Waste-To-Energy Plants.

Note:
a. Numbers may not add up to the totals due to rounding.

Notation:
- nil, negligible or not applicable

Table **2.6** ENERGY FLOWS IN THE OIL REFINING SECTOR

Unit: **ktoe**

	2010	2011	2012	2013	2014
Refinery Inputs[1]	**53,281.7**	**56,326.6**	**56,674.7**	**52,114.8**	**49,066.3**
Crude Oil & Natural Gas Liquids	46,782.1	49,467.3	48,888.2	44,730.0	41,653.3
Other Feedstocks[3]	6,499.6	6,859.3	7,786.6	7,384.8	7,413.1
Refinery Outputs[2]	**50,631.3**	**53,713.1**	**54,542.1**	**50,993.2**	**47,432.9**
Light Distillates	12,795.3	12,907.9	13,952.3	12,915.1	14,071.7
Middle Distillates	22,908.8	24,877.4	25,854.8	23,582.3	21,369.9
Heavy Distillates & Residuum	14,927.2	15,927.8	14,735.0	14,495.8	11,991.3

Source: Energy Market Authority (EMA)

[1] Refinery inputs refer to the total amount of energy products that enter the refining process in the refinery sector.
[2] Refinery outputs refer to the total amount of energy products that exit from the refining process in the refinery sector.
[3] Other Feedstocks include Additives/Oxygenates, Refinery Feedstocks, Orimulsion, Shale Oil, Other Hydrocarbons, Natural Gas and Hydrogen.

Note:
a. Numbers may not add up to the totals due to rounding.

This page is intentionally left blank.

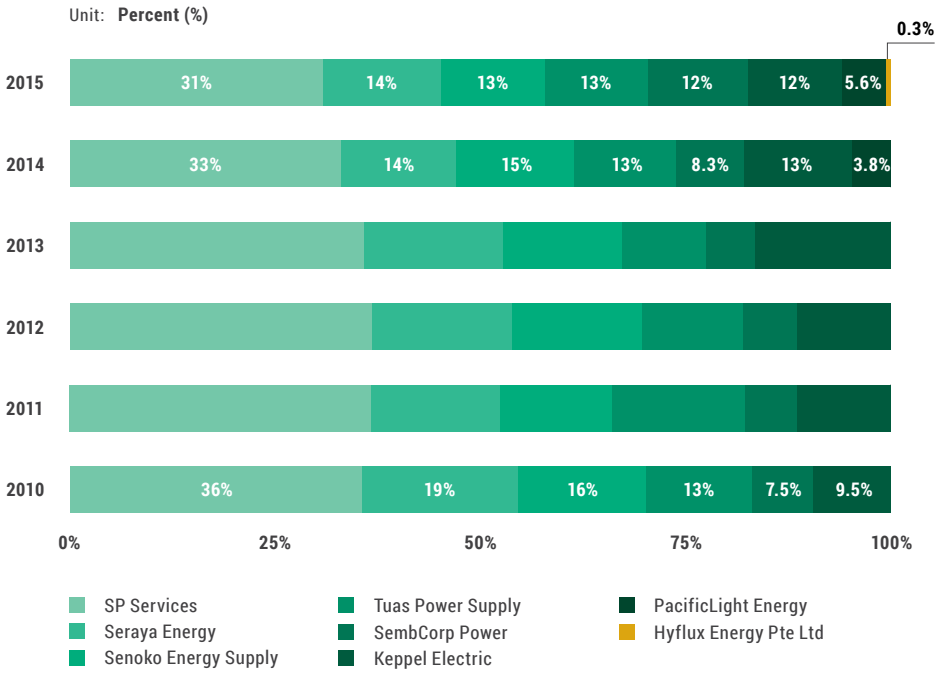
03
ENERGY CONSUMPTION

MARKET SHARE FOR ELECTRICITY RETAIL

The electricity retail market in Singapore is served by nine retailers. SP Services - the sole retailer of electricity to households and small non-contestable electricity consumers - consistently accounts for a dominant market share of above 30% since 2005.

In 2015, Seraya Energy accounted for 14% of market share, while Senoko Energy Supply and Tuas Power Supply each accounted for 13%. The recent entries of PacificLight Energy in 2014, as well as Hyflux Energy Pte Ltd and CPvT Energy Asia Pte Ltd in 2015, have added competition to the electricity retail market. Their combined share accounted for 5.9% of total market share in 2015.

MARKET SHARE FOR ELECTRICITY RETAIL



Note: The values for each component in the chart above are ordered according to the legend.

ELECTRICITY CONSUMPTION BY CONTESTABILITY & SECTOR

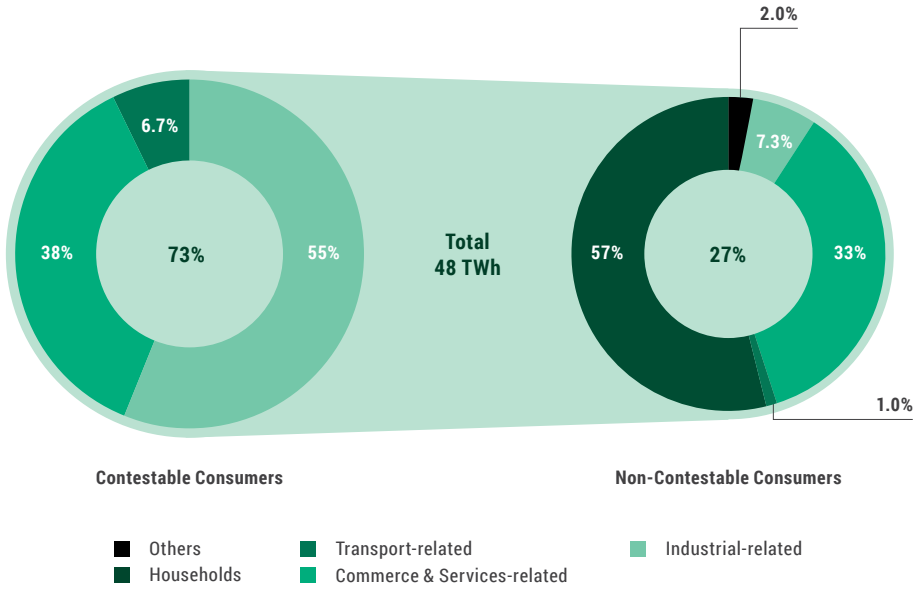
Singapore's total electricity consumption rose by 2.4% to 48 TWh in 2015. This was largely driven by Industrial-related consumption which comprised 42% of total electricity consumption in 2015. This was followed by the Commerce & Services-related sector and Households which constituted 37% and 15% of the remaining consumption.

As the threshold for retail contestability continues to be lowered, Contestable Consumers (CCs) accounted for a larger proportion of electricity consumption in Singapore. In 2015, CCs accounted for 73% (35 TWh) of total electricity consumption. The remaining 27% (13 TWh) was recorded by non-CCs.

The bulk of CCs' consumption was for Industrial-related activities (55% or 19 TWh). This was followed by the Commerce & Services-related sector (38% or 13 TWh).

Households comprised the bulk (57% or 7.2 TWh) of consumption by non-CCs. Another 33% (4.2 TWh) was consumed by the Commerce & Services-related sector.

ELECTRICITY CONSUMPTION BY CONTESTABILITY & SECTOR, 2015

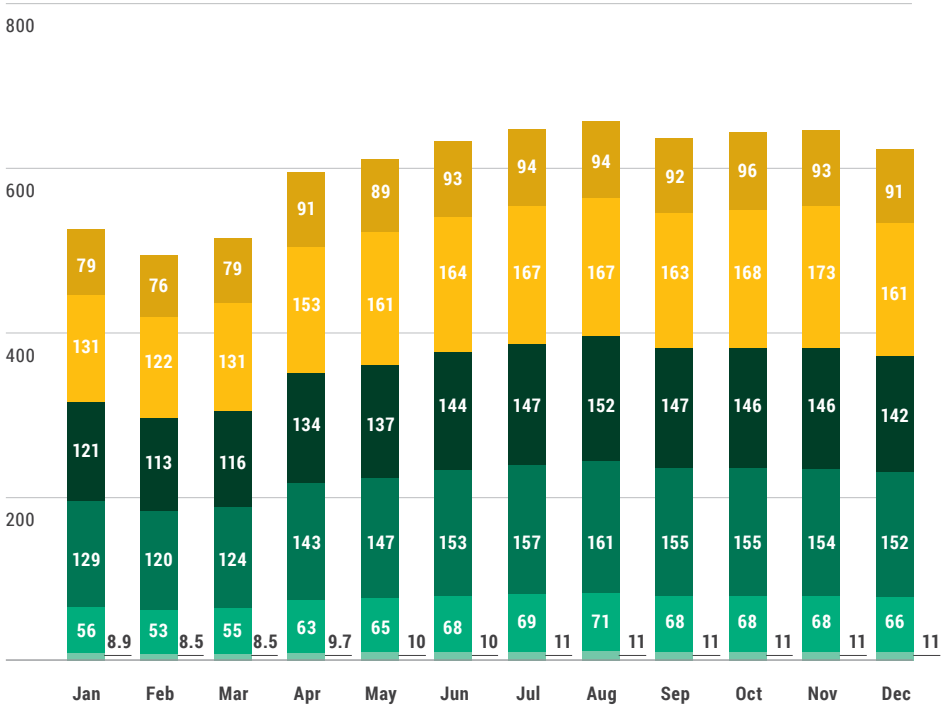


HOUSEHOLD ELECTRICITY CONSUMPTION

Total electricity consumed by Households rose from 6,924 GWh in 2014 to 7,221 GWh in 2015. This represented a year-on-year increase of 4.3%. About 59% (4,284 GWh) of total consumption was by public housing units. Private housing units accounted for the remaining 41% (2,926 GWh).

TOTAL ELECTRICITY CONSUMPTION OF HOUSEHOLDS, 2015

Unit: **GWh**

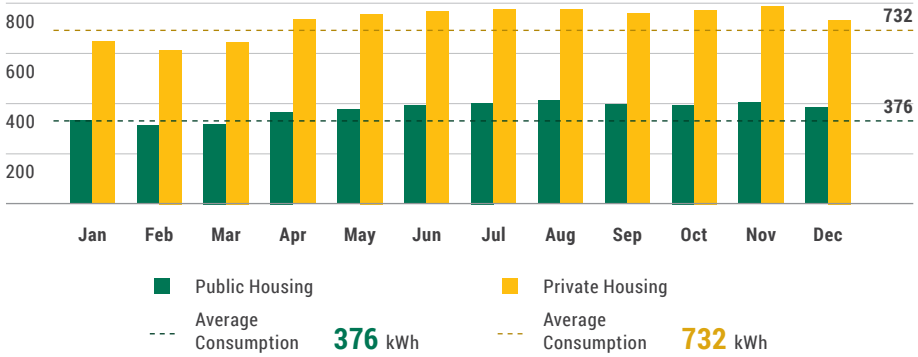


Note: The values for each component in the chart above are ordered according to the legend.

The average monthly consumption of electricity by Households marginally increased 0.5% from 466 kWh in 2014 to 468 kWh in 2015. The average monthly consumption by public housing dwellings registered a 1.2% increase from 2014, to reach 376 kWh in 2015. That for private housing units fell by 2.1% to 732 kWh in 2015.

AVERAGE MONTHLY HOUSEHOLD ELECTRICITY CONSUMPTION, 2015

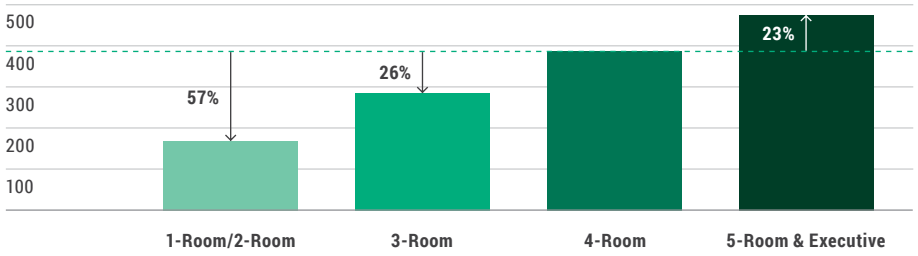
Unit: **kWh**



The average monthly electricity consumption of a 4-room public housing unit was 387 kWh in 2015. The average monthly electricity consumptions of a 1-room/2-room, and a 3-room unit were 57% and 26%, respectively, lower than that of a 4-room unit. On the other hand, the average monthly electricity consumption of a 5-room and executive flat was about 23% (475 kWh) more than that of a 4-room unit.

AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PUBLIC HOUSING DWELLING TYPE, 2015

Unit: **kWh**

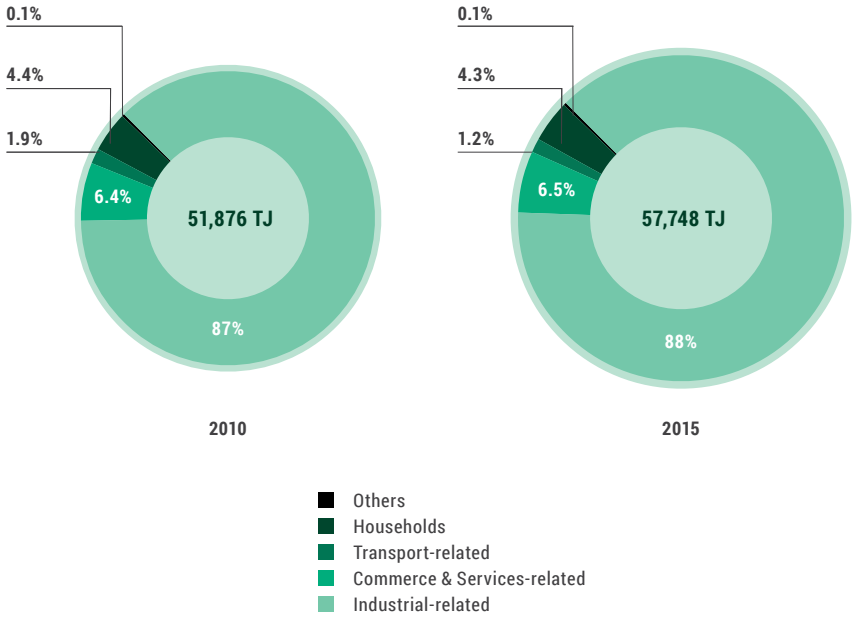


FINAL NATURAL GAS CONSUMPTION

End-users[1] consumption of NG declined 3.0% from 59,515 TJ in 2014 to 57,748 TJ in 2015. This followed weakening demand for natural gas by the Industrial-related sector.

NG consumption by Industrial-related consumers amounted to 50,739 TJ in 2015, about 3.5% lower than in the preceding year. Consumption by Transport-related users also registered a decline of 17% to 665 TJ in 2015. In contrast, the Commerce & Services-related sector and Households' consumption of NG rose by 3.6% and 1.8%, respectively.

FINAL NATURAL GAS CONSUMPTION BY SECTOR

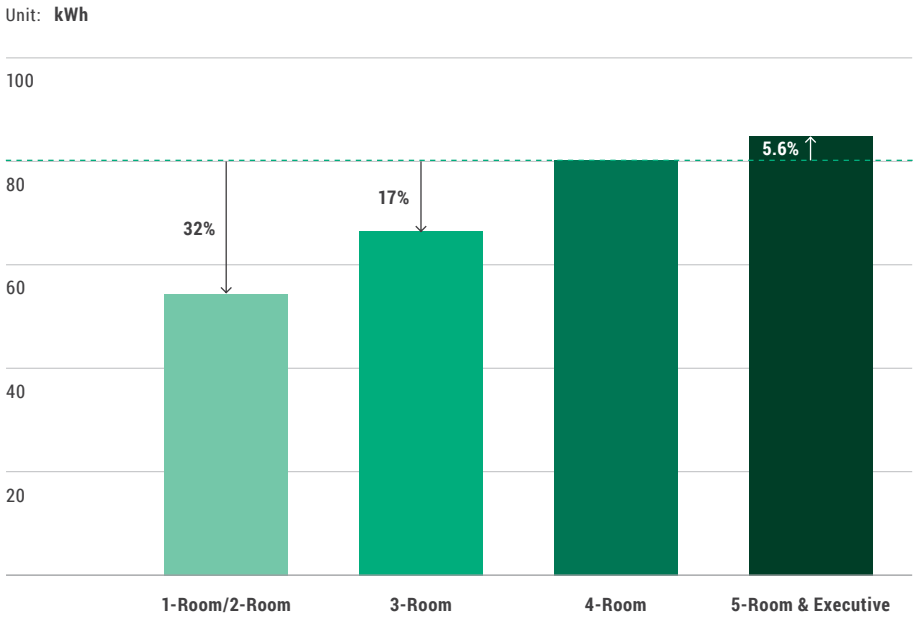


HOUSEHOLDS TOWN GAS CONSUMPTION

Households use NG in the form of town gas, which is manufactured by City Gas and then sold to households and other end-consumers. The average monthly household town gas consumption fell by 2.7%, from 83 kWh in 2014 to 81 kWh in 2015.

In 2015, the average monthly town gas consumption of a 4-room public housing unit was 80 kWh. A 1-room/2-room, and a 3-room unit consumed about 68% (54 kWh) and 83% (66 kWh) of town gas, respectively, relative to the consumption of a 4-room dwelling. Average monthly town gas consumption of a 5-room and executive flat was about 5.6% (85 kWh) higher than that of a 4-room unit.

AVERAGE MONTHLY TOWN GAS CONSUMPTION BY PUBLIC HOUSING DWELLING TYPE, 2015

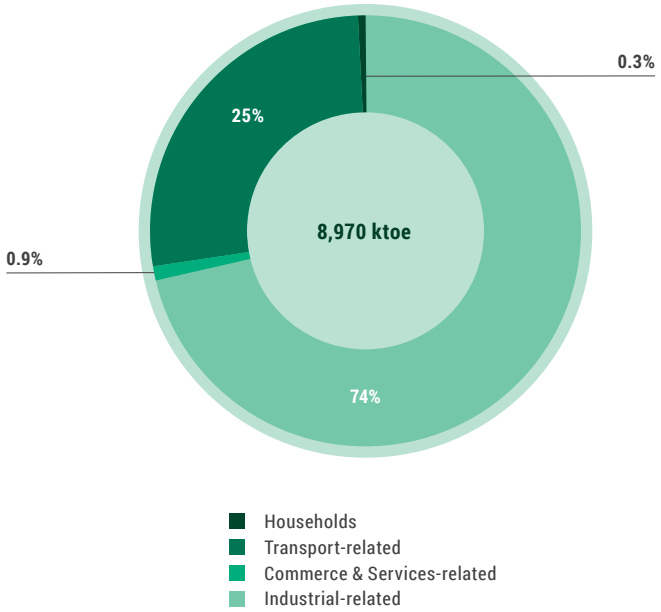


[1] *Final end-users or consumers exclude those involved in power generation (as Main Power Producers or Autoproducers) and oil refining.*

OIL CONSUMPTION

Total oil consumption amounted to 8,970 ktoe in 2014, representing an increase of 5.8% relative to the 8,475 ktoe recorded in 2013. Demand was largely channelled to Industrial-related activities, with a consumption amount totalling 6,668 ktoe (or 74%). The Transport-related sector was the second largest consumer, registering 2,200 ktoe (or 25%) of oil consumption in 2014. The Commerce & Services-related sector consumed 79 ktoe (0.9%) of oil, while the remaining 24 ktoe of oil was consumed by Households.

TOTAL OIL CONSUMPTION BY SECTOR, 2014



TOTAL FINAL ENERGY CONSUMPTION

Singapore's Total Final Energy Consumption (TFEC) increased by 4.6% from 13,913 ktoe in 2013 to 14,549 ktoe in 2014. In 2014, the demand for petroleum products saw an increase of around 5.8% to 8,970 ktoe. Consumption of electricity increased by 3.2% to 3,990 ktoe while that for NG declined by 1.4% to 1,422 ktoe.

In 2014, the majority of TFEC was in the form of petroleum products (62% or 8,970 ktoe). This was followed by electricity at 27% (3,990 ktoe) and NG at 9.8% (1,422 ktoe).

Almost two-thirds (67% or 9,789 ktoe) of TFEC was accounted for by the Industrial-related sector. This was predominantly in the form of petroleum products (6,668 ktoe) and electricity (1,699 ktoe). Consumers in the Transport-related, and Commerce & Services-related sectors accounted for 17% (2,429 ktoe) and 11% (1,631 ktoe) of end-use consumption respectively. The Transport-related sector consumed mainly petroleum products (2,200 ktoe), while the Commerce & Services-related sector consumed mostly electricity (1,466 ktoe).

Households accounted for 4.7% (678 ktoe) of total energy consumption. This was primarily in the form of electricity (595 ktoe), and NG by way of town gas (59 ktoe).

TOTAL ENERGY CONSUMPTION BY SECTOR & ENERGY PRODUCT, 2014

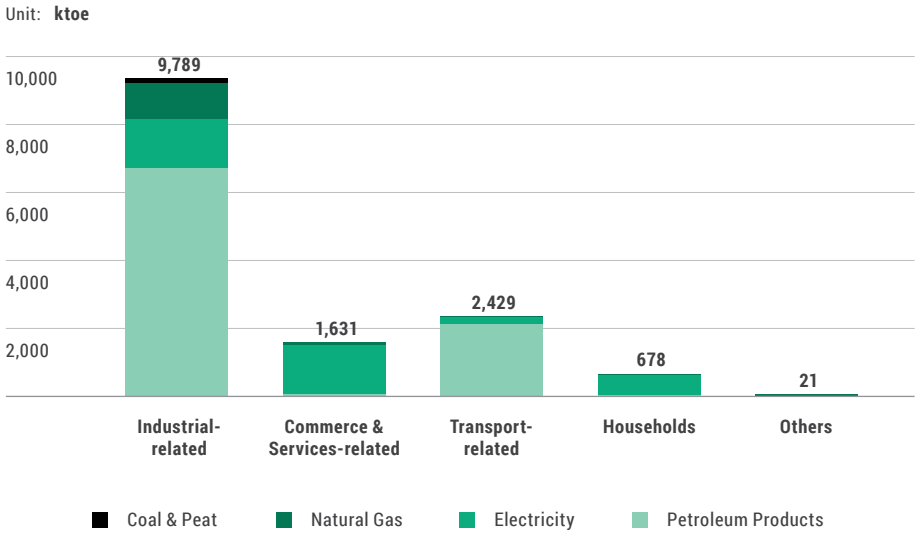


Table 3.1 MARKET SHARE FOR ELECTRICITY RETAIL

Unit: **Percent (%)**

	2005	2010	2012	2013	2014	2015
SP Services	41.7	35.5	36.7	35.8	33.0	30.8
Seraya Energy	16.8	19.1	17.1	16.9	14.2	14.3
Senoko Energy Supply	17.5	15.6	15.9	14.5	14.6	12.7
Tuas Power Supply	13.3	12.8	12.3	10.3	12.7	12.6
SembCorp Power	7.6	7.5	6.6	5.9	8.3	12.2
Keppel Electric	3.1	9.5	11.4	16.6	13.4	11.5
PacificLight Energy	-	-	-	-	3.8	5.6
Hyflux Energy Pte Ltd	-	-	-	-	-	0.3
CPvT Energy Asia Pte Ltd	-	-	-	-	-	0.0

Source: Energy Market Authority (EMA)

Note:
a. Numbers may not add up to the totals due to rounding.

Notation:
- nil, negligible or not applicable.

Table 3.2 ELECTRICITY CONSUMPTION BY SUB-SECTOR (TOTAL)

Unit: **GWh**

	2005	2010	2012	2013	2014	2015
Overall	**35,489.3**	**42,251.8**	**44,200.6**	**44,948.7**	**46,402.9**	**47,513.8**
Industrial-related	**14,509.0**	**17,662.5**	**18,572.4**	**18,842.7**	**19,753.2**	**20,088.0**
Manufacturing	13,839.5	16,452.8	17,116.7	17,241.9	17,993.7	18,279.7
Construction	234.8	337.8	443.7	490.5	527.1	531.0
Utilities	411.0	843.4	978.9	1,074.8	1,198.0	1,235.1
Other Industrial-related	23.7	28.5	33.1	35.5	34.4	42.2
Commerce & Services-related	**13,075.6**	**15,469.7**	**16,366.1**	**16,718.6**	**17,046.6**	**17,481.0**
Wholesale & Retail Trade	2,109.8	1,923.0	1,909.4	1,967.1	2,020.5	2,107.4
Accommodation & Food Services	1,031.3	1,219.6	1,275.1	1,326.6	1,332.3	1,350.2
Information & Communications	667.2	925.5	1,084.4	1,149.1	1,294.5	1,426.7
Financial & Insurance Activities	1,291.9	1,927.0	2,204.2	2,257.9	2,574.1	2,718.1
Real Estate Activities	3,712.4	4,346.2	4,522.6	4,532.4	4,485.7	4,454.6
Professional, Scientific & Technical, Administration & Support Activities	650.2	885.8	930.8	932.7	681.0	713.7
Other Commerce & Services-related	3,612.7	4,242.7	4,439.6	4,552.8	4,658.5	4,710.3
Transport-related	**1,200.0**	**2,098.7**	**2,328.6**	**2,369.1**	**2,441.0**	**2,444.8**
Households	**6,092.5**	**6,636.0**	**6,629.5**	**6,754.9**	**6,924.4**	**7,220.9**
Others	**612.2**	**384.9**	**304.0**	**263.4**	**237.7**	**279.1**

Source: Energy Market Authority (EMA)

Note:
a. Numbers may not add up to the totals due to rounding.

Table 3.2.1 ELECTRICITY CONSUMPTION BY SUB-SECTOR (CONTESTABLE CONSUMERS) Unit: GWh

	2005	2010	2012	2013	2014	2015
Overall	**22,833.4**	**29,035.4**	**30,129.4**	**30,939.3**	**33,079.9**	**34,756.0**
Industrial-related	**13,850.5**	**16,597.2**	**17,186.5**	**17,463.0**	**18,568.0**	**19,161.1**
Manufacturing	13,369.4	15,710.6	16,163.2	16,372.8	17,325.5	17,757.7
Construction	80.9	82.8	76.6	80.2	110.9	191.5
Utilities	382.8	784.5	928.6	991.2	1,110.8	1,187.0
Other Industrial-related	17.4	19.3	18.1	18.8	20.8	24.9
Commerce & Services-related	**7,828.8**	**10,438.2**	**10,753.6**	**11,256.4**	**12,203.4**	**13,250.3**
Wholesale & Retail Trade	1,338.5	1,141.3	1,022.1	1,050.3	1,248.7	1,446.0
Accommodation & Food Services	642.3	789.8	747.6	783.5	826.0	868.4
Information & Communications	509.6	702.5	770.3	825.6	1,020.4	1,197.8
Financial & Insurance Activities	871.7	1,547.9	1,770.0	1,836.1	2,176.0	2,371.3
Real Estate Activities	1,341.2	2,405.2	2,495.6	2,551.3	2,781.6	2,978.6
Professional, Scientific & Technical, Administration & Support Activities	422.7	619.4	639.2	635.9	384.5	408.6
Other Commerce & Services-related	2,702.9	3,232.2	3,308.9	3,573.7	3,766.1	3,979.6
Transport-related	**1,072.0**	**1,962.0**	**2,162.3**	**2,195.1**	**2,285.3**	**2,317.8**
Households	**-**	**-**	**-**	**-**	**-**	**-**
Others	**82.1**	**38.0**	**27.0**	**24.8**	**23.2**	**26.8**

Source: Energy Market Authority (EMA)

Note:
a. Numbers may not add up to the totals due to rounding.

Notation:
- nil, negligible or not applicable.

Table 3.2.2 ELECTRICITY CONSUMPTION BY SUB-SECTOR (NON-CONTESTABLE CONSUMERS) Unit: GWh

	2005	2010	2012	2013	2014	2015
Overall	**12,655.8**	**13,216.3**	**14,071.3**	**14,009.4**	**13,323.1**	**12,757.9**
Industrial-related	**658.5**	**1,065.3**	**1,385.9**	**1,379.7**	**1,185.1**	**926.9**
Manufacturing	470.1	742.1	953.5	869.1	668.2	522.0
Construction	153.9	255.1	367.1	410.3	416.2	339.5
Utilities	28.2	58.9	50.3	83.6	87.2	48.1
Other Industrial-related	6.3	9.2	15.1	16.7	13.6	17.3
Commerce & Services-related	**5,246.8**	**5,031.5**	**5,612.5**	**5,462.2**	**4,843.3**	**4,230.7**
Wholesale & Retail Trade	771.2	781.7	887.3	916.7	771.8	661.4
Accommodation & Food Services	389.1	429.8	527.5	543.1	506.2	481.8
Information & Communications	157.6	223.0	314.2	323.5	274.2	229.0
Financial & Insurance Activities	420.3	379.1	434.2	421.8	398.1	346.8
Real Estate Activities	2,371.2	1,940.9	2,027.0	1,981.1	1,704.1	1,476.0
Professional, Scientific & Technical, Administration & Support Activities	227.6	266.3	291.6	296.9	296.4	305.1
Other Commerce & Services-related	909.8	1,010.5	1,130.7	979.1	892.5	730.7
Transport-related	**128.0**	**136.6**	**166.3**	**174.0**	**155.7**	**127.1**
Households	**6,092.5**	**6,636.0**	**6,629.5**	**6,754.9**	**6,924.4**	**7,220.9**
Others	**530.1**	**346.9**	**277.1**	**238.6**	**214.5**	**252.3**

Source: Energy Market Authority (EMA)

Note:
a. Numbers may not add up to the totals due to rounding.

Table 3.3 **TOTAL HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE**

Unit: **GWh**

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2005
Overall	**447.8**	**437.1**	**479.7**	**533.6**	**535.0**	**560.2**	**537.4**	**528.8**	**516.3**	**520.0**	**518.6**	**478.0**	**6092.5**	**Overall**
Public Housing	**280.7**	**270.8**	**295.4**	**331.6**	**330.5**	**347.9**	**335.3**	**330.1**	**321.0**	**319.0**	**319.7**	**295.4**	**3,777.4**	**Public Housing**
1-Room/2-Room	6.3	6.0	6.1	6.9	6.8	7.0	6.9	7.0	6.6	6.5	6.4	6.0	78.4	1-Room/2-Room
3-Room	52.9	51.5	55.4	61.4	61.5	64.4	61.9	61.7	59.4	59.1	59.1	55.3	703.5	3-Room
4-Room	111.1	107.3	117.1	131.5	130.9	138.3	133.0	130.8	127.5	126.6	127.0	117.0	1,498.3	4-Room
5-Room & Executive	110.4	106.0	116.8	131.8	131.2	138.1	133.5	130.7	127.6	126.8	127.2	117.2	1,497.2	5-Room & Executive
Private Housing	**166.2**	**165.5**	**183.3**	**200.9**	**203.5**	**211.3**	**201.1**	**197.7**	**194.3**	**200.0**	**197.8**	**181.6**	**2,303.0**	**Private Housing**
Private Apartments & Condominiums	95.8	94.8	104.8	117.9	120.4	124.5	118.9	116.2	114.1	118.1	117.2	106.9	1,349.4	Private Apartments & Condominiums
Landed Properties	70.4	70.7	78.5	83.1	83.1	86.8	82.2	81.4	80.2	81.9	80.6	74.7	953.6	Landed Properties
Others	**0.9**	**0.9**	**1.0**	**1.1**	**1.1**	**1.1**	**1.0**	**1.0**	**1.0**	**1.1**	**1.0**	**0.9**	**12.0**	**Others**
2010	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2010**
Overall	**490.6**	**503.9**	**547.6**	**585.0**	**573.5**	**606.0**	**575.2**	**539.7**	**539.2**	**557.8**	**581.4**	**536.2**	**6,636.0**	**Overall**
Public Housing	**298.7**	**302.9**	**325.9**	**352.0**	**345.9**	**365.6**	**349.9**	**331.2**	**328.3**	**335.8**	**351.2**	**323.7**	**4,011.0**	**Public Housing**
1-Room/2-Room	6.2	6.1	6.4	6.8	7.0	7.2	7.0	6.9	6.7	7.0	7.2	6.8	81.2	1-Room/2-Room
3-Room	55.6	56.5	60.4	64.6	64.6	67.8	64.7	61.8	60.8	62.7	65.3	59.9	744.6	3-Room
4-Room	119.0	120.2	129.4	140.2	137.3	145.6	139.2	131.6	131.2	133.8	139.9	129.1	1,596.6	4-Room
5-Room & Executive	117.9	120.1	129.7	140.4	137.0	145.0	139.0	130.8	129.6	132.4	138.8	127.9	1,588.5	5-Room & Executive
Private Housing	**190.9**	**199.9**	**220.7**	**231.7**	**226.5**	**239.1**	**224.1**	**207.5**	**209.8**	**220.7**	**229.1**	**211.4**	**2,611.3**	**Private Housing**
Private Apartments & Condominiums	113.9	117.5	132.7	140.3	138.6	145.2	137.7	125.4	126.1	134.1	140.4	128.7	1,580.6	Private Apartments & Condominiums
Landed Properties	77.0	82.4	88.0	91.5	87.9	93.9	86.4	82.1	83.7	86.6	88.7	82.7	1,030.7	Landed Properties
Others	**1.0**	**1.0**	**1.1**	**1.2**	**1.2**	**1.3**	**1.2**	**1.0**	**1.1**	**1.2**	**1.2**	**1.1**	**13.6**	**Others**
2012	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2012**
Overall	**503.3**	**505.0**	**508.6**	**540.9**	**557.1**	**607.9**	**594.8**	**585.6**	**573.2**	**560.2**	**568.1**	**524.8**	**6,629.5**	**Overall**
Public Housing	**303.9**	**301.5**	**303.3**	**323.8**	**334.0**	**364.7**	**357.5**	**351.0**	**344.2**	**333.8**	**338.5**	**313.8**	**3,970.1**	**Public Housing**
1-Room/2-Room	7.1	6.9	6.9	7.4	7.5	8.0	8.0	7.9	7.9	7.5	7.8	7.5	90.5	1-Room/2-Room
3-Room	56.6	55.8	56.0	59.9	61.6	66.8	65.3	64.6	62.9	61.0	61.4	57.2	729.0	3-Room
4-Room	121.9	121.1	121.7	130.3	134.4	147.0	143.9	141.2	138.8	134.7	136.4	126.5	1,597.9	4-Room
5-Room & Executive	118.3	117.8	118.7	126.3	130.5	142.8	140.4	137.3	134.7	130.5	132.8	122.6	1,552.6	5-Room & Executive
Private Housing	**198.4**	**202.4**	**204.4**	**216.0**	**222.1**	**242.1**	**236.2**	**233.5**	**228.0**	**225.4**	**228.5**	**210.2**	**2,647.0**	**Private Housing**
Private Apartments & Condominiums	120.9	121.4	124.5	132.5	138.3	150.1	147.6	144.2	140.3	138.1	142.0	129.4	1,629.3	Private Apartments & Condominiums
Landed Properties	77.5	81.0	79.9	83.4	83.9	91.9	88.6	89.4	87.6	87.2	86.5	80.8	1,017.8	Landed Properties
Others	**1.0**	**1.0**	**1.0**	**1.1**	**1.0**	**1.1**	**1.1**	**1.1**	**1.0**	**1.0**	**1.1**	**0.9**	**12.4**	**Others**

Note:
a. Numbers may not add up to the totals due to rounding.

Source: Energy Market Authority (EMA)

Table 3.3 TOTAL HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE (CONTINUED)

Unit: GWh

2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2013
Overall	**513.1**	**498.0**	**498.3**	**568.3**	**601.8**	**629.6**	**612.0**	**617.5**	**560.6**	**555.0**	**570.7**	**530.1**	**6,754.9**	**Overall**
Public Housing	**310.0**	**298.0**	**295.5**	**339.1**	**354.8**	**378.6**	**369.4**	**373.2**	**337.2**	**326.3**	**340.1**	**316.5**	**4,038.8**	**Public Housing**
1-Room/2-Room	7.5	7.2	7.1	8.0	8.4	8.8	8.7	9.0	8.5	8.1	8.5	8.2	97.9	1-Room/2-Room
3-Room	56.3	54.2	53.6	61.9	64.8	68.5	66.6	67.5	61.3	59.9	61.4	57.9	734.1	3-Room
4-Room	125.6	120.4	119.6	137.0	142.3	154.4	148.8	150.9	136.3	131.7	137.9	128.1	1,633.0	4-Room
5-Room & Executive	120.6	116.2	115.2	132.3	139.3	146.9	145.3	145.8	131.0	126.6	132.3	122.3	1,573.9	5-Room & Executive
Private Housing	**202.1**	**199.1**	**201.8**	**228.1**	**245.9**	**249.7**	**241.4**	**243.3**	**222.4**	**227.6**	**229.6**	**212.7**	**2,703.8**	**Private Housing**
Private Apartments & Condominiums	124.0	121.1	123.6	140.7	154.5	156.5	151.7	151.9	137.3	140.0	143.4	131.3	1,676.1	Private Apartments & Condominiums
Landed Properties	78.1	78.0	78.2	87.4	91.3	93.3	89.7	91.4	85.2	87.6	86.1	81.4	1,027.8	Landed Properties
Others	**0.9**	**0.9**	**0.9**	**1.1**	**1.1**	**1.2**	**1.1**	**1.1**	**1.0**	**1.1**	**1.0**	**0.9**	**12.3**	**Others**
2014	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2014**
Overall	**509.7**	**489.3**	**488.7**	**568.1**	**609.5**	**639.0**	**628.1**	**635.5**	**592.4**	**580.9**	**611.5**	**571.8**	**6,924.4**	**Overall**
Public Housing	**307.1**	**293.9**	**288.3**	**335.5**	**359.6**	**383.6**	**376.7**	**382.4**	**355.3**	**341.4**	**362.1**	**339.7**	**4,125.7**	**Public Housing**
1-Room/2-Room	8.0	7.7	7.4	8.5	9.2	9.7	9.7	10.0	9.5	9.3	9.9	9.4	108.3	1-Room/2-Room
3-Room	55.8	53.3	52.4	61.2	66.1	69.0	68.3	68.9	63.9	62.4	65.6	61.3	748.2	3-Room
4-Room	124.7	119.1	116.8	136.0	146.2	156.0	153.0	155.4	144.4	138.8	147.1	138.3	1,675.8	4-Room
5-Room & Executive	118.5	113.7	111.7	129.7	138.1	149.0	145.7	148.1	137.5	131.0	139.5	130.7	1,593.3	5-Room & Executive
Private Housing	**201.7**	**194.6**	**199.5**	**231.6**	**248.9**	**254.3**	**250.4**	**252.1**	**236.1**	**238.4**	**248.4**	**231.2**	**2,787.1**	**Private Housing**
Private Apartments & Condominiums	124.3	117.9	122.0	143.1	157.9	160.0	158.9	158.7	147.7	148.7	158.0	145.5	1,742.6	Private Apartments & Condominiums
Landed Properties	77.4	76.7	77.5	88.5	91.0	94.3	91.5	93.4	88.3	89.7	90.4	85.7	1,044.5	Landed Properties
Others	**0.9**	**0.8**	**0.9**	**1.1**	**1.0**	**1.1**	**1.0**	**1.0**	**1.0**	**1.0**	**1.0**	**0.9**	**11.6**	**Others**
2015	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2015**
Overall	**525.2**	**493.6**	**513.9**	**594.2**	**610.7**	**632.3**	**647.0**	**656.7**	**635.7**	**643.6**	**645.7**	**622.4**	**7,220.9**	**Overall**
Public Housing	**314.6**	**294.9**	**303.0**	**349.8**	**359.2**	**374.7**	**384.5**	**394.6**	**380.3**	**379.3**	**379.0**	**370.3**	**4,284.2**	**Public Housing**
1-Room/2-Room	8.9	8.5	8.5	9.7	10.2	10.4	10.7	11.0	10.8	10.7	10.7	10.7	120.7	1-Room/2-Room
3-Room	56.4	53.1	54.8	63.4	65.2	67.5	69.4	70.7	67.9	67.7	68.0	66.0	770.1	3-Room
4-Room	128.5	120.1	123.6	142.5	146.5	153.1	157.4	161.1	155.0	154.9	154.2	151.9	1,748.8	4-Room
5-Room & Executive	120.7	113.3	116.2	134.3	137.2	143.8	147.1	151.7	146.6	145.9	146.1	141.7	1,644.6	5-Room & Executive
Private Housing	**209.7**	**197.8**	**210.1**	**243.4**	**250.6**	**256.6**	**261.5**	**261.3**	**254.5**	**263.4**	**265.7**	**251.2**	**2,925.8**	**Private Housing**
Private Apartments & Condominiums	130.7	122.0	131.1	152.7	161.4	163.8	167.3	167.1	162.9	167.7	172.7	160.5	1,859.9	Private Apartments & Condominiums
Landed Properties	79.0	75.8	79.0	90.7	89.2	92.8	94.2	94.2	91.6	95.7	93.0	90.7	1,065.8	Landed Properties
Others	**0.9**	**0.8**	**0.8**	**1.0**	**0.9**	**1.0**	**1.0**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**	**11.0**	**Others**

Note:
a. Numbers may not add up to the totals due to rounding.

Source: Energy Market Authority (EMA)

Table 3.4 **AVERAGE MONTHLY HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE**

Unit: **kWh**

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2005
Overall	**418.1**	**408.3**	**446.9**	**496.2**	**496.8**	**519.7**	**497.7**	**489.3**	**477.7**	**480.8**	**479.7**	**441.6**	**471.1**	**Overall**
Public Housing	**330.9**	**319.1**	**347.6**	**389.7**	**388.0**	**408.2**	**393.3**	**387.2**	**376.7**	**374.4**	**375.5**	**347.0**	**369.9**	**Public Housing**
1-Room/2-Room	135.2	129.0	131.5	148.0	147.0	151.1	147.8	148.8	141.2	139.7	140.4	132.7	141.1	1-Room/2-Room
3-Room	241.7	235.2	253.1	280.3	281.0	294.7	283.8	283.3	272.9	272.1	272.0	254.4	268.7	3-Room
4-Room	345.6	333.6	363.4	407.4	404.9	427.4	410.7	403.8	393.6	390.9	392.2	361.3	386.3	4-Room
5-Room & Executive	422.0	405.1	445.4	501.9	498.9	524.4	506.2	495.0	482.8	479.1	480.5	441.8	473.7	5-Room & Executive
Private Housing	**751.4**	**749.8**	**825.2**	**900.8**	**909.9**	**941.9**	**890.6**	**872.3**	**856.0**	**877.9**	**866.8**	**791.2**	**853.0**	**Private Housing**
Private Apartments & Condominiums	624.8	619.2	679.3	759.2	772.9	796.0	754.1	733.1	717.7	739.5	732.1	662.8	716.2	Private Apartments & Condominiums
Landed Properties	1,037.7	1,044.8	1,157.1	1,224.8	1,224.2	1,277.9	1,206.7	1,196.3	1,178.9	1,202.2	1,183.5	1,094.4	1,169.1	Landed Properties
Others	**594.2**	**572.7**	**637.1**	**723.3**	**693.5**	**711.8**	**622.7**	**604.5**	**605.1**	**644.3**	**640.7**	**569.7**	**634.2**	**Others**

2010	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2010
Overall	**433.4**	**446.1**	**482.1**	**513.5**	**505.4**	**531.5**	**502.4**	**471.9**	**472.0**	**486.9**	**509.6**	**466.3**	**485.1**	**Overall**
Public Housing	**343.2**	**348.4**	**373.2**	**402.6**	**396.8**	**418.5**	**399.3**	**378.3**	**375.3**	**383.0**	**401.4**	**368.2**	**382.4**	**Public Housing**
1-Room/2-Room	143.2	142.7	146.6	156.0	159.5	163.3	158.1	154.9	150.4	156.8	160.8	149.6	153.5	1-Room/2-Room
3-Room	255.8	260.1	277.1	296.0	296.8	311.2	295.6	282.7	277.9	286.2	298.9	272.8	284.3	3-Room
4-Room	354.8	358.4	384.3	415.2	408.1	431.5	411.8	389.7	388.7	395.2	414.2	380.2	394.4	4-Room
5-Room & Executive	429.8	438.5	471.8	510.9	500.1	528.4	505.4	476.5	473.2	482.0	506.6	465.4	482.4	5-Room & Executive
Private Housing	**734.7**	**773.4**	**845.7**	**880.6**	**866.5**	**903.2**	**839.5**	**778.7**	**789.4**	**826.6**	**866.6**	**785.9**	**824.3**	**Private Housing**
Private Apartments & Condominiums	598.9	622.4	693.8	728.3	721.5	747.2	699.5	639.6	642.4	681.7	717.6	648.4	678.6	Private Apartments & Condominiums
Landed Properties	1,105.4	1,182.4	1,262.0	1,296.4	1,268.6	1,333.7	1,232.1	1,166.3	1,204.8	1,232.4	1,291.3	1,173.1	1,229.0	Landed Properties
Others	**607.0**	**617.5**	**621.8**	**719.0**	**671.9**	**743.9**	**689.9**	**582.4**	**642.1**	**699.4**	**667.6**	**629.1**	**657.8**	**Others**

2012	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2012
Overall	**431.1**	**430.9**	**432.2**	**459.1**	**472.5**	**514.0**	**502.9**	**493.9**	**483.2**	**471.1**	**478.0**	**440.3**	**467.5**	**Overall**
Public Housing	**341.7**	**338.2**	**339.0**	**362.1**	**373.0**	**406.7**	**398.5**	**390.9**	**383.0**	**370.9**	**376.1**	**348.1**	**369.1**	**Public Housing**
1-Room/2-Room	148.9	143.2	143.4	151.9	153.7	164.4	162.2	161.6	158.9	151.0	156.2	150.0	153.8	1-Room/2-Room
3-Room	258.9	255.4	255.4	273.7	282.2	306.3	298.7	296.0	288.4	280.0	281.7	262.1	278.2	3-Room
4-Room	351.5	347.8	348.5	372.7	383.5	418.7	409.8	401.2	394.1	382.0	386.7	357.9	379.6	4-Room
5-Room & Executive	428.1	425.3	427.0	455.2	469.6	512.7	504.2	492.6	482.7	467.2	475.9	438.5	465.0	5-Room & Executive
Private Housing	**717.9**	**726.1**	**728.3**	**765.3**	**787.8**	**851.6**	**832.0**	**816.5**	**797.5**	**783.5**	**796.8**	**727.0**	**777.8**	**Private Housing**
Private Apartments & Condominiums	583.6	582.6	591.6	627.3	653.0	704.7	689.9	670.4	651.2	637.9	654.3	593.5	636.9	Private Apartments & Condominiums
Landed Properties	1,119.6	1,151.8	1,138.0	1,176.3	1,194.0	1,291.0	1,266.5	1,258.7	1,246.0	1,226.7	1,239.7	1,136.4	1,203.9	Landed Properties
Others	**579.7**	**602.7**	**570.0**	**643.7**	**573.8**	**676.9**	**661.0**	**626.5**	**601.8**	**648.3**	**639.4**	**530.8**	**612.6**	**Others**

Note:
a. Numbers may not add up to the totals due to rounding.

Source: Energy Market Authority (EMA)

Table 3.4 AVERAGE MONTHLY HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE (CONTINUED)

Unit: kWh

2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2013
Overall	**430.2**	**418.9**	**417.4**	**473.9**	**508.1**	**525.1**	**508.6**	**513.0**	**465.9**	**459.0**	**471.1**	**436.8**	**469.0**	**Overall**
Public Housing	**343.7**	**331.4**	**327.4**	**374.8**	**398.0**	**418.7**	**407.1**	**411.3**	**371.1**	**358.3**	**372.6**	**346.7**	**371.7**	**Public Housing**
1-Room/2-Room	149.6	143.2	139.0	154.8	164.4	171.8	167.0	173.3	161.6	154.9	161.1	154.9	158.0	1-Room/2-Room
3-Room	258.7	249.5	245.7	282.9	299.8	313.2	303.8	307.7	279.4	272.3	278.7	263.1	279.6	3-Room
4-Room	354.7	341.2	338.0	386.3	410.1	434.8	417.8	423.6	382.2	368.0	384.2	356.8	383.1	4-Room
5-Room & Executive	430.9	416.7	411.9	472.3	502.4	526.0	518.9	521.0	467.9	451.3	471.1	435.7	468.8	5-Room & Executive
Private Housing	**699.2**	**691.3**	**697.8**	**779.7**	**844.8**	**852.7**	**821.0**	**825.1**	**759.2**	**767.5**	**772.5**	**710.5**	**768.6**	**Private Housing**
Private Apartments & Condominiums	567.2	557.0	563.8	636.7	700.1	705.5	679.1	678.8	615.8	620.8	632.5	576.0	627.9	Private Apartments & Condominiums
Landed Properties	1,108.9	1,105.6	1,117.6	1,221.6	1,299.2	1,312.1	1,269.6	1,285.2	1,215.6	1,233.0	1,223.5	1,139.7	1,211.1	Landed Properties
Others	**550.6**	**544.2**	**546.3**	**651.5**	**647.1**	**702.4**	**666.0**	**634.1**	**612.8**	**647.0**	**635.9**	**598.8**	**619.8**	**Others**
2014	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2014**
Overall	**420.2**	**402.5**	**400.0**	**462.4**	**494.6**	**516.2**	**506.6**	**510.0**	**474.7**	**463.5**	**486.8**	**453.0**	**466.1**	**Overall**
Public Housing	**336.4**	**321.5**	**313.9**	**364.1**	**389.5**	**414.6**	**406.7**	**411.4**	**381.6**	**365.5**	**386.7**	**361.6**	**371.3**	**Public Housing**
1-Room/2-Room	151.4	144.7	137.2	154.8	167.4	173.3	171.9	176.6	166.5	160.9	171.7	161.2	161.7	1-Room/2-Room
3-Room	253.6	242.2	237.1	276.5	298.4	311.5	308.5	310.0	286.9	279.8	292.9	273.1	280.9	3-Room
4-Room	347.5	331.0	323.0	374.9	401.8	427.8	419.1	423.8	393.3	376.4	398.2	372.9	382.6	4-Room
5-Room & Executive	422.3	405.2	396.4	459.4	488.4	525.7	514.1	521.8	483.9	459.8	489.1	457.1	468.7	5-Room & Executive
Private Housing	**675.5**	**648.0**	**661.3**	**757.1**	**808.7**	**816.9**	**802.0**	**800.1**	**748.8**	**749.9**	**780.1**	**718.9**	**748.0**	**Private Housing**
Private Apartments & Condominiums	544.0	513.7	525.9	610.8	666.1	669.0	658.6	653.5	605.3	604.2	638.6	583.0	606.9	Private Apartments & Condominiums
Landed Properties	1,104.0	1,082.9	1,111.9	1,234.6	1,285.8	1,307.5	1,289.2	1,293.3	1,240.6	1,249.1	1,272.8	1,189.5	1,222.3	Landed Properties
Others	**581.9**	**587.3**	**605.4**	**746.8**	**734.9**	**777.1**	**723.4**	**697.7**	**716.9**	**754.7**	**783.0**	**668.3**	**696.5**	**Others**
2015	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2015**
Overall	**414.7**	**390.6**	**403.3**	**463.7**	**476.3**	**491.0**	**500.4**	**507.9**	**491.8**	**494.2**	**506.8**	**476.6**	**468.4**	**Overall**
Public Housing	**334.0**	**313.7**	**319.8**	**368.3**	**378.0**	**393.6**	**402.9**	**413.1**	**397.8**	**394.9**	**405.2**	**384.9**	**375.6**	**Public Housing**
1-Room/2-Room	153.1	144.8	143.3	163.6	171.0	173.3	177.2	183.3	178.4	175.4	179.8	174.5	168.3	1-Room/2-Room
3-Room	251.0	236.9	242.9	280.4	289.1	299.5	307.0	312.6	300.2	297.9	306.0	290.3	284.5	3-Room
4-Room	345.4	322.9	329.6	378.9	389.3	405.4	415.7	425.2	408.5	406.2	416.4	397.3	386.9	4-Room
5-Room & Executive	421.3	396.2	403.5	465.6	475.6	497.1	507.6	523.4	505.9	501.7	515.7	486.7	475.1	5-Room & Executive
Private Housing	**648.9**	**614.6**	**645.7**	**736.3**	**757.8**	**767.6**	**775.8**	**776.1**	**759.0**	**773.5**	**787.6**	**733.3**	**732.3**	**Private Housing**
Private Apartments & Condominiums	519.0	486.5	513.9	590.7	622.4	625.4	630.1	632.2	616.1	625.7	645.0	593.2	592.7	Private Apartments & Condominiums
Landed Properties	1,107.8	1,066.3	1,123.6	1,259.0	1,249.5	1,281.6	1,316.9	1,301.7	1,292.4	1,319.9	1,336.2	1,260.2	1,243.2	Landed Properties
Others	**657.7**	**594.2**	**605.9**	**754.1**	**703.3**	**726.9**	**739.6**	**704.6**	**713.4**	**738.3**	**735.3**	**698.6**	**697.1**	**Others**

Note:
a. Numbers may not add up to the totals due to rounding.

Source: Energy Market Authority (EMA)

Table 3.5 AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PLANNING AREA & DWELLING TYPE (ANNUAL)

Unit: **kWh**

Overall Public Housing						
	2005	2010	2012	2013	2014	2015
Overall	**370.2**	**382.4**	**369.1**	**371.7**	**371.3**	**375.6**
Central Region	**319.4**	**333.0**	**324.7**	**328.4**	**331.2**	**334.8**
Bishan	417.4	423.7	402.0	403.9	405.7	410.9
Bukit Merah	302.4	324.0	312.8	319.3	321.6	323.4
Bukit Timah	409.1	405.9	393.4	395.2	395.9	399.6
Geylang	332.4	345.0	339.9	341.8	344.6	348.5
Kallang	301.8	316.6	312.0	316.2	317.5	324.4
Marine Parade	309.5	323.3	319.7	324.4	318.7	321.0
Novena	339.1	356.9	347.1	350.4	351.8	359.4
Outram	228.7	230.6	265.0	270.7	273.9	280.4
Queenstown	289.8	303.7	295.6	298.4	304.2	303.8
Rochor	312.7	333.3	328.9	329.6	331.7	339.8
Tanglin	448.8	448.4	434.7	415.9	416.8	413.1
Toa Payoh	319.5	336.0	324.1	326.3	331.1	336.1
East Region	**410.6**	**415.6**	**401.9**	**404.3**	**403.7**	**406.8**
Bedok	348.7	358.6	349.5	349.6	351.7	357.6
Pasir Ris	490.3	493.1	477.0	481.0	478.0	475.1
Tampines	434.2	435.9	418.7	422.0	419.5	421.2
North East Region	**375.0**	**391.8**	**371.7**	**372.4**	**371.7**	**372.5**
Ang Mo Kio	310.1	323.3	314.2	318.1	321.6	324.3
Hougang	405.9	417.1	399.4	397.2	394.8	397.4
Punggol	389.6	420.9	359.1	363.8	368.8	358.8
Sengkang	398.2	417.6	397.6	395.0	386.5	386.6
Serangoon	401.7	410.1	395.2	397.1	398.2	406.6
North Region	**386.5**	**403.8**	**392.7**	**397.7**	**388.2**	**400.5**
Sembawang	386.2	411.7	404.0	408.9	397.4	411.8
Woodlands	397.3	413.4	403.7	402.5	402.6	412.7
Yishun	373.3	388.8	375.1	387.2	368.0	382.5
West Region	**379.0**	**389.7**	**375.8**	**377.9**	**378.8**	**382.7**
Bukit Batok	361.1	372.1	361.9	362.2	364.1	373.3
Bukit Panjang	379.4	395.8	378.3	380.9	377.1	371.4
Choa Chu Kang	412.9	419.9	405.6	406.5	407.7	407.6
Clementi	318.5	328.8	309.6	318.2	320.3	322.5
Jurong East	377.1	377.1	358.2	361.5	363.6	368.9
Jurong West	390.1	403.5	393.3	393.9	394.8	403.4

1-Room/2-Room						
	2005	2010	2012	2013	2014	2015
Overall	**141.5**	**153.5**	**153.8**	**158.0**	**161.9**	**169.5**
Central Region	**140.5**	**152.6**	**153.3**	**156.1**	**159.9**	**164.5**
Bishan	108.2	112.4	131.0	135.6	139.4	144.1
Bukit Merah	138.3	150.6	150.5	154.3	158.8	163.0
Bukit Timah	-	-	-	-	-	-
Geylang	154.4	164.8	165.2	168.1	173.5	178.9
Kallang	120.8	137.9	138.2	141.0	143.8	149.9
Marine Parade	170.1	188.5	190.9	192.8	195.5	199.4
Novena	149.9	171.5	183.6	187.7	190.3	200.7
Outram	123.3	135.5	136.7	139.8	144.0	148.9
Queenstown	153.5	164.0	161.9	164.1	168.6	172.4
Rochor	161.1	177.6	181.2	186.6	183.3	188.9
Tanglin	-	-	-	-	-	-
Toa Payoh	147.9	157.3	158.6	158.8	161.6	165.0
East Region	**141.3**	**156.0**	**152.4**	**159.9**	**162.6**	**168.4**
Bedok	139.7	156.9	154.5	156.3	159.6	161.7
Pasir Ris	224.5	276.3	124.9	147.2	148.1	184.7
Tampines	151.4	145.8	150.1	171.2	172.6	176.8
North East Region	**150.2**	**158.9**	**157.6**	**161.9**	**169.5**	**175.7**
Ang Mo Kio	150.0	162.1	160.7	164.6	169.1	170.9
Hougang	147.1	151.9	161.7	155.5	174.1	182.3
Punggol	-	96.5	142.8	155.5	167.6	181.2
Sengkang	-	149.7	157.7	165.9	168.9	175.9
Serangoon	162.2	166.3	147.7	157.9	167.9	177.3
North Region	**131.0**	**137.6**	**152.6**	**157.6**	**152.2**	**167.2**
Sembawang	-	134.1	162.4	163.8	152.5	163.4
Woodlands	125.2	135.6	146.5	147.7	145.7	160.3
Yishun	165.1	146.9	160.8	174.7	163.3	180.7
West Region	**142.5**	**162.7**	**154.6**	**162.7**	**165.5**	**175.1**
Bukit Batok	140.8	140.8	124.7	148.0	143.2	158.4
Bukit Panjang	-	-	137.0	158.4	159.2	159.8
Choa Chu Kang	145.4	138.9	161.0	160.4	170.1	175.1
Clementi	132.2	140.6	120.3	135.3	144.4	158.4
Jurong East	141.4	142.9	118.8	150.6	157.8	172.8
Jurong West	159.3	189.5	185.7	188.7	183.2	192.9

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

Notation:
- nil, negligible or not applicable.

Source: Energy Market Authority (EMA)

Table 3.5 AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PLANNING AREA & DWELLING TYPE (ANNUAL) (CONTINUED)

Unit: **kWh**

3-Room						
	2005	2010	2012	2013	2014	2015
Overall	**268.9**	**284.3**	**278.2**	**279.6**	**281.1**	**285.7**
Central Region	**275.5**	**290.1**	**283.4**	**283.9**	**286.0**	**288.5**
Bishan	262.4	277.8	268.7	268.4	273.6	276.9
Bukit Merah	283.0	294.7	283.9	285.7	287.5	287.6
Bukit Timah	279.0	278.0	278.1	280.0	280.2	282.3
Geylang	272.0	288.3	283.7	283.3	285.5	289.8
Kallang	284.6	294.9	289.2	292.5	293.1	297.7
Marine Parade	260.7	284.6	285.8	289.5	281.8	285.0
Novena	285.9	307.3	299.4	302.4	303.7	310.0
Outram	296.1	297.5	288.4	285.6	285.2	289.1
Queenstown	258.5	271.9	264.0	263.8	266.6	267.1
Rochor	279.0	298.4	293.5	298.4	299.6	304.7
Tanglin	253.3	359.1	389.8	335.3	369.4	325.7
Toa Payoh	278.7	297.2	292.4	290.1	294.9	297.6
East Region	**277.7**	**289.7**	**283.4**	**285.4**	**285.8**	**289.2**
Bedok	269.1	283.0	277.0	278.5	280.4	284.7
Pasir Ris	-	-	-	-	39.7	211.2
Tampines	293.2	301.7	295.0	297.5	295.0	297.8
North East Region	**267.8**	**283.2**	**275.7**	**275.2**	**278.5**	**280.7**
Ang Mo Kio	269.2	284.0	278.4	280.7	283.3	285.3
Hougang	267.7	287.9	279.2	279.4	280.9	287.4
Punggol	-	17.7	199.7	211.6	249.7	242.8
Sengkang	-	237.0	257.2	226.0	248.5	251.9
Serangoon	260.9	275.7	268.3	271.1	272.0	281.0
North Region	**253.8**	**276.9**	**273.7**	**280.4**	**274.2**	**285.8**
Sembawang	-	-	-	31.2	184.9	239.9
Woodlands	247.0	271.0	270.6	271.5	272.4	283.5
Yishun	256.5	279.4	275.0	284.8	276.9	287.8
West Region	**256.7**	**273.3**	**268.9**	**271.0**	**273.7**	**276.8**
Bukit Batok	251.9	270.1	266.2	267.5	271.3	277.6
Bukit Panjang	249.6	267.4	260.7	262.7	261.5	263.7
Choa Chu Kang	266.1	280.6	271.7	275.5	281.0	277.3
Clementi	259.1	274.8	263.3	267.1	268.7	271.9
Jurong East	264.3	277.6	268.1	271.7	276.7	280.4
Jurong West	254.2	272.5	279.0	278.7	280.3	282.9

4-Room						
	2005	2010	2012	2013	2014	2015
Overall	**386.3**	**394.4**	**379.6**	**383.1**	**382.9**	**390.6**
Central Region	**384.4**	**388.0**	**374.8**	**380.4**	**383.8**	**386.6**
Bishan	399.9	409.5	391.7	396.0	397.0	401.7
Bukit Merah	372.5	390.7	368.7	379.2	381.9	382.2
Bukit Timah	377.4	382.8	373.6	373.7	377.6	390.8
Geylang	402.5	407.5	402.6	406.1	408.2	408.8
Kallang	401.4	397.3	384.4	388.0	389.3	398.8
Marine Parade	360.9	366.1	355.7	360.3	355.5	354.9
Novena	377.8	384.7	372.0	372.9	375.4	381.4
Outram	370.0	272.8	366.6	380.7	386.6	397.1
Queenstown	361.6	356.5	337.4	346.5	356.9	349.6
Rochor	375.6	384.9	378.5	373.6	377.8	389.7
Tanglin	426.3	421.4	409.0	396.7	404.1	397.7
Toa Payoh	376.7	384.8	367.5	370.3	375.7	383.3
East Region	**412.0**	**417.3**	**405.7**	**407.9**	**406.8**	**409.5**
Bedok	386.4	393.6	387.2	385.0	387.5	392.9
Pasir Ris	424.0	430.3	419.0	424.0	419.9	416.3
Tampines	425.6	429.6	414.2	418.5	415.7	418.7
North East Region	**387.1**	**393.9**	**371.1**	**373.3**	**374.3**	**375.0**
Ang Mo Kio	382.0	386.6	371.0	376.7	381.6	384.3
Hougang	406.0	414.6	398.8	396.0	394.9	396.5
Punggol	361.0	368.6	307.0	327.8	343.5	336.7
Sengkang	360.1	376.0	362.9	363.7	358.2	362.5
Serangoon	399.0	405.5	395.3	396.4	398.5	407.1
North Region	**374.7**	**389.6**	**380.0**	**386.2**	**377.7**	**392.4**
Sembawang	348.3	365.2	361.2	365.5	355.3	372.8
Woodlands	373.0	385.9	377.7	377.2	380.1	391.9
Yishun	384.8	401.9	388.6	402.9	382.3	398.9
West Region	**377.7**	**387.6**	**373.7**	**376.5**	**377.7**	**380.9**
Bukit Batok	377.1	388.3	377.8	380.3	382.9	393.2
Bukit Panjang	358.4	373.4	357.1	360.8	357.4	354.5
Choa Chu Kang	380.5	386.3	375.9	378.1	381.7	380.8
Clementi	375.7	377.4	349.0	361.0	363.2	359.6
Jurong East	386.2	387.2	365.5	371.1	373.8	378.4
Jurong West	384.4	398.2	388.1	387.9	388.4	397.4

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

Notation:
- nil, negligible or not applicable.

Source: Energy Market Authority (EMA)

Table 3.5 AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PLANNING AREA & DWELLING TYPE (ANNUAL) (CONTINUED)

Unit: kWh

	5-Room/Executive					
	2005	2010	2012	2013	2014	2015
Overall	**473.3**	**482.4**	**465.0**	**468.8**	**468.9**	**477.9**
Central Region	**477.2**	**476.1**	**454.3**	**457.5**	**460.4**	**466.2**
Bishan	508.7	506.8	475.0	474.6	476.2	483.0
Bukit Merah	438.4	457.1	439.9	445.5	446.3	450.3
Bukit Timah	492.2	481.1	460.4	463.5	461.7	462.9
Geylang	504.4	499.2	484.1	489.2	495.2	499.2
Kallang	467.6	472.8	447.5	455.0	457.9	468.3
Marine Parade	443.5	438.9	428.4	436.4	428.5	431.3
Novena	493.3	495.6	478.6	484.0	484.2	493.7
Outram	653.0	276.1	424.0	441.9	449.5	465.6
Queenstown	458.5	460.0	444.5	442.5	448.9	449.5
Rochor	490.1	494.1	498.2	487.7	491.1	505.5
Tanglin	512.8	492.8	468.9	451.8	438.8	446.5
Toa Payoh	489.3	486.3	442.4	443.7	450.1	458.7
East Region	**522.7**	**519.2**	**500.4**	**504.0**	**504.9**	**511.1**
Bedok	495.4	491.1	469.7	471.4	472.5	484.1
Pasir Ris	533.6	533.9	518.0	521.9	524.3	528.0
Tampines	530.5	524.4	505.1	509.6	509.2	513.9
North East Region	**451.3**	**475.3**	**454.7**	**459.8**	**457.0**	**457.9**
Ang Mo Kio	460.1	459.4	432.3	437.8	443.1	452.3
Hougang	502.3	510.1	489.9	493.4	491.4	493.5
Punggol	399.5	454.6	427.9	435.6	435.4	428.7
Sengkang	423.7	456.6	441.3	447.0	440.8	442.8
Serangoon	512.4	518.3	499.4	502.3	501.3	511.9
North Region	**462.2**	**482.8**	**470.8**	**476.1**	**471.5**	**485.8**
Sembawang	413.9	451.1	441.3	448.1	448.0	465.2
Woodlands	465.9	485.8	474.6	476.3	479.9	492.9
Yishun	499.9	508.4	492.3	505.3	474.2	488.9
West Region	**461.3**	**466.6**	**451.9**	**454.6**	**457.2**	**464.4**
Bukit Batok	480.1	481.7	465.8	465.0	467.5	481.9
Bukit Panjang	429.9	445.6	431.3	434.8	435.1	434.1
Choa Chu Kang	462.3	471.1	457.2	459.9	462.9	466.2
Clementi	478.7	469.9	437.6	447.2	448.6	448.8
Jurong East	469.7	459.5	440.3	444.2	446.7	454.2
Jurong West	466.6	470.9	459.3	461.6	465.2	478.1

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

Source: Energy Market Authority (EMA)

Notation:
- nil, negligible or not applicable.

Table 3.6 MARKET SHARE FOR NATURAL GAS RETAIL[1]

Unit: Percent (%)

	2010	2011	2012	2013	2014	2015
SembCorp Gas	50.7	51.2	49.3	50.1	46.2	42.8
Pavilion Gas	-	-	-	-	2.2	34.6
City-OG Gas Energy Services	-	-	-	5.5	12.6	13.5
City Gas	18.6	21.1	21.7	17.0	9.2	9.0
Keppel Gas	-	-	-	-	-	0.0
Gas Supply	30.7	27.6	29.0	27.4	29.7	-

Source: Energy Market Authority (EMA)

[1] Natural Gas Retail Sales by Gas Retailers at distribution network level (< 10bar).

Notes:
a. Figures may not add up to total due to rounding.
b. All Gas Supply Pte Ltd (GSPL)'s gas retail contracts have been novated and transferred to Pavilion Gas Pte Ltd on 1 Nov 2014. GSPL's gas retailer licence was terminated with effect from 18 Mar 2015.

Notation:
- nil, negligible or not applicable.

Table 3.7 NATURAL GAS CONSUMPTION BY SUB-SECTOR

Unit: TJ

	2010	2011	2012	2013	2014	2015
Overall	**51,876.2**	**54,438.1**	**52,566.1**	**60,353.3**	**59,514.6**	**57,748.1**
Industrial-related	**45,293.3**	**47,400.5**	**45,728.0**	**53,263.1**	**52,585.0**	**50,738.6**
Manufacturing	44,737.7	46,833.4	45,221.4	52,526.4	52,141.8	50,395.0
Construction	171.8	163.9	143.4	317.8	278.7	259.9
Utilities	383.8	403.2	363.0	418.7	164.2	82.4
Other Industrial-related	-	-	0.1	0.3	0.4	1.3
Commerce & Services-related	**3,323.6**	**3,493.2**	**3,496.3**	**3,807.5**	**3,623.9**	**3,753.8**
Wholesale & Retail Trade	123.3	125.9	123.9	185.5	202.6	310.7
Accommodation & Food Services	2,202.6	2,337.9	2,349.2	2,379.3	2,362.6	2,395.1
Information & Communications	0.3	0.2	0.1	0.4	0.4	0.6
Financial & Insurance Activities	298.9	300.6	292.7	296.1	287.0	270.8
Real Estate Activities	79.5	79.3	83.0	262.7	69.9	68.5
Professional, Scientific & Technical, Administration & Support Activities	106.5	93.9	106.5	134.9	130.5	148.5
Other Commerce & Services-related	512.6	555.5	540.9	548.7	570.9	559.6
Transport-related	**968.0**	**1,202.0**	**927.7**	**841.7**	**806.1**	**665.2**
Households	**2,257.2**	**2,309.1**	**2,382.1**	**2,409.1**	**2,464.6**	**2,508.0**
Others	**34.1**	**33.1**	**32.0**	**31.9**	**35.0**	**82.5**

Source: Energy Market Authority (EMA)

Note:
a. Figures may not add up to total due to rounding.

Notation:
- nil, negligible or not applicable.

Table 3.8 TOTAL HOUSEHOLD TOWN GAS CONSUMPTION BY DWELLING TYPE

Unit: GWh

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2005
Overall	48.6	48.1	48.2	49.0	47.3	47.5	46.4	48.3	48.9	48.2	49.2	46.4	576.1	Overall
Public Housing	41.1	40.5	40.8	41.4	39.9	40.1	39.3	40.7	41.0	40.4	41.4	39.0	485.6	Public Housing
1-Room/2-Room	1.1	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.3	1-Room/2-Room
3-Room	6.6	6.5	6.5	6.6	6.2	6.3	6.1	6.4	6.3	6.2	6.3	6.0	76.0	3-Room
4-Room	16.0	15.8	15.9	16.1	15.6	15.7	15.4	15.9	16.1	15.8	16.3	15.3	189.7	4-Room
5-Room & Executive	17.4	17.2	17.5	17.7	17.1	17.1	16.8	17.4	17.6	17.4	17.7	16.6	207.6	5-Room & Executive
Private Housing	6.9	6.9	6.8	7.0	6.8	6.9	6.6	7.1	7.3	7.2	7.3	6.8	83.6	Private Housing
Private Apartments & Condominiums	5.9	6.0	5.9	6.1	5.9	5.9	5.7	6.1	6.4	6.2	6.4	6.0	72.4	Private Apartments & Condominiums
Landed Properties	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	1.0	0.9	0.9	0.9	11.2	Landed Properties
Others	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	6.9	Others
2010	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2010**
Overall	51.6	51.8	52.0	53.2	51.1	51.3	50.6	53.1	54.6	53.4	53.6	50.7	627.0	Overall
Public Housing	40.9	41.1	41.4	42.5	40.5	40.8	40.3	42.2	43.2	42.4	42.2	40.0	497.5	Public Housing
1-Room/2-Room	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.0	12.4	1-Room/2-Room
3-Room	6.1	6.0	6.0	6.2	5.9	6.0	5.8	6.1	6.2	6.1	6.0	5.8	72.2	3-Room
4-Room	16.2	16.3	16.3	16.8	16.0	16.2	16.0	16.7	17.2	16.8	16.7	15.9	197.2	4-Room
5-Room & Executive	17.5	17.8	18.0	18.5	17.5	17.7	17.5	18.3	18.8	18.4	18.4	17.3	215.7	5-Room & Executive
Private Housing	9.5	9.5	9.5	9.6	9.4	9.3	9.1	9.7	10.1	9.9	10.1	9.5	115.1	Private Housing
Private Apartments & Condominiums	8.6	8.6	8.5	8.6	8.4	8.4	8.2	8.8	9.2	8.9	9.1	8.6	103.9	Private Apartments & Condominiums
Landed Properties	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9	1.0	0.9	1.0	0.9	11.3	Landed Properties
Others	1.3	1.2	1.1	1.1	1.2	1.1	1.2	1.2	1.2	1.1	1.3	1.2	14.3	Others
2012	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2012**
Overall	53.5	55.4	55.5	55.9	54.0	54.6	52.6	56.3	58.5	55.8	56.2	53.2	661.7	Overall
Public Housing	41.6	43.0	43.1	43.4	41.8	42.6	41.2	44.0	45.7	43.3	43.3	41.1	514.2	Public Housing
1-Room/2-Room	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1	1.1	13.0	1-Room/2-Room
3-Room	6.1	6.1	6.1	6.2	5.9	6.0	5.8	6.3	6.4	6.0	6.0	5.8	72.8	3-Room
4-Room	16.6	17.2	17.2	17.4	16.8	17.2	16.6	17.7	18.5	17.5	17.5	16.6	206.8	4-Room
5-Room & Executive	17.8	18.5	18.7	18.8	18.1	18.4	17.7	19.0	19.7	18.7	18.7	17.6	221.6	5-Room & Executive
Private Housing	10.7	11.2	11.2	11.3	10.9	10.8	10.2	11.1	11.5	11.3	11.6	10.9	132.6	Private Housing
Private Apartments & Condominiums	9.8	10.2	10.2	10.4	10.0	9.9	9.3	10.1	10.6	10.4	10.6	10.0	121.5	Private Apartments & Condominiums
Landed Properties	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	0.9	11.1	Landed Properties
Others	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.2	1.3	1.2	14.9	Others

Note:
a. Figures may not add up to total due to rounding.

Source: Energy Market Authority (EMA)

Table **3.8** TOTAL HOUSEHOLD TOWN GAS CONSUMPTION BY DWELLING TYPE (CONTINUED)

Unit: **GWh**

2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2013
Overall	**54.0**	**54.9**	**55.3**	**56.8**	**53.6**	**56.4**	**54.6**	**57.5**	**57.4**	**56.2**	**57.3**	**55.1**	**669.2**	**Overall**
Public Housing	**41.7**	**42.2**	**42.4**	**43.9**	**41.5**	**43.7**	**42.6**	**44.8**	**44.3**	**42.9**	**43.8**	**42.0**	**515.7**	**Public Housing**
1-Room/2-Room	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.1	1.2	1.2	13.6	1-Room/2-Room
3-Room	5.9	5.9	5.9	6.2	5.8	6.1	6.0	6.3	6.2	6.0	6.1	6.0	72.4	3-Room
4-Room	16.9	17.1	17.1	17.7	16.8	17.8	17.3	18.2	17.9	17.4	17.8	17.1	209.0	4-Room
5-Room & Executive	17.8	18.1	18.3	18.9	17.8	18.6	18.2	19.2	19.0	18.4	18.7	17.8	220.7	5-Room & Executive
Private Housing	**11.1**	**11.5**	**11.7**	**11.8**	**11.0**	**11.5**	**10.8**	**11.4**	**11.9**	**12.1**	**12.3**	**11.8**	**138.9**	**Private Housing**
Private Apartments & Condominiums	10.2	10.6	10.8	10.9	10.1	10.5	9.9	10.5	11.0	11.2	11.3	10.9	127.9	Private Apartments & Condominiums
Landed Properties	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	11.0	Landed Properties
Others	**1.2**	**1.2**	**1.2**	**1.1**	**1.2**	**1.2**	**1.2**	**1.3**	**1.3**	**1.1**	**1.3**	**1.2**	**14.6**	**Others**
2014	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2014**
Overall	**56.2**	**58.8**	**57.8**	**57.6**	**55.2**	**57.3**	**55.2**	**58.3**	**58.5**	**57.3**	**57.0**	**55.4**	**684.6**	**Overall**
Public Housing	**42.7**	**44.8**	**43.9**	**43.9**	**42.1**	**44.0**	**42.5**	**44.9**	**44.7**	**43.2**	**43.2**	**41.9**	**521.9**	**Public Housing**
1-Room/2-Room	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	14.7	1-Room/2-Room
3-Room	6.1	6.3	6.2	6.2	6.0	6.2	6.0	6.4	6.2	6.1	6.1	5.9	73.5	3-Room
4-Room	17.5	18.2	17.7	17.8	17.1	17.9	17.3	18.3	18.2	17.6	17.6	17.1	212.4	4-Room
5-Room & Executive	18.0	19.1	18.8	18.7	17.8	18.7	17.9	19.0	19.1	18.3	18.3	17.6	221.2	5-Room & Executive
Private Housing	**12.2**	**12.7**	**12.6**	**12.6**	**12.0**	**12.1**	**11.6**	**12.1**	**12.6**	**12.9**	**12.6**	**12.4**	**148.4**	**Private Housing**
Private Apartments & Condominiums	11.3	11.7	11.7	11.6	11.0	11.2	10.7	11.2	11.7	12.0	11.6	11.5	137.1	Private Apartments & Condominiums
Landed Properties	0.9	1.0	0.9	1.0	0.9	0.9	0.9	0.9	1.0	0.9	0.9	0.9	11.3	Landed Properties
Others	**1.2**	**1.3**	**1.3**	**1.1**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**	**14.3**	**Others**
2015	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2015**
Overall	**57.3**	**58.6**	**60.3**	**60.7**	**55.5**	**56.0**	**56.4**	**58.8**	**58.9**	**58.4**	**57.9**	**57.9**	**696.7**	**Overall**
Public Housing	**42.9**	**43.9**	**45.0**	**46.5**	**42.4**	**42.9**	**43.7**	**46.1**	**45.6**	**44.8**	**44.2**	**44.4**	**532.3**	**Public Housing**
1-Room/2-Room	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.5	1.4	1.4	1.4	1.4	16.5	1-Room/2-Room
3-Room	6.0	6.1	6.3	6.5	6.0	6.0	6.2	6.4	6.4	6.2	6.1	6.2	74.5	3-Room
4-Room	17.6	17.9	18.3	18.9	17.3	17.6	17.9	18.9	18.6	18.3	18.1	18.3	217.8	4-Room
5-Room & Executive	17.9	18.5	19.1	19.6	17.7	18.0	18.2	19.4	19.2	18.8	18.6	18.4	223.4	5-Room & Executive
Private Housing	**13.2**	**13.5**	**14.1**	**14.1**	**12.9**	**12.9**	**12.6**	**12.5**	**13.2**	**13.5**	**13.6**	**13.4**	**159.5**	**Private Housing**
Private Apartments & Condominiums	12.3	12.6	13.1	13.1	12.0	12.0	11.6	11.6	12.2	12.5	12.6	12.5	148.1	Private Apartments & Condominiums
Landed Properties	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	11.4	Landed Properties
Others	**1.2**	**1.2**	**1.3**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**4.9**	**Others**

Note:
a. Figures may not add up to total due to rounding.

Source: Energy Market Authority (EMA)

Table 3.9 AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY DWELLING TYPE

Unit: **kWh**

2005	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2005
Overall	**90.1**	**88.9**	**88.9**	**90.2**	**86.8**	**87.0**	**84.8**	**88.1**	**88.9**	**87.5**	**89.1**	**83.7**	**87.8**	**Overall**
Public Housing	**89.4**	**88.0**	**88.7**	**89.9**	**86.4**	**86.6**	**84.8**	**87.6**	**88.3**	**86.9**	**88.8**	**83.5**	**87.4**	**Public Housing**
1-Room/2-Room	66.9	64.5	62.3	64.5	62.1	61.9	60.2	62.1	61.8	60.6	62.1	61.3	62.5	1-Room/2-Room
3-Room	82.2	81.0	81.1	82.3	77.9	78.7	77.1	79.9	79.8	78.8	79.6	76.1	79.5	3-Room
4-Room	93.6	92.0	92.5	93.9	90.4	90.8	89.0	91.7	92.4	90.9	93.4	87.6	91.5	4-Room
5-Room & Executive	90.5	89.3	90.6	91.6	88.3	88.4	86.3	89.3	90.3	88.9	90.6	84.6	89.1	5-Room & Executive
Private Housing	**87.5**	**87.9**	**85.3**	**87.2**	**84.0**	**84.1**	**80.2**	**85.1**	**87.4**	**85.3**	**85.9**	**79.7**	**84.9**	**Private Housing**
Private Apartments & Condominiums	82.3	82.8	80.0	82.0	79.0	79.0	75.3	80.0	82.5	80.4	81.2	75.4	80.0	Private Apartments & Condominiums
Landed Properties	144.1	144.5	144.1	144.9	140.8	142.3	137.3	143.9	144.4	142.1	140.7	131.8	141.8	Landed Properties
2010	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2010**
Overall	**85.0**	**85.3**	**85.2**	**87.0**	**83.7**	**83.7**	**82.3**	**86.4**	**88.9**	**86.7**	**87.1**	**81.7**	**85.3**	**Overall**
Public Housing	**82.7**	**83.2**	**83.3**	**85.5**	**81.7**	**82.0**	**80.8**	**84.6**	**86.8**	**84.9**	**84.7**	**79.8**	**83.3**	**Public Housing**
1-Room/2-Room	60.8	59.5	57.3	58.2	57.9	56.5	55.6	59.4	59.3	61.4	59.6	56.2	58.5	1-Room/2-Room
3-Room	74.2	73.9	73.1	75.2	72.6	72.5	70.9	74.3	75.1	73.7	73.0	69.7	73.2	3-Room
4-Room	86.2	86.2	86.3	88.6	84.6	84.9	84.0	87.6	90.1	87.9	87.7	82.8	86.4	4-Room
5-Room & Executive	84.6	86.0	86.9	89.0	84.6	85.3	83.9	88.0	90.8	88.7	88.8	83.1	86.6	5-Room & Executive
Private Housing	**86.0**	**86.5**	**85.4**	**85.6**	**84.1**	**83.1**	**80.2**	**85.6**	**89.0**	**86.5**	**88.2**	**82.2**	**85.2**	**Private Housing**
Private Apartments & Condominiums	82.9	83.2	81.7	82.0	80.7	79.8	76.9	82.5	85.7	83.3	84.9	79.3	81.9	Private Apartments & Condominiums
Landed Properties	132.7	136.2	140.6	139.6	136.1	132.0	129.8	133.3	139.5	134.5	139.2	125.9	134.9	Landed Properties
2012	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2012**
Overall	**84.2**	**86.8**	**86.5**	**87.0**	**83.9**	**84.7**	**81.4**	**86.9**	**90.1**	**85.7**	**86.1**	**81.3**	**85.4**	**Overall**
Public Housing	**81.1**	**83.7**	**83.4**	**84.0**	**80.8**	**82.2**	**79.3**	**84.6**	**87.6**	**82.8**	**82.9**	**78.4**	**82.6**	**Public Housing**
1-Room/2-Room	59.7	58.2	56.4	58.1	56.3	56.6	53.7	57.4	59.4	56.7	57.5	55.2	57.1	1-Room/2-Room
3-Room	71.8	72.7	71.7	72.5	69.2	71.1	68.5	73.7	74.6	70.4	70.7	67.9	71.2	3-Room
4-Room	83.5	86.1	85.7	86.1	83.1	84.5	81.6	86.7	90.1	85.0	84.9	80.5	84.8	4-Room
5-Room & Executive	84.6	88.0	88.4	88.8	85.6	86.7	83.7	89.4	93.0	88.0	88.1	82.6	87.2	5-Room & Executive
Private Housing	**88.5**	**91.9**	**91.3**	**92.0**	**88.7**	**87.0**	**81.7**	**88.5**	**91.7**	**90.0**	**91.4**	**85.5**	**89.0**	**Private Housing**
Private Apartments & Condominiums	85.9	89.2	88.6	89.4	86.1	84.4	79.0	85.9	89.2	87.5	88.7	83.0	86.4	Private Apartments & Condominiums
Landed Properties	131.8	136.6	136.1	135.2	131.6	129.6	126.3	132.8	133.9	131.8	137.5	127.7	132.5	Landed Properties

Note:
a. Figures may not add up to total due to rounding.

Source: Energy Market Authority (EMA)

Table 3.9 AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY DWELLING TYPE (CONTINUED)

Unit: kWh

2013	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	2013
Overall	**82.2**	**83.9**	**84.0**	**85.9**	**81.7**	**85.2**	**82.0**	**86.5**	**86.2**	**84.0**	**85.5**	**81.9**	**84.1**	**Overall**
Public Housing	**79.1**	**80.3**	**80.4**	**83.0**	**79.1**	**82.6**	**80.2**	**84.4**	**83.2**	**80.5**	**81.9**	**78.6**	**81.1**	**Public Housing**
1-Room/2-Room	57.4	56.4	54.8	55.5	54.4	55.8	54.4	58.2	57.7	55.0	56.3	55.6	56.0	1-Room/2-Room
3-Room	68.4	68.9	68.6	71.1	67.6	70.4	68.3	71.7	70.5	68.7	69.3	67.7	69.3	3-Room
4-Room	81.4	82.5	82.2	85.2	81.5	85.3	82.4	86.8	85.4	82.3	84.0	80.4	83.3	4-Room
5-Room & Executive	83.2	85.0	85.7	88.4	83.9	87.5	85.4	89.7	88.8	85.9	87.4	83.4	86.2	5-Room & Executive
Private Housing	**86.9**	**90.4**	**91.0**	**90.8**	**84.7**	**87.9**	**82.0**	**86.7**	**90.2**	**91.3**	**92.1**	**88.2**	**88.5**	**Private Housing**
Private Apartments & Condominiums	84.5	88.2	88.6	88.5	82.2	85.4	79.4	84.2	87.8	88.9	89.7	85.9	86.1	Private Apartments & Condominiums
Landed Properties	127.6	128.4	132.2	131.9	127.1	131.4	127.4	129.9	132.9	133.6	136.2	130.6	130.8	Landed Properties
2014	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2014**
Overall	**83.5**	**87.2**	**85.1**	**84.5**	**80.8**	**83.4**	**80.2**	**84.2**	**84.3**	**82.1**	**81.4**	**78.7**	**82.9**	**Overall**
Public Housing	**79.7**	**83.6**	**81.4**	**81.2**	**77.6**	**80.8**	**78.1**	**82.2**	**81.6**	**78.4**	**78.3**	**75.6**	**79.9**	**Public Housing**
1-Room/2-Room	57.0	58.8	53.8	53.9	53.4	53.3	53.0	55.8	54.9	52.8	54.5	52.5	54.4	1-Room/2-Room
3-Room	68.5	71.2	69.5	69.0	67.0	68.5	67.2	70.2	68.3	66.5	66.5	64.8	68.1	3-Room
4-Room	82.2	85.6	83.0	83.1	79.5	82.9	80.2	84.1	83.4	80.2	79.9	77.4	81.8	4-Room
5-Room & Executive	84.2	89.1	87.5	87.0	82.7	86.8	83.2	87.9	88.2	84.4	84.2	80.8	85.5	5-Room & Executive
Private Housing	**90.7**	**94.0**	**92.4**	**91.1**	**86.1**	**86.1**	**81.7**	**85.2**	**88.3**	**89.5**	**86.7**	**84.5**	**88.0**	**Private Housing**
Private Apartments & Condominiums	88.5	91.6	90.0	88.6	83.5	83.7	79.2	82.8	85.9	87.2	84.4	82.3	85.6	Private Apartments & Condominiums
Landed Properties	132.1	138.3	136.0	137.6	133.9	129.6	129.1	131.4	134.8	133.7	132.3	127.6	133.0	Landed Properties
2015	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**2015**
Overall	**81.0**	**82.9**	**84.6**	**85.0**	**77.5**	**77.8**	**78.0**	**81.1**	**81.2**	**79.9**	**80.4**	**78.7**	**80.7**	**Overall**
Public Housing	**77.0**	**78.9**	**80.1**	**82.6**	**75.2**	**75.8**	**76.9**	**80.9**	**79.9**	**78.0**	**78.6**	**77.1**	**78.4**	**Public Housing**
1-Room/2-Room	55.4	55.6	54.4	55.6	52.2	52.2	52.9	56.6	54.7	53.0	54.9	54.6	54.3	1-Room/2-Room
3-Room	65.6	66.2	67.3	69.7	64.6	64.5	65.6	68.0	67.3	65.7	65.8	65.5	66.3	3-Room
4-Room	79.2	80.7	81.5	84.2	76.9	77.5	78.8	82.6	81.4	79.6	80.2	78.9	80.1	4-Room
5-Room & Executive	82.0	84.9	87.1	89.5	80.7	81.7	82.5	87.5	86.7	84.6	85.1	82.8	84.6	5-Room & Executive
Private Housing	**89.4**	**91.8**	**94.3**	**93.1**	**85.3**	**84.4**	**81.3**	**81.3**	**85.2**	**86.0**	**86.6**	**84.5**	**86.9**	**Private Housing**
Private Apartments & Condominiums	87.3	89.7	92.3	90.8	83.1	82.1	79.0	79.0	82.9	83.7	84.2	82.2	84.6	Private Apartments & Condominiums
Landed Properties	131.8	133.7	134.8	139.5	130.0	130.8	128.4	127.0	133.5	133.4	136.6	131.9	132.6	Landed Properties

Note:
a. Figures may not add up to total due to rounding.

Source: Energy Market Authority (EMA)

Table 3.10 AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY PLANNING AREA & DWELLING TYPE (ANNUAL)

Unit: **kWh**

	Overall Public Housing					
	2005	2010	2012	2013	2014	2015
Overall	**87.4**	**83.3**	**82.6**	**81.1**	**79.9**	**78.4**
Central Region	**87.8**	**80.1**	**79.2**	**78.1**	**77.2**	**75.6**
Bishan	86.5	79.9	80.8	80.3	79.3	78.3
Bukit Merah	89.0	79.3	76.9	75.8	75.1	73.2
Bukit Timah	93.6	88.3	86.8	85.8	84.4	81.2
Downtown	101.7	86.3	81.1	81.5	79.5	76.3
Geylang	93.4	85.5	83.5	81.0	80.2	78.0
Kallang	89.9	82.5	83.2	82.0	81.0	79.9
Marine Parade	75.5	72.9	72.3	71.5	68.2	66.8
Novena	89.0	82.9	82.1	80.7	79.9	78.9
Outram	85.0	68.0	69.5	68.7	67.5	66.4
Queenstown	79.9	73.6	72.7	70.8	70.0	68.5
Rochor	99.4	88.4	87.3	85.4	86.6	85.9
Tanglin	96.3	92.2	92.6	86.8	87.1	82.3
Toa Payoh	83.0	76.7	76.4	77.1	76.3	74.8
East Region	**90.7**	**85.7**	**84.4**	**82.7**	**81.5**	**79.8**
Bedok	90.2	84.9	83.1	81.2	79.9	78.8
Pasir Ris	90.0	85.5	85.1	83.6	82.6	80.2
Tampines	90.7	86.0	84.6	83.0	81.4	79.5
North East Region	**82.4**	**80.3**	**79.8**	**78.1**	**76.8**	**75.3**
Ang Mo Kio	83.9	78.4	78.1	77.3	76.1	74.5
Hougang	90.9	86.9	86.6	84.0	82.3	80.1
Punggol	61.6	70.5	69.4	69.2	69.7	69.1
Sengkang	82.6	81.3	82.0	80.1	77.8	76.1
Serangoon	92.7	87.1	85.5	84.3	82.3	81.7
North Region	**88.1**	**88.8**	**89.0**	**87.6**	**85.1**	**84.3**
Sembawang	84.4	85.0	86.7	85.7	83.8	83.2
Woodlands	88.7	91.5	92.0	89.4	87.6	86.5
Yishun	91.1	86.1	83.5	84.2	79.6	79.7
West Region	**89.9**	**86.6**	**86.0**	**84.6**	**83.7**	**82.3**
Bukit Batok	86.1	82.5	82.1	79.8	78.8	78.1
Bukit Panjang	87.8	84.5	83.6	82.3	80.9	78.4
Choa Chu Kang	92.4	88.6	88.3	86.9	85.6	83.6
Clementi	82.8	76.7	74.6	74.0	72.9	71.6
Jurong East	93.0	88.9	86.9	85.3	85.8	84.5
Jurong West	92.0	90.5	90.7	89.1	88.4	88.1

	1-Room/2-Room					
	2005	2010	2012	2013	2014	2015
Overall	**62.5**	**58.5**	**57.1**	**56.0**	**54.4**	**54.3**
Central Region	**63.1**	**58.1**	**56.9**	**55.7**	**54.5**	**53.1**
Bishan	53.1	49.3	55.5	56.0	53.8	50.6
Bukit Merah	63.5	59.0	56.9	56.3	55.7	53.8
Bukit Timah	-	-	-	-	-	-
Downtown	-	-	-	-	-	-
Geylang	68.3	61.9	61.1	59.7	57.3	56.9
Kallang	59.0	53.8	51.9	51.3	50.3	48.7
Marine Parade	70.5	65.2	64.8	63.5	61.2	58.8
Novena	65.6	63.4	62.9	61.3	61.2	61.7
Outram	65.6	57.8	54.5	54.0	51.5	51.1
Queenstown	60.9	57.0	55.9	54.4	53.7	52.7
Rochor	66.3	57.9	66.4	56.9	55.7	62.0
Tanglin	-	-	-	-	-	-
Toa Payoh	61.2	56.1	57.0	54.0	52.8	51.0
East Region	**59.9**	**59.5**	**57.4**	**54.7**	**52.2**	**53.4**
Bedok	59.0	59.5	56.4	53.5	51.8	51.0
Pasir Ris	50.8	47.0	101.8	100.7	50.1	58.6
Tampines	67.0	60.3	61.1	59.5	54.0	56.6
North East Region	**60.5**	**59.4**	**57.0**	**55.9**	**54.2**	**55.1**
Ang Mo Kio	60.2	60.1	58.6	57.7	54.6	54.6
Hougang	64.5	64.4	62.3	63.3	68.4	67.4
Punggol	-	s	46.2	51.5	54.3	54.1
Sengkang	-	42.6	47.8	45.5	46.0	50.8
Serangoon	60.4	57.6	53.6	58.8	53.7	52.8
North Region	**52.8**	**52.8**	**52.8**	**63.7**	**57.2**	**59.0**
Sembawang	-	-	-	s	45.5	46.7
Woodlands	-	-	46.6	69.7	64.1	61.9
Yishun	52.8	52.8	54.3	57.6	53.2	58.8
West Region	**65.0**	**63.2**	**61.2**	**58.3**	**55.1**	**57.9**
Bukit Batok	-	-	-	-	47.2	54.8
Bukit Panjang	-	-	34.3	56.0	47.7	58.9
Choa Chu Kang	74.4	90.8	63.9	59.0	56.5	56.3
Clementi	63.2	59.5	55.9	52.6	53.4	55.4
Jurong East	65.4	59.0	58.0	58.4	57.1	52.0
Jurong West	65.3	63.5	66.8	62.1	57.1	61.7

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

Notations:
- nil, negligible or not applicable. *"s" - Suppressed to avoid disclosure of individual data.*

Source: Energy Market Authority (EMA)

Table 3.10 AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY PLANNING AREA & DWELLING TYPE (ANNUAL) (CONTINUED)

Unit: **kWh**

	3-Room					
	2005	2010	2012	2013	2014	2015
Overall	**79.5**	**73.2**	**71.2**	**69.3**	**68.1**	**66.3**
Central Region	**82.6**	**74.5**	**72.2**	**70.1**	**69.1**	**67.2**
Bishan	69.2	64.0	61.5	59.1	59.3	56.5
Bukit Merah	88.1	77.4	73.7	71.9	70.7	67.5
Bukit Timah	73.1	59.9	60.2	61.8	58.4	56.3
Downtown	94.8	82.9	77.1	76.8	75.6	74.4
Geylang	88.9	81.4	77.8	74.8	73.7	71.7
Kallang	91.5	81.7	79.8	77.4	76.6	74.8
Marine Parade	59.7	59.4	58.1	57.1	55.2	54.4
Novena	84.9	79.9	78.4	77.0	75.9	75.5
Outram	90.5	77.9	73.8	71.0	69.6	67.9
Queenstown	75.0	67.5	65.7	63.1	62.1	60.5
Rochor	91.3	81.1	78.1	77.4	79.2	79.7
Tanglin	86.5	91.1	86.0	78.6	79.3	79.7
Toa Payoh	75.9	69.9	69.7	67.6	66.6	65.2
East Region	**78.5**	**73.6**	**72.2**	**71.2**	**69.6**	**67.5**
Bedok	78.9	74.0	72.5	71.4	70.1	68.2
Pasir Ris	-	-	-	-	s	53.9
Tampines	69.7	66.5	65.9	66.9	62.7	62.1
North East Region	**75.4**	**70.6**	**68.9**	**66.7**	**65.7**	**63.9**
Ang Mo Kio	74.8	70.5	69.4	68.1	66.7	65.3
Hougang	83.8	78.6	78.3	73.8	73.1	69.0
Punggol	-	s	49.9	51.1	56.6	56.4
Sengkang	-	54.0	58.7	56.0	59.5	58.7
Serangoon	80.2	73.7	71.6	67.7	65.4	63.7
North Region	**63.6**	**63.7**	**63.4**	**61.6**	**59.8**	**62.2**
Sembawang	-	-	-	26.0	56.3	56.1
Woodlands	76.6	72.7	66.7	57.6	57.3	60.6
Yishun	62.2	62.7	63.0	62.9	61.1	63.5
West Region	**75.2**	**72.0**	**70.7**	**69.1**	**68.1**	**66.7**
Bukit Batok	-	-	-	-	-	-
Bukit Panjang	69.7	69.1	67.6	66.0	64.8	62.9
Choa Chu Kang	80.8	79.8	78.4	76.3	72.9	67.8
Clementi	70.9	67.6	66.2	65.2	64.4	63.1
Jurong East	79.4	77.1	74.3	72.3	72.7	71.4
Jurong West	89.9	84.3	82.3	78.3	76.1	74.9

	4-Room					
	2005	2010	2012	2013	2014	2015
Overall	**91.5**	**86.4**	**84.8**	**83.3**	**81.8**	**80.1**
Central Region	**92.9**	**83.3**	**82.1**	**81.2**	**80.3**	**78.7**
Bishan	83.9	78.4	78.8	78.7	77.2	75.7
Bukit Merah	96.0	82.2	80.3	79.6	79.1	77.8
Bukit Timah	90.7	87.8	84.9	85.2	84.4	82.4
Downtown	109.7	90.6	86.5	87.4	83.9	78.3
Geylang	101.8	91.9	90.5	88.0	87.0	84.4
Kallang	95.1	88.9	87.5	87.0	86.0	85.4
Marine Parade	81.0	76.2	76.2	76.0	71.5	69.6
Novena	89.9	82.3	82.4	80.1	79.3	77.4
Outram	95.7	63.6	70.0	70.0	69.9	69.5
Queenstown	90.2	80.9	79.6	77.9	77.0	75.2
Rochor	108.2	97.6	97.4	94.4	94.9	90.9
Tanglin	69.5	72.4	85.3	79.5	78.1	65.8
Toa Payoh	91.3	83.5	81.3	81.2	80.1	78.9
East Region	**92.8**	**87.2**	**86.1**	**84.3**	**83.1**	**80.9**
Bedok	99.2	91.4	90.0	87.6	86.3	84.8
Pasir Ris	87.1	82.2	82.4	81.1	80.2	77.6
Tampines	90.7	86.5	84.7	83.0	81.7	79.4
North East Region	**89.4**	**83.3**	**80.5**	**78.5**	**76.9**	**75.3**
Ang Mo Kio	99.1	90.4	89.2	88.2	87.2	85.7
Hougang	90.4	87.2	86.8	84.2	82.3	80.3
Punggol	68.7	71.5	65.6	65.8	66.2	66.1
Sengkang	87.3	81.1	80.0	78.0	75.7	73.8
Serangoon	93.0	86.7	85.4	84.2	82.2	81.1
North Region	**88.2**	**89.1**	**88.5**	**87.4**	**84.3**	**83.5**
Sembawang	86.0	86.4	87.9	86.5	83.2	82.6
Woodlands	88.3	91.0	91.1	89.0	87.1	85.9
Yishun	90.3	87.0	82.1	84.1	79.3	79.7
West Region	**92.8**	**89.7**	**88.5**	**87.1**	**85.9**	**84.1**
Bukit Batok	83.7	80.3	79.8	77.6	76.9	76.5
Bukit Panjang	90.1	87.4	85.1	83.7	81.9	78.7
Choa Chu Kang	92.3	88.9	88.6	87.4	86.1	84.5
Clementi	93.9	84.4	80.6	79.6	78.3	76.5
Jurong East	96.8	92.2	90.2	89.6	89.9	88.0
Jurong West	95.7	95.2	95.1	93.3	92.2	91.1

Source: Energy Market Authority (EMA)

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

Notations:
- nil, negligible or not applicable. *"s" - Suppressed to avoid disclosure of individual data.*

Table 3.10 AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY PLANNING AREA & DWELLING TYPE (ANNUAL) (CONTINUED)

Unit: kWh

	5-Room/Executive					
	2005	2010	2012	2013	2014	2015
Overall	**89.1**	**86.6**	**87.2**	**86.2**	**85.5**	**84.6**
Central Region	**95.3**	**88.3**	**89.1**	**89.0**	**88.4**	**87.1**
Bishan	91.8	84.2	86.1	85.4	84.9	84.6
Bukit Merah	95.2	88.1	86.7	85.3	84.9	83.4
Bukit Timah	100.8	96.2	95.2	92.7	91.3	87.6
Downtown	-	-	-	-	-	-
Geylang	101.5	94.5	93.2	91.4	92.0	89.3
Kallang	97.6	91.0	98.1	97.7	96.4	96.0
Marine Parade	91.4	89.9	89.7	88.9	84.8	83.3
Novena	100.6	93.3	92.4	92.0	91.7	90.3
Outram	149.0	69.9	82.8	84.5	83.0	80.1
Queenstown	91.2	87.1	87.3	86.1	85.2	83.7
Rochor	133.5	98.9	100.3	100.9	103.2	107.3
Tanglin	115.9	105.8	98.5	93.0	94.3	93.7
Toa Payoh	94.0	85.9	86.7	92.2	91.9	90.2
East Region	**92.8**	**88.3**	**87.1**	**85.4**	**84.4**	**83.5**
Bedok	95.9	92.1	90.0	87.9	86.9	87.1
Pasir Ris	91.7	87.4	86.7	85.0	84.3	82.5
Tampines	91.8	86.6	85.5	84.0	82.8	82.0
North East Region	**79.7**	**81.1**	**83.2**	**82.6**	**81.6**	**80.6**
Ang Mo Kio	91.6	85.1	87.9	88.2	88.0	85.6
Hougang	92.5	87.7	87.7	85.8	84.2	82.5
Punggol	59.2	70.0	73.3	74.3	75.5	75.3
Sengkang	79.7	82.1	84.9	83.9	82.2	81.1
Serangoon	94.3	89.2	87.7	86.6	84.7	84.7
North Region	**89.1**	**89.6**	**90.8**	**89.2**	**88.2**	**87.8**
Sembawang	83.3	84.1	85.8	85.3	85.1	85.2
Woodlands	89.1	91.9	93.0	90.6	89.6	88.9
Yishun	99.4	91.7	92.0	91.8	88.6	88.1
West Region	**90.8**	**87.5**	**87.7**	**86.5**	**86.2**	**85.6**
Bukit Batok	88.3	84.6	84.1	81.8	81.4	80.7
Bukit Panjang	87.8	83.8	84.4	83.5	83.0	81.7
Choa Chu Kang	92.8	88.6	88.6	87.3	86.5	84.6
Clementi	96.9	88.3	86.7	86.8	85.0	83.7
Jurong East	95.7	91.6	90.0	87.8	89.2	88.9
Jurong West	89.3	88.1	88.9	87.9	88.1	88.8

Notes:
a. Numbers may not add up to the totals due to rounding.
b. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

Source: Energy Market Authority (EMA)

Notations:
- nil, negligible or not applicable. *"s" - Suppressed to avoid disclosure of individual data.*

Table 3.11 TOTAL OIL CONSUMPTION BY SECTOR

Unit: ktoe

	2010	2011	2012	2013	2014
Overall	7,790.2	7,614.0	7,946.8	8,475.0	8,970.4
Industrial-related	5,465.2	5,153.4	5,562.0	6,225.3	6,667.6
Commerce & Services-related	84.2	68.9	68.3	86.4	78.9
Transport-related	2,219.1	2,366.9	2,292.7	2,133.3	2,199.8
Households	21.7	24.8	23.7	30.0	24.1
Others	-	-	-	-	-

Sources: Energy Market Authority (EMA) & National Environment Agency (NEA)

Note:
a. Numbers may not add up to the totals due to rounding.

Notation:
- nil, negligible or not applicable.

Table **3.12** TOTAL FINAL ENERGY CONSUMPTION

Unit: **ktoe**

2010	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	**7.9**	**-**	**7,790.2**	**1,239.0**	**3,633.0**	**-**	**12,670.1**
Industrial-related	7.9	-	5,465.2	1,081.8	1,518.7	-	8,073.6
Commerce & Services-related	-	-	84.2	79.4	1,330.2	-	1,493.8
Transport-related	-	-	2,219.1	23.1	180.5	-	2,422.7
Households	-	-	21.7	53.9	570.6	-	646.2
Others	-	-	-	0.8	33.1	-	33.9
2011	**Coal & Peat**	**Crude Oil**	**Petroleum Products**	**Natural Gas**	**Electricity**	**Others**	**Total**
Total Final Energy Consumption	**6.8**	**-**	**7,614.0**	**1,300.2**	**3,698.0**	**-**	**12,619.0**
Industrial-related	6.8	-	5,153.4	1,132.1	1,554.4	-	7,846.7
Commerce & Services-related	-	-	68.9	83.4	1,365.1	-	1,517.4
Transport-related	-	-	2,366.9	28.7	191.2	-	2,586.8
Households	-	-	24.8	55.2	557.4	-	637.4
Others	-	-	-	0.8	29.8	-	30.6
2012	**Coal & Peat**	**Crude Oil**	**Petroleum Products**	**Natural Gas**	**Electricity**	**Others**	**Total**
Total Final Energy Consumption	**23.1**	**-**	**7,946.8**	**1,255.5**	**3,800.6**	**-**	**13,026.0**
Industrial-related	23.1	-	5,562.0	1,092.2	1,596.9	-	8,247.2
Commerce & Services-related	-	-	68.3	83.5	1,407.2	-	1,559.0
Transport-related	-	-	2,292.7	22.2	200.2	-	2,515.1
Households	-	-	23.7	56.9	570.0	-	650.6
Others	-	-	-	0.8	26.1	-	26.9

Sources: Energy Market Authority (EMA), Civil Aviation Authority of Singapore (CAAS), International Enterprise (IE) Singapore, Maritime & Port Authority (MPA), National Environment Agency (NEA) & Department of Statistics (DOS)

Notes:
a. Figures may not add up to total due to rounding.

Notation:
- nil, negligible or not applicable.

Table **3.12** TOTAL FINAL ENERGY CONSUMPTION (CONTINUED)

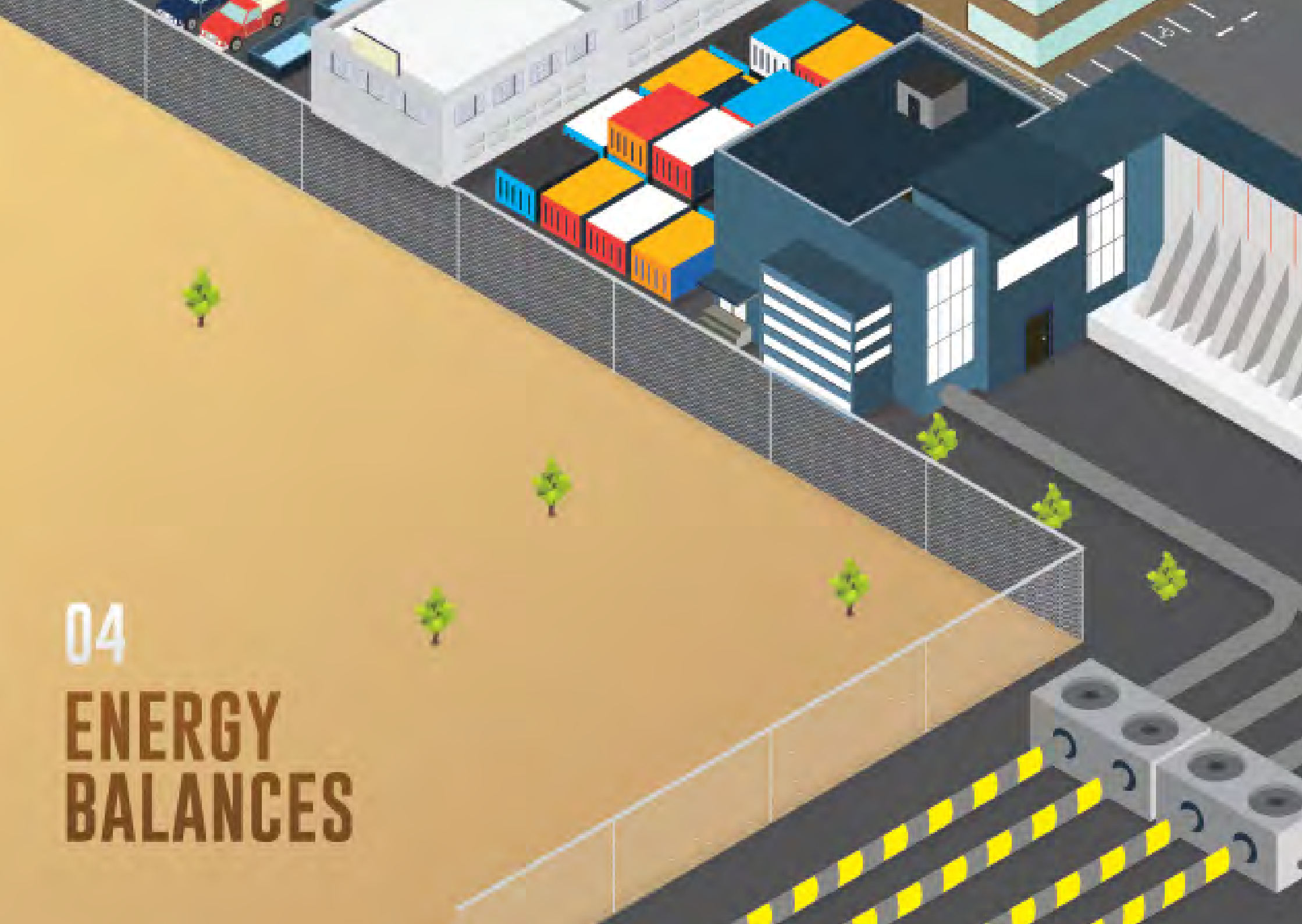
Unit: **ktoe**

2013	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	**131.9**	**-**	**8,475.0**	**1,441.5**	**3,864.9**	**-**	**13,913.3**
Industrial-related	131.9	-	6,225.3	1,272.2	1,620.2	-	9,249.6
Commerce & Services-related	-	-	86.4	90.9	1,437.5	-	1,614.8
Transport-related	-	-	2,133.3	20.1	203.7	-	2,357.1
Households	-	-	30.0	57.5	580.8	-	668.3
Others	-	-	-	0.8	22.6	-	23.4
2014	**Coal & Peat**	**Crude Oil**	**Petroleum Products**	**Natural Gas**	**Electricity**	**Others**	**Total**
Total Final Energy Consumption	**166.9**	**-**	**8,970.4**	**1,421.5**	**3,989.9**	**-**	**14,548.7**
Industrial-related	166.9	-	6,667.6	1,256.0	1,698.5	-	9,789.0
Commerce & Services-related	-	-	78.9	86.6	1,465.7	-	1,631.2
Transport-related	-	-	2,199.8	19.3	209.9	-	2,429.0
Households	-	-	24.1	58.9	595.4	-	678.4
Others	-	-	-	0.8	20.4	-	21.2

Sources: Energy Market Authority (EMA), Civil Aviation Authority of Singapore (CAAS), International Enterprise (IE) Singapore, Maritime & Port Authority (MPA), National Environment Agency (NEA) & Department of Statistics (DOS)

Notes:
a. Figures may not add up to total due to rounding.

Notation:
- nil, negligible or not applicable.



04
ENERGY BALANCES

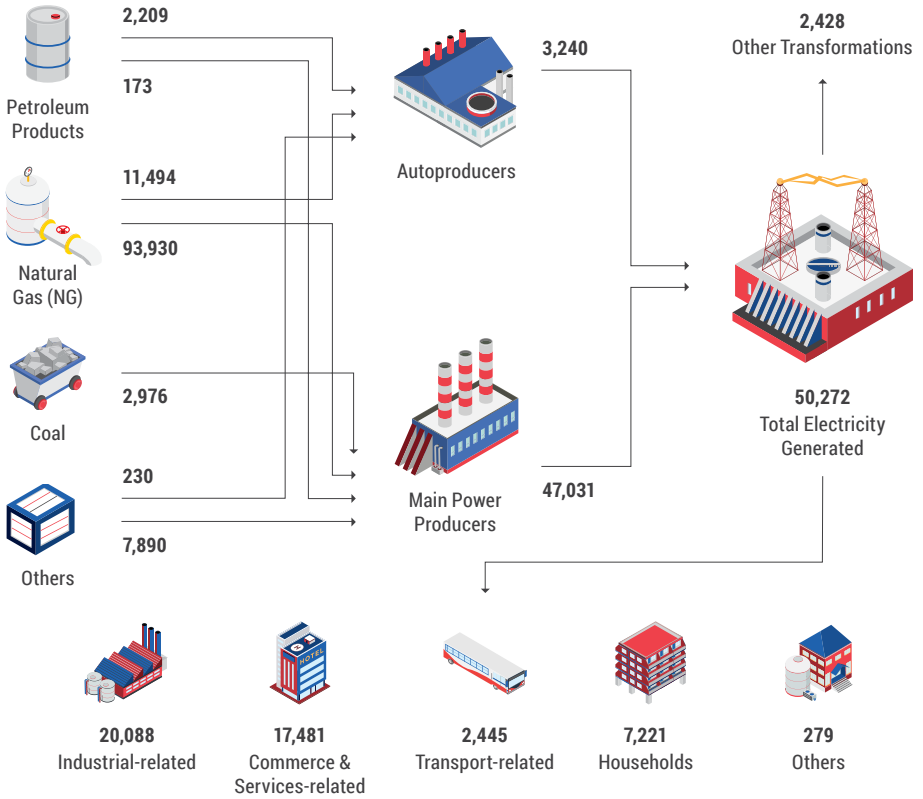
ELECTRICITY BALANCES

Singapore generated 50 TWh of electricity in 2015, 1.9% higher than the 49 TWh recorded in 2014. Of the 50 TWh of electricity generated in 2015, 94% (or 47 TWh) was accounted for by MPPs. The remaining 6.4% (or 3.2 TWh) was by Autoproducers. Own use and losses in the Transformation sector amounted to 2.4 TWh.

Of the 48 TWh of electricity consumed in Singapore in 2015, the Industrial-related sector accounted for 42% (or 20 TWh). Another 37% (or 17 TWh) was consumed by the Commerce & Services-related sector. Households and the Transport-related sector contributed to 15% (or 7.2 TWh) and 5.1% (or 2.4 TWh) of total electricity consumption, respectively.

Unit: **GWh**

ELECTRICITY FLOW, 2015



NATURAL GAS BALANCES

NG imports into Singapore rose by 0.4% from 431,961 TJ in 2014 to 433,824 TJ in 2015. This increase was primarily driven by higher demand for NG used in power generation. About 1,101 TJ of NG contributed to stock draw as of end-2015.

About 379,527 TJ of NG supply was used for power generation in 2015, representing 87% of total NG supply. This was a 1.1% increase from the 375,435 TJ used for the same purpose in 2014. Another 57,748 TJ of NG, which included town gas as the main feedstock, was consumed directly by end-consumers. The Industrial-related sector accounted for 88% (or 50,739 TJ) of total NG consumption. The remainder was consumed primarily by the Commerce & Services-related sector (6.5% or 3,754 TJ), and by Households (4.3% or 2,508 TJ).

Unit: **TJ**

NATURAL GAS FLOW, 2015

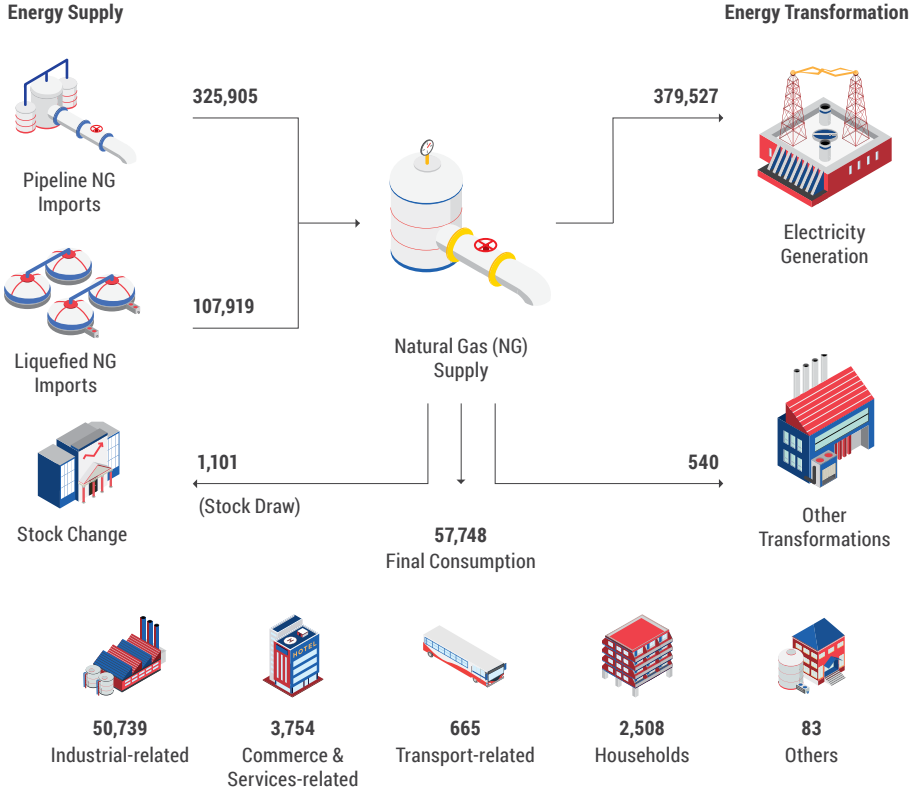


Table **4.1** ELECTRICITY BALANCE TABLE

Unit: **GWh**

	2005	2010	2012	2013	2014	2015
Indigenous Production	-	-	-	-	-	-
Imports	-	-	-	-	-	-
Exports	-	-	-	-	-	-
International Bunkers	-	-	-	-	-	-
Stock Changes	-	-	-	-	-	-
Total Primary Energy Supply	-	-	-	-	-	-
Total Transformation Sector	**36,881.1**	**42,787.9**	**44,682.5**	**45,580.1**	**46,762.2**	**47,843.8**
Electricity Generation	38,212.7	45,360.5	46,971.2	47,963.3	49,310.0	50,271.5
Main Power Producers	38,212.7	44,097.5	45,196.5	45,160.5	46,336.2	47,031.1
Autoproducers	-	1,263.0	1,774.7	2,804.0	2,973.8	3,240.4
Other Transformations	-1,331.6	-2,572.6	-2,288.8	-2,383.2	-2,547.8	-2,427.7
Statistical Differences (SD)	**-1,391.8**	**-536.1**	**-481.9**	**-631.4**	**-359.3**	**-330.0**
Total Final Energy Consumption	**35,489.3**	**42,251.8**	**44,200.6**	**44,948.7**	**46,402.9**	**47,513.8**
Industrial-related	14,509.0	17,662.5	18,572.4	18,842.7	19,753.2	20,088.0
Commerce & Services-related	13,075.6	15,469.7	16,366.1	16,718.6	17,046.6	17,481.0
Transport-related	1,200.0	2,098.7	2,328.6	2,369.1	2,441.0	2,444.8
Households	6,092.5	6,636.0	6,629.5	6,754.9	6,924.4	7,220.9
Others	612.2	384.9	304.0	263.4	237.7	279.1

Source: Energy Market Authority (EMA)

Notes:
a. Figures may not add up to total due to rounding.
b. Other transformations includes losses and own use.

Notation:
- nil, negligible or not applicable.

Table **4.2** NATURAL GAS BALANCE TABLE

Unit: **TJ**

	2010	2011	2012	2013	2014	2015
Indigenous Production	-	-	-	-	-	-
Imports	335,618.5	338,981.9	367,584.3	413,404.6	431,960.5	433,823.7
Exports	-	-	-	-	-	-
International Bunkers	-	-	-	-	-	-
Stock Changes	-	-	-	-	-4,103.1	1,101.3
Total Primary Energy Supply	**335,618.5**	**338,981.9**	**367,584.3**	**413,404.6**	**427,857.5**	**434,925.0**
Total Transformation Sector	**-278,063.5**	**-286,327.8**	**-314,810.1**	**-354,522.7**	**-375,973.0**	**-380,066.8**
Electricity Generation	-277,515.1	-285,758.4	-314,224.0	-353,928.2	-375,434.5	-379,526.7
Main Power Producers	-266,689.9	-274,719.2	-297,700.1	-318,657.3	-337,686.4	-338,148.9
Autoproducers	-10,825.2	-11,039.2	-16,523.9	-35,270.9	-37,748.2	-41,377.8
Oil Refining	-	-	-	-	-	-
Other Transformations	-548.5	-569.4	-586.2	-594.5	-538.5	-540.1
Statistical Differences (SD)	**-5,678.8**	**1,783.9**	**-208.1**	**4,411.7**	**7,630.1**	**2,889.9**
Total Final Energy Consumption	**51,876.2**	**54,438.1**	**52,566.1**	**60,353.3**	**59,514.6**	**57,748.1**
Industrial-related	45,293.3	47,400.5	45,728.0	53,263.1	52,585.0	50,738.6
Commerce & Services-related	3,323.6	3,493.2	3,496.3	3,807.5	3,623.9	3,753.8
Transport-related	968.0	1,202.0	927.7	841.7	806.1	665.2
Households	2,257.2	2,309.1	2,382.1	2,409.1	2,464.6	2,508.0
Others	34.1	33.1	32.0	31.9	35.0	82.5

Source: Energy Market Authority (EMA)

Note:
a. Figures may not add up to total due to rounding.

Notation:
- nil, negligible or not applicable.

05
ENERGY PRICES

ELECTRICITY TARIFFS

Electricity tariffs in Singapore are regulated by the EMA. These are updated quarterly to reflect changes in the cost of power generation. Energy cost constitutes the largest component of electricity tariffs. This is based on the average price of NG in the last quarter.

The four main components of electricity tariffs in Singapore are (i) Energy Costs (paid to the generation companies), (ii) Grid Charges (paid to SP PowerAssets), (iii) Market Support Services Fees (paid to SP Services), and (iv) Market Administration and Power System Operation Fees (paid to the Energy Market Company and the Power System Operator).

In 2015, the annual electricity tariffs declined by 15%, from 25.6 cents per kWh in Q4 2014 to 21.7 cents per kWh in Q4 2015. This was mainly due to lower energy costs, which fell from 20.2 cents per kWh in 2014 to 16.3 cents per kWh in 2015, arising from lower Singapore gas prices in 2015.

ANNUAL ELECTRICITY TARIFFS BY COMPONENTS (LOW TENSION TARIFFS)

Unit: **Cents/kWh**

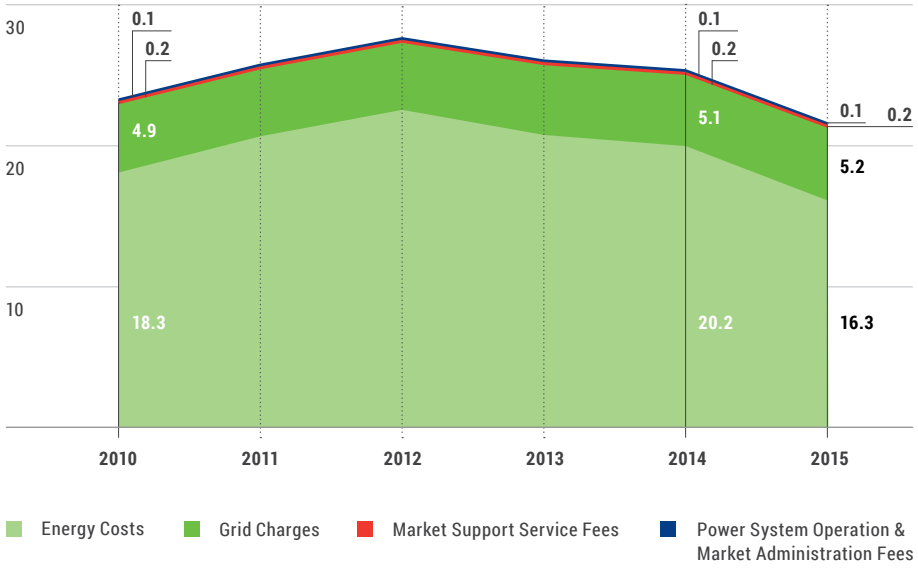


Table **5.1** ELECTRICITY & GAS TARIFFS

Year	Prices		Index			
	Electricity Tariffs, Inflation Adjusted	Town Gas Tariffs, Inflation Adjusted	Electricity Tariffs	Town Gas Tariffs	Electricity Tariffs, Inflation Adjusted	Town Gas Tariffs, Inflation Adjusted
	Cents/kWh		(Base Index of 100 at 2014)			
2005	21.3	19.2	69.0	75.9	83.6	91.9
2010	25.4	20.2	91.8	89.1	99.7	96.8
2012	28.8	22.3	109.2	102.8	113.2	106.6
2013	26.6	21.4	102.6	100.4	104.6	102.4
2014	25.4	20.9	100.0	100.0	100.0	100.0
2015	21.5	18.2	84.9	87.4	84.5	86.9
2016[1]	19.2	16.8	76.2	81.0	75.4	80.2

Source: Energy Market Authority (EMA)

[1] Data for 2016 is as of 1Q 2016.

Notes:
a. Electricity tariffs refer to the low tension tariffs applicable for Households and non-Contestable Consumers.
b. Town Gas tariffs refer to the general Town Gas tariffs applicable for all consumers with consumption of less than 1,000 kWh of gas per month.
c. Inflation Adjusted Electricity and Town Gas tariffs are compiled using the Core Inflation Index (Base Year of 2014).

Table **5.2** ELECTRICITY TARIFFS BY QUARTER (LOW TENSION TARIFFS)

Unit: **Cents/kWh**

	Q1	Q2	Q3	Q4	Annual
2005	16.7	16.1	18.3	19.6	17.7
2010	22.9	23.6	24.1	23.3	23.5
2012	27.6	28.8	28.1	27.3	27.9
2013	26.3	26.7	26.0	26.0	26.3
2014	25.7	25.7	25.7	25.3	25.6
2015	23.3	20.9	22.4	20.4	21.7
2016	19.5	17.7	-	-	-

Source: SP Services

Note:
a. Low tension tariffs refers to electricity tariffs applicable for Households and non-Contestable Consumers.

Notation:
- nil, negligible or not applicable.

Table 5.3 ANNUAL ELECTRICITY TARIFFS BY COMPONENTS (LOW TENSION TARIFFS) Unit: Cents/kWh

	2005	2010	2012	2013	2014	2015
Total	17.7	23.5	27.9	26.3	25.6	21.7
Energy Costs	11.8	18.3	22.8	21.0	20.2	16.3
Grid Charges	5.5	4.9	4.8	5.0	5.1	5.2
Market Support Service Fees	0.3	0.2	0.2	0.2	0.2	0.2
Power System Operation & Market Administration Fees	0.1	0.1	0.1	0.1	0.1	0.1

Source: Energy Market Authority (EMA)

Notes:
a. Figures may not add up to total due to rounding.
b. Electricity tariffs refer to the low tension tariffs applicable for Households and non-Contestable Consumers.

Table 5.4 TOWN GAS TARIFFS BY QUARTER Unit: Cents/kWh

General Tariffs	Q1	Q2	Q3	Q4	Annual
2005	15.7	15.7	15.8	16.6	16.0
2010	18.8	18.9	18.9	18.3	18.7
2012	21.4	21.9	21.8	21.4	21.6
2013	21.1	21.2	21.0	21.1	21.1
2014	21.1	21.1	21.1	20.9	21.1
2015	19.6	19.0	18.0	18.3	18.7
2016	17.0	16.3	-	-	-
Bulk Tariff A	**Q1**	**Q2**	**Q3**	**Q4**	**Annual**
2005	14.7	14.7	14.8	15.6	15.0
2010	17.8	17.9	17.9	17.3	17.7
2012	20.3	20.9	20.7	20.4	20.6
2013	20.1	20.2	20.0	20.1	20.1
2014	20.1	20.1	20.1	19.9	20.1
2015	18.6	18.0	17.0	17.2	17.7
2016	16.0	15.3	-	-	-

Sources: City Gas Pte Ltd & Energy Market Authority (EMA)

Notes:
a. Bulk Tariff A applies for minimum consumption of 1,000 kWh of gas per month.
b. Bulk Tariff B applies for minimum consumption of 50,000 kWh of gas per month.
c. Rates are not inclusive of GST.

Notation:
- nil, negligible or not applicable.

Table 5.4 TOWN GAS TARIFFS BY QUARTER (CONTINUED) Unit: Cents/kWh

Bulk Tariff B	Q1	Q2	Q3	Q4	Annual
2005	14.2	14.2	14.3	15.1	14.5
2010	17.3	17.4	17.4	16.8	17.2
2012	19.8	20.4	20.3	19.9	20.1
2013	19.7	19.7	19.5	19.6	19.6
2014	19.6	19.6	19.6	19.4	19.6
2015	18.1	17.5	16.5	16.7	17.2
2016	15.5	14.8	-	-	-

Sources: City Gas Pte Ltd & Energy Market Authority (EMA)

Notes:
a. Bulk Tariff A applies for minimum consumption of 1,000 kWh of gas per month.
b. Bulk Tariff B applies for minimum consumption of 50,000 kWh of gas per month.
c. Rates are not inclusive of GST.

Notation:
- nil, negligible or not applicable.

Table 5.5 CONSUMER PRICE INDEX FOR SELECTED ENERGY PRODUCTS (BASE INDEX OF 100 AT 2014)

Year	Liquefied Petroleum Gas (LPG)	Petrol
2005	61.5	70.1
2010	84.0	84.3
2012	96.7	97.0
2013	98.2	99.4
2014	100.0	100.0
2015	91.1	95.3

Source: Singapore Department of Statistics (DOS)

Table 5.6 PRODUCER & INTERNATIONAL TRADE PRICE INDICES OF MINERAL FUELS, LUBRICANTS & RELATED MATERIALS (BASE INDEX OF 100 AT 2012)

	Import Price Index (IPI)	Export Price Index (EPI)	Domestic Supply Price Index (DSPI)	Singapore Manufactured Products Price Index (SMPPI)
2005	61.3	58.5	62.3	66.3
2010	76.2	76.3	76.2	78.5
2012	100.0	100.0	100.0	100.0
2013	95.9	94.6	95.9	96.0
2014	88.8	88.6	88.7	89.6
2015	52.0	56.3	52.1	58.3

Source: Singapore Department of Statistics (DOS)

06

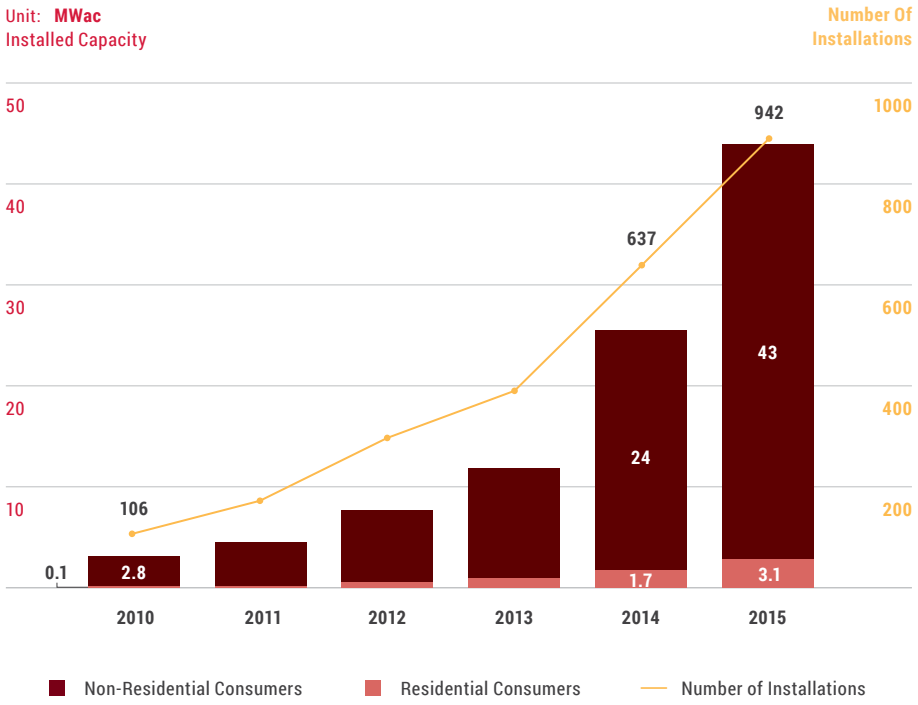
SOLAR

INSTALLED CAPACITY & NUMBER OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) SYSTEMS

The adoption of solar PV systems in Singapore continued to accelerate in 2015. Grid-connected installed capacity of solar PV systems sharply increased from 26 MWac in 2014 to 46 MWac in 2015. This increase was driven by 305 new installations in 2015.

Of the 942 systems installations as at the end of 2015, 39% (or 363 installations) were by residential users. The remaining 61% (or 579 installations) were by non-residential users, including Town Councils and the Housing Development Board. Of the total installed capacity of 46 MWac in 2015, residential users accounted for 6.8% (or 3.1 MWac). Non-residential users accounted for the remaining 93% (or 43 MWac).

SOLAR PV INSTALLATIONS
(As At End Period)



SOLAR PV INSTALLATIONS BY PLANNING REGION

At the end of 2015, the Western region of Singapore had the highest concentration of solar PV, with a corresponding total capacity of 16 MWac (35%) distributed across 182 installations. This was followed by the Eastern region with a total capacity of 8.9 MWac across 146 installations. The Central region had a total capacity of 8.3 MWac across 294 installations.

Most solar PV systems were located in the Central (294 installations) and North-eastern regions (253 installations). Many of these were residential installations, which were significantly smaller in capacity. Hence, the combined share of installed capacity in these two regions was disproportionately smaller (36%) compared with its corresponding share of the total number of installed systems (58%).

DISTRIBUTION OF SOLAR INSTALLATIONS IN SINGAPORE, 2015

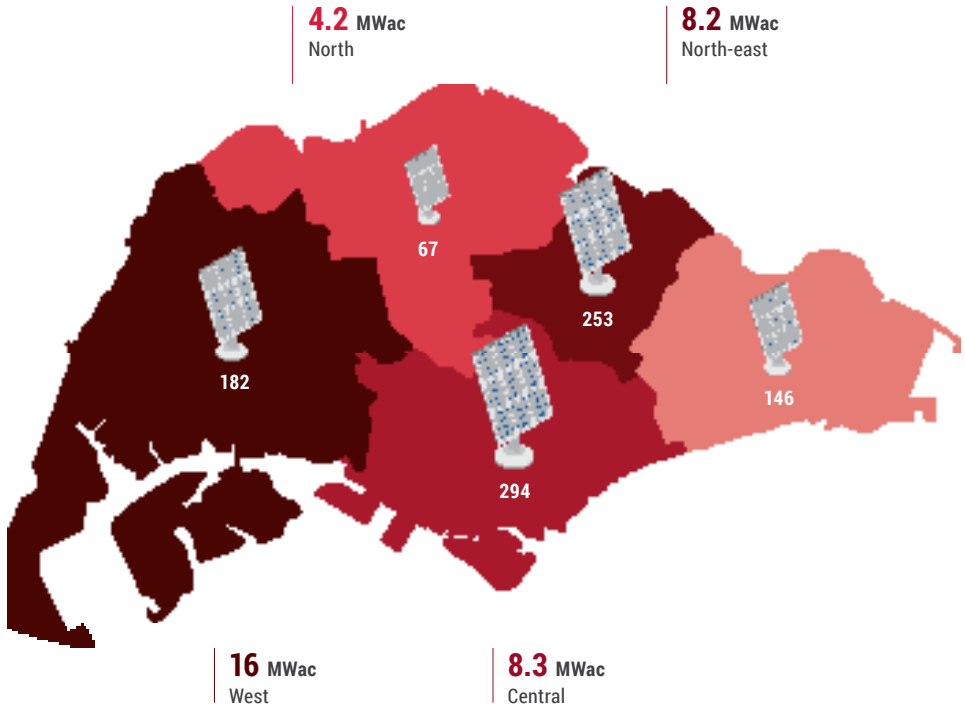


Table 6.1 INSTALLED CAPACITY OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) SYSTEMS Unit: **MWp**

	2010	2011	2012	2013	2014	2015
Total	**3.8**	**5.9**	**10.1**	**15.3**	**33.1**	**59.5**
Residential	**0.1**	**0.3**	**0.8**	**1.3**	**2.2**	**4.0**
Non-Residential	**3.7**	**5.6**	**9.3**	**14.0**	**30.9**	**55.5**
Contestable	1.8	2.2	3.1	5.9	16.6	31.3
Non-Contestable	1.8	3.4	6.2	8.1	14.3	24.2

Source: SP PowerGrid Ltd (SPPG)

Unit: **MWac**

	2010	2011	2012	2013	2014	2015
Total	**2.9**	**4.6**	**7.8**	**11.8**	**25.5**	**45.8**
Residential	**0.1**	**0.2**	**0.6**	**1.0**	**1.7**	**3.1**
Non-Residential	**2.8**	**4.3**	**7.2**	**10.8**	**23.8**	**42.7**
Contestable	1.4	1.7	2.4	4.6	12.8	24.1
Non-Contestable	1.4	2.6	4.8	6.2	11.0	18.6

Sources: SP PowerGrid Ltd (SPPG) & Energy Market Authority (EMA)

Notes:
a. Figures may not add up to total due to rounding.
b. MWp refers to megawatt peak, which is a typical measure of the installed nameplate capacity for solar PV systems. MWp represents the amount of electric power that can be produced by a solar PV system at its peak.
c. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

Table 6.2 NUMBER OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) INSTALLATIONS

	2010	2011	2012	2013	2014	2015
Total	**106**	**171**	**296**	**390**	**637**	**942**
Residential	**21**	**40**	**86**	**134**	**223**	**363**
Non-Residential	**85**	**131**	**210**	**256**	**414**	**579**
Contestable	32	46	69	86	121	172
Non-Contestable	53	85	141	170	293	407

Source: SP PowerGrid Ltd (SPPG)

Note:
a. Figures may not add up to total due to rounding.

Table 6.3 SOLAR PV INSTALLATIONS BY URA PLANNING REGION AS AT END OF PERIOD

URA Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
2010				
Overall	Non-Residential	85	2,839.4	97.1%
	Residential	21	86.0	2.9%
	Total	**106**	**2,925.3**	**100.0%**
Central	Non-Residential	25	971.4	33.2%
	Residential	14	58.3	2.0%
	Sub-Total	**39**	**1,029.7**	**35.2%**
East	Non-Residential	14	835.7	28.6%
	Residential	2	9.7	0.3%
	Sub-Total	**16**	**845.4**	**28.9%**
North-East	Non-Residential	16	144.7	4.9%
	Residential	3	14.2	0.5%
	Sub-Total	**19**	**159.0**	**5.4%**
North	Non-Residential	12	210.6	7.2%
	Residential	2	3.7	0.1%
	Sub-Total	**14**	**214.3**	**7.3%**
West	Non-Residential	18	676.9	23.1%
	Residential	0	-	0.0%
	Sub-Total	**18**	**676.9**	**23.1%**
2011				
Overall	Non-Residential	131	4,337.2	94.9%
	Residential	40	235.1	5.1%
	Total	**171**	**4,572.3**	**100.0%**
Central	Non-Residential	45	1,694.3	37.1%
	Residential	24	183.2	4.0%
	Sub-Total	**69**	**1,877.5**	**41.1%**
East	Non-Residential	17	966.9	21.1%
	Residential	4	13.1	0.3%
	Sub-Total	**21**	**980.0**	**21.4%**
North-East	Non-Residential	26	448.5	9.8%
	Residential	8	30.6	0.7%
	Sub-Total	**34**	**479.1**	**10.5%**
North	Non-Residential	16	299.4	6.5%
	Residential	4	8.2	0.2%
	Sub-Total	**20**	**307.6**	**6.7%**
West	Non-Residential	27	928.1	20.3%
	Residential	0	-	0.0%
	Sub-Total	**27**	**928.1**	**20.3%**

Notes:
a. Figures may not add up to total due to rounding.
b. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

Sources: SP PowerGrid Ltd (SPPG) & Energy Market Authority (EMA)

Table 6.3 SOLAR PV INSTALLATIONS BY URA PLANNING REGION AS AT END OF PERIOD (CONTINUED)

URA Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
2012				
Overall	Non-Residential	210	7,175.9	92.6%
	Residential	86	577.5	7.4%
	Total	**296**	**7,753.4**	**100.0%**
Central	Non-Residential	71	2,212.8	28.5%
	Residential	38	353.6	4.6%
	Sub-Total	**109**	**2,566.4**	**33.1%**
East	Non-Residential	25	1,192.7	15.4%
	Residential	19	90.5	1.2%
	Sub-Total	**44**	**1,283.2**	**16.5%**
North-East	Non-Residential	63	2,117.9	27.3%
	Residential	21	99.6	1.3%
	Sub-Total	**84**	**2,217.5**	**28.6%**
North	Non-Residential	17	376.4	4.9%
	Residential	5	13.6	0.2%
	Sub-Total	**22**	**390.0**	**5.0%**
West	Non-Residential	34	1,276.1	16.5%
	Residential	3	20.2	0.3%
	Sub-Total	**37**	**1,296.3**	**16.7%**
2013				
Overall	Non-Residential	256	10,801.8	91.7%
	Residential	134	975.7	8.3%
	Total	**390**	**11,777.6**	**100.0%**
Central	Non-Residential	87	2,714.6	23.0%
	Residential	54	500.5	4.2%
	Sub-Total	**141**	**3,215.0**	**27.3%**
East	Non-Residential	29	1,770.7	15.0%
	Residential	33	215.8	1.8%
	Sub-Total	**62**	**1,986.5**	**16.9%**
North-East	Non-Residential	79	2,920.0	24.8%
	Residential	32	162.5	1.4%
	Sub-Total	**111**	**3,082.5**	**26.2%**
North	Non-Residential	21	1,183.2	10.1%
	Residential	8	51.0	0.4%
	Sub-Total	**29**	**1,234.2**	**10.5%**
West	Non-Residential	40	2,213.4	18.8%
	Residential	7	45.9	0.4%
	Sub-Total	**47**	**2,259.3**	**19.2%**

Table 6.3 SOLAR PV INSTALLATIONS BY URA PLANNING REGION AS AT END OF PERIOD (CONTINUED)

URA Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
2014				
Overall	Non-Residential	414	23,766.7	93.2%
	Residential	223	1,723.6	6.8%
	Total	**637**	**25,490.3**	**100.0%**
Central	Non-Residential	101	3,737.8	14.7%
	Residential	93	876.6	3.4%
	Sub-Total	**194**	**4,614.4**	**18.1%**
East	Non-Residential	42	3,309.2	13.0%
	Residential	54	368.2	1.4%
	Sub-Total	**96**	**3,677.3**	**14.4%**
North-East	Non-Residential	149	6,129.8	24.0%
	Residential	55	337.7	1.3%
	Sub-Total	**204**	**6,467.5**	**25.4%**
North	Non-Residential	28	2,484.1	9.7%
	Residential	9	57.9	0.2%
	Sub-Total	**37**	**2,542.0**	**10.0%**
West	Non-Residential	94	8,105.9	31.8%
	Residential	12	83.1	0.3%
	Sub-Total	**106**	**8,189.0**	**32.1%**
2015				
Overall	Non-Residential	579	42,748.3	93.3%
	Residential	363	3,057.2	6.7%
	Total	**942**	**45,805.5**	**100.0%**
Central	Non-Residential	149	6,879.2	15.0%
	Residential	145	1,417.2	3.1%
	Sub-Total	**294**	**8,296.4**	**18.1%**
East	Non-Residential	65	8,298.8	18.1%
	Residential	81	601.8	1.3%
	Sub-Total	**146**	**8,900.6**	**19.4%**
North-East	Non-Residential	159	7,489.9	16.4%
	Residential	94	690.1	1.5%
	Sub-Total	**253**	**8,180.0**	**17.9%**
North	Non-Residential	46	4,051.3	8.8%
	Residential	21	166.1	0.4%
	Sub-Total	**67**	**4,217.4**	**9.2%**
West	Non-Residential	160	16,029.1	35.0%
	Residential	22	182.0	0.4%
	Sub-Total	**182**	**16,211.2**	**35.4%**

Notes:
a. Figures may not add up to total due to rounding.
b. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

Sources: SP PowerGrid Ltd (SPPG) & Energy Market Authority (EMA)

07

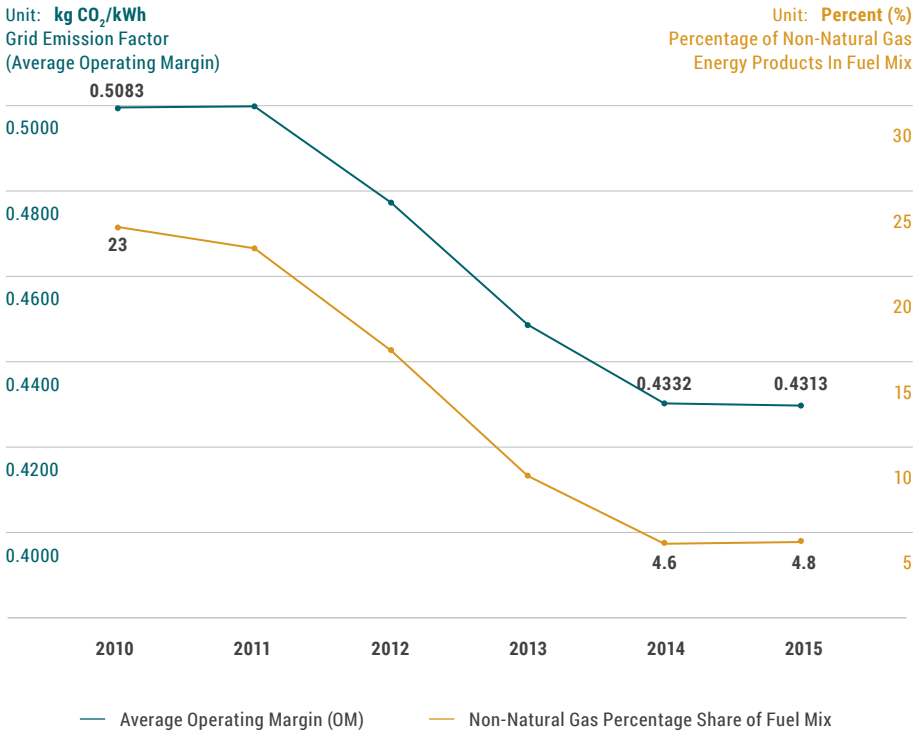
OTHER ENERGY-RELATED STATISTICS

GRID EMISSION FACTOR

Singapore's average Operating Margin (OM) Grid Emission Factor (GEF) has registered sustained improvements since 2012. In 2015, the GEF fell by 0.0019 kg CO_2/kWh to 0.4313 kg CO_2/kWh, representing a 0.4% decrease. This was mainly due to the greater use of NG for electricity generation as its share of fuel mix continued to be consistently high at around 95%.

The Build Margin (BM) Emission Factor slightly increased from 0.4065 kg CO_2/kWh in 2014 to 0.4126 CO_2/kWh in 2015 (increase of 0.0061 kg CO_2/kWh or 1.5%). In general, Singapore's BM emission factor trends lower than the OM emission factor. This is because newer plants in Singapore (predominantly CCGTs) are more efficient and primarily use fuels with a lower carbon content (such as natural gas) compared with other fossil fuels.

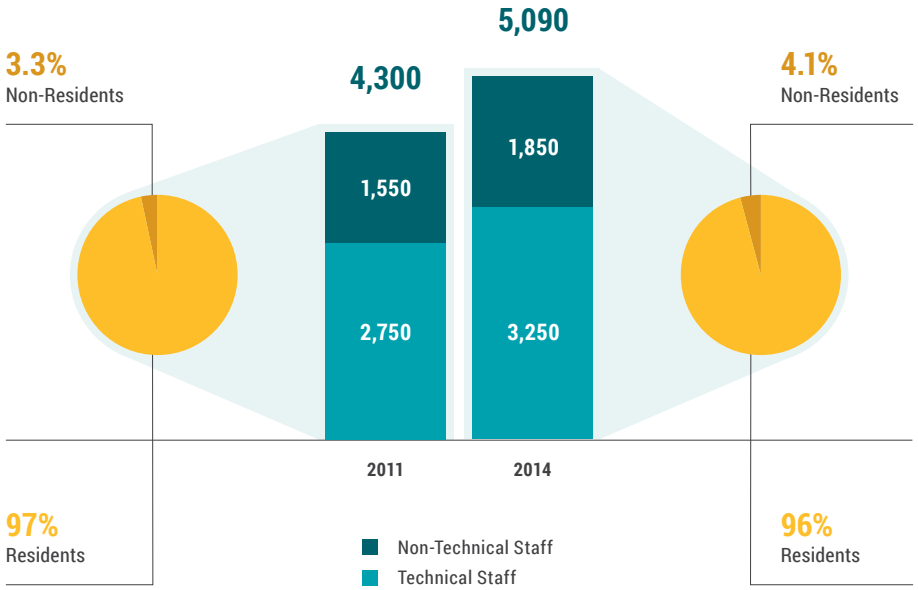
GRID EMISSION FACTOR & PERCENTAGE SHARE OF NON-NATURAL GAS ENERGY PRODUCTS IN FUEL MIX



POWER SECTOR EMPLOYEES

Employment in the power sector remained healthy despite tight economic conditions. The number of workers employed increased by 18%, from 4,300 in 2011 to 5,090 in 2014. About 63% (or 500) of new positions opened were of a technical nature. Residents (Singaporeans and Permanent Residents) comprised the majority (97% in 2011 and 96% in 2014) of employed workers in the power sector.

POWER SECTOR EMPLOYEES BY NATURE OF WORK, & RESIDENCY STATUS



Note: The values for each component in the chart above are ordered according to the legend.

Table 7.1 ELECTRICITY GRID EMISSION FACTOR & UPSTREAM FUGITIVE METHANE EMISSION FACTOR

	2005	2010	2012	2013	2014	2015
Electricity Grid Emission Factors						
Average Operating Margin (OM) (kg CO_2/kWh)	0.5255	0.5083	0.4912	0.4499	0.4332	0.4313
Build Margin (BM) (kg CO_2/kWh)	0.4205	0.4319	0.4333	0.4112	0.4065	0.4126
Upstream Fugitive Methane Emission Factor (kg CH_4/kWh)	0.00216	0.00222	0.00222	0.00216	0.00213	0.00213

Source: Energy Market Authority (EMA)

Note:
a. The Grid Emission Factor (GEF) measures the average CO2 emission emitted per MWh of electricity. It can be calculated using the Average Operating Margin (OM) or the Build Margin (BM) method. The OM measures the system-wide emissions factor while the BM measures the emissions factor of newer facilities. More details on the GEF could be found in the "Technical Notes" section.

Table 7.2 PEAK SYSTEM DEMAND

Unit: **MW**

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2005	5,083	5,285	5,333	5,408	5,385	5,298	5,297	5,341	5,471	5,475	5,456	5,332
2010	5,981	6,216	6,218	6,395	6,494	6,311	6,244	6,358	6,285	6,345	6,320	6,232
2012	6,323	6,289	6,373	6,457	6,639	6,552	6,524	6,576	6,490	6,563	6,432	6,323
2013	6,455	6,381	6,471	6,572	6,686	6,814	6,735	6,659	6,663	6,578	6,556	6,466
2014	6,385	6,541	6,652	6,715	6,801	6,869	6,868	6,761	6,846	6,850	6,699	6,572
2015	6,546	6,551	6,746	6,890	6,839	6,960	6,919	6,849	6,856	6,870	6,748	6,626
2016	6,735	6,733	6,909	-	-	-	-	-	-	-	-	-

Source: Energy Market Authority (EMA)

Notation:
- nil, negligible or not applicable.

Table 7.3 NUMBER OF POWER SECTOR EMPLOYEES BY OCCUPATION

	Employment Numbers		Share (%)	
	2011	2014	2011	2014
Overall	**4,300**	**5,090**	**100**	**100**
Technical Staff	**2,750**	**3,250**	**64.0**	**63.7**
Engineers	520	690	12.1	13.5
Technical Officers	970	1,180	22.5	23.2
Technicians	1,260	1,370	29.4	27.0
Non-Technical Staff	**1,550**	**1,850**	**36.0**	**36.3**
Management	270	330	6.4	6.5
Corporate Service Staff	960	1,040	22.4	20.4
Commercial Staff	180	410	4.2	8.0
Trading Staff	40	40	0.8	0.8
Others	100	30	2.2	0.5

Source: Energy Market Authority (EMA)

Table 7.4 NUMBER OF POWER SECTOR EMPLOYEES BY RESIDENCY STATUS

	Employment Numbers		Share (%)	
	2011	2014	2011	2014
Overall	**4,300**	**5,090**	**100**	**100**
Residents	4,160	4,880	96.7	95.9
Non-Residents	140	210	3.3	4.1

Source: Energy Market Authority (EMA)

Table 7.5 NUMBER OF LICENSED ELECTRICAL, GAS SERVICE & CABLE DETECTION WORKERS

Number of Workers	2005	2010	2012	2013	2014	2015
Total	6,672	5,761	5,580	5,270	5,219	5,251
Electricians	4,101	3,341	3,211	2,955	2,900	2,902
Technicians	1,299	1,163	1,119	1,074	1,073	1,080
Engineers	343	308	291	293	296	296
Gas Service Workers	401	359	354	354	347	359
Gas Service Workers (Restricted)	-	146	192	201	213	233
Cable Detection Workers	528	444	413	393	390	381

Sources: City Gas Pte Ltd & Energy Market Authority (EMA)

Notation:
- nil, negligible or not applicable.

08
TECHNICAL NOTES

Objectives

Singapore Energy Statistics 2016 provides users with findings and statistics relating to Singapore's energy supply, transformation and demand.

Sources of Data

The data used in the publication were mainly obtained through administrative returns from licensees and through surveys. EMA licensees are required to submit regulatory returns under the Electricity and Gas Acts. Energy statistics collected through the Joint Energy and Emissions Statistics Survey were also used in this publication. This survey is conducted by EMA Research and Statistics Unit (RSU) together with those of the Economic Development Board (EDB) and the National Environment Agency (NEA) under the Statistics Act.

Other sources of data featured in this publication include energy products trade statistics from the International Enterprise (IE) Singapore, energy consumption statistics from the NEA and prices statistics from the Singapore Department of Statistics (DOS).

Compilation Framework & Methodology

In compiling the energy statistics, EMA closely follows the recommended principles and methodologies set out in the International Energy Agency (IEA)'s Energy Statistics Manual. For the computation of the electricity grid emission factors and upstream fugitive methane emission factor, methodologies recommended by the Intergovernmental Panel on Climate Change (IPCC) are adopted.

Units of Measurement

Energy products are recorded in their original units of measure. As these units of measure vary, quantities of energy products need to be converted into a common unit to allow for comparison and aggregation. The common unit of measurement used to measure energy products in this publication is the tonne of oil equivalent (toe). According to the IEA, the tonne of oil equivalent is defined as follows:

1 tonne of oil equivalent = 41.868 gigajoules (GJ)
= 11,630 kilowatt hours (kWh)

The tonne of oil equivalent should be regarded as a measure of energy content rather than a physical quantity. One tonne of oil is not equal to one tonne of oil equivalent.

The following prefixes are used for multiples of the various units of measure:

kilo (k) = 1,000 or 10^3
mega (M) = 1,000,000 or 10^6
giga (G) = 1,000,000,000 or 10^9
tera (T) = 1,000,000,000,000 or 10^{12}

All prices and tariffs are presented in Singapore dollars.

Calorific Values

EMA uses Net Calorific Values (NCVs) to convert all fuels, except natural gas, from their original units to tonnes of oil equivalent (toe). Gross Calorific Values (GCVs) are used for unit conversion of natural gas, unless otherwise stated.

Energy Balance

An energy balance is an accounting framework for compilation and reconciliation of data on all energy products entering, exiting, and used within the national territory of a given country during a reference period.

It expresses all forms of energy in a common accounting unit, and shows the relationships between the inputs to, and the outputs from the energy transformation industries.

The balance is divided into three main blocks:

a) The top block (Energy Supply). This shows the flow representing energy entering and leaving the national territory. It also includes stock changes to provide information on total energy supply on the national territory during the reference period;

b) The middle block (Energy Transformation). This shows how energy is transformed, transferred, and used by energy industries for their own use and losses in distribution and transmission; and

c) The bottom block (Final Consumption). This shows final energy consumption by energy consumers.

Fuel Mix for Electricity Generation

The fuel mix for electricity generation can be calculated using either the input or output method. This publication presents fuel mix data compiled by the output method.

The input method calculates the fuel mix for electricity generation based on the ratio of volume of fuel input to generation units. It does not take into account variations in energy content of fuel used by different companies for electricity generation, nor variations in fuel-to-electricity conversion efficiency of the generating plants.

The output method uses the amount of electricity generated and the corresponding type of fuel used to calculate the fuel mix for electricity generation. It takes the domestic fuel-to-electricity conversion efficiency of the generating plants as well as the type of plants used into account.

Electricity & Gas Tariffs

Annual and quarterly electricity and gas tariffs refer to the weighted average of tariffs for the specific periods as they may be adjusted at various period throughout the year.

Re-referencing Price Indices

To allow comparisons between the movements of different prices, price indices series are pegged to a reference year. This is because of the shift from expressing the price indices in relation to a specific base year, to expressing the price indices in relation to a reference year common across all price indices.

Grid Emission Factors & Methane Emission Factors

The methodologies for the compilation of Grid Emission Factors (GEF) are based on the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM) Methodological Tool. This is the "Tool to calculate the emission factor for an electricity system" and the UNFCCC CDM Approved Baseline Methodology (AM) 0029 Baseline Methodology for grid connected electricity generation plants using natural gas.

GEF measures average CO_2 emissions emitted per unit net electricity generated. It is calculated using the Average Operating Margin (OM) method. This is the generation-weighted average CO_2 emission per unit net electricity generation of all generating power plants serving the electricity grid. GEF by Build Margin (BM) method refers to the generation-weighted average CO_2 emission per unit net electricity generation of the five most recently built power units and/or the set of power capacity additions that comprise at least 20% of the total system electricity generation.

Upstream fugitive Methane Emission Factor (MEF) from electricity generation measures the average CH_4 emission per unit net electricity generated. The methodology is similar to the BM method. However, it is based on the five most recently built power units that run on natural gas. These five plants should also generate at least 20% of total system electricity generation.

CLASSIFICATION

Energy Products

Energy products refer to products exclusively or mainly used as a source of energy. They include energy in forms suitable for direct use (for instance, electricity and heat) and energy products that release energy while undergoing some chemical or other process (such as combustion). The classification of energy products is based on the Singapore Trade Classification, Customs & Excise Duties 2012 (STCCED 2012 or HS 2012). STCCED classification adopts the ASEAN Harmonised Tariff Nomenclature 2012 (AHTN 2012). This is based on the 6-digit Harmonised Commodity Description and Coding System developed by the World Customs Organisation (WCO) for the classification of goods.

Industrial Activity

Industrial activity refers to the principal activity undertaken by the enterprise. This is where the enterprise devotes most of its resources; or from which it derives most of its income. The classification of the principal activity of the enterprise in the SES 2016 is based on the Singapore Standard Industrial Classification, 2015 (SSIC 2015). SSIC 2015 adopts the basic framework and principles of the International Standard Industrial Classification of all Economic Activities (ISIC).

Planning Region/Area

Planning Region/Area refers to those demarcated in the Urban Redevelopment Authority's Master Plan 2008.

09 GLOSSARY

ENERGY PRODUCTS

Coal & Peat Products

Coal and peat products include all coals, both primary (including hard coal and lignite/brown coal) and derived fuels (including patent fuel, coke over coke, gas coke, BKB, coke oven gas, blast furnace gas and oxygen steel furnace gas). Peat is also included in this category. The energy products and their corresponding HS 2012 codes under this category are:

Hard Coal	27011210, 27011290, 27011900
Anthracite	27011100
Lignite	27021000, 27022000
Peat	27030010, 27030020
Coke Oven Coke	27040010, 27040020, 27040030
Coal Tar	27060000
BKB/PB6	27012000
Gas Works Gas	27050000

Crude Oil Products

Crude oil products include crude oil, natural gas liquids, refinery feedstocks and additives as well as other hydrocarbons. The energy products and their corresponding HS 2012 codes under this category are:

Crude Oil	27090010, 27090020, 27090090
Natural Gas Liquids	27111410, 27111490, 27112900
Refinery Feedstocks	27101920
Additives/ Oxygenates	29091100, 29091900, 29092000, 29093000, 29094100, 29094300, 29094400, 29094900, 29095000, 29096000, 38112110, 38112190, 38112900, 38119090

Petroleum Products

Petroleum products include ethane, LPG, aviation gasoline, motor gasoline, jet fuel, kerosene, gas/diesel oil, fuel oil, naphtha, white spirit, lubricants, bitumen, paraffin waxes, petroleum coke and other petroleum products. The energy products and their corresponding HS 2012 codes under this category are:

Light Distillates	
Gasoline (Aviation)	27101220
Gasoline (Motor)	27101211, 27101212, 27101213, 27101214, 27101215, 27101216
Liquefied Petroleum Gas (LPG)	27111200, 27111300, 27111900
Naphtha	27101270
White Spirit SBP	27101230, 27101240, 27101250, 27101260, 27101280, 27101290
Middle Distillates	
Gas/Diesel Oil	27101971, 27101972
Jet Fuel Kerosene	27101981, 27101982
Other Kerosenes	27101983
Heavy Distillates & Residuum	
Bitumen	27132000, 27139000, 27141000, 27149000, 27150000
Fuel Oil	27101979
Lubricants	27101941, 27101942, 27101943, 27101944, 27101950
Other Petroleum Products	27071000, 27072000, 27073000, 27074000, 27075000, 27079100, 27079910, 27079990, 27081000, 27082000, 27101930, 27101960, 27101989, 27101990, 27102000, 27109100, 27109900
Paraffin Waxes	27121000, 27122000, 27129010, 27129090
Petroleum Coke	27131100, 27131200

Natural Gas

Natural Gas includes natural gas (excluding Natural Gas Liquids) and town gas. The energy products and their corresponding HS 2012 codes under this category are:

Natural Gas	27112190
Liquefied Natural Gas	27111100

Others (Energy Products)

'Others' refer to other energy products that are not classified. These include solar, biomass, and waste (such as municipal waste and biogas). Municipal waste is waste produced by residential, commercial and public services that is collected by local authorities for disposal in a central location for the production of electricity and/or heat.

ELECTRICITY GENERATION

Main Power Producers	These are enterprises that produce electricity as their principal activity.
Autoproducers	These are enterprises that produce electricity but for whom the production is not their principal activity.
Own Use	Own use in electricity generation refers to the part of electricity generated which is consumed by the auxiliary equipment of the generation plant (such as pumps, fans and motors) under normal operations.
Licensed Generation Capacity	The licensed capacity of a generation, or wholesaler licensee, refers to the authorised capacity that EMA grants to a licensee for the generation of electricity.
Combined Cycle Gas Turbine (CCGT) Plant	Combined Cycle Gas Turbines are a form of highly efficient energy generation technology that combines a gas-fired turbine with a steam turbine. The design uses a gas turbine to create electricity. It then captures the resulting waste heat to create steam, which, in turn, drives a steam turbine to significantly increase the system's power output without any increase in fuel.
Co-Generation (Co-Gen) Plant	Co-generation plants (also known as combined heat plants) are plants which simultaneously generate electricity and useful heat from a common fuel source. This, improves overall thermodynamical efficiency.
Tri-Generation (Tri-Gen) Plant	Tri-generation plants are those which simultaneously generate electricity, useful heat and cooling from a common fuel source. This improves overall thermodynamical efficiency.
Open Cycle Gas Turbine (OCGT) Plant	An Open Cycle Gas Turbine plant is a gas turbine power plant which discards the heat content of the exhaust gases exiting the turbine. This is, as opposed to using a heat exchanger, or recovered in a heat recovery steam generator (HRSG) as in a CCGT.
Steam Turbine Plant	A steam turbine is a turbine that is driven by the pressure of steam discharged at high velocity against the turbine vanes.
Waste-To-Energy (WTE) Plant	A Waste-To-Energy plant is a power plant which generates power from the incineration of waste.

ELECTRICITY & NATURAL GAS CONSUMPTION

Electricity Consumption	This refers to total electricity consumption by end users, including (embedded) consumption by Autoproducers.
Contestable Consumers	Contestable Consumers are large, non-residential consumers with an average monthly consumption of 2,000 kWh or more. They have a monthly electricity bill of at least $450. Consumers can add up their electricity usage across different locations in Singapore to meet the prevailing threshold. Consumers eligible for contestability can choose to buy electricity from electricity retailers or the wholesale electricity market at half-hourly spot prices. They can also choose to remain with SP Services to buy electricity at regulated tariffs. The contestability threshold was last lowered on 1 July 2015 by EMA.
Final Energy Consumption	Final energy consumption covers all energy supplied to the final consumer for all energy uses. It is usually disaggregated into the final end-use sectors such as industry, commerce & services, transport, households, and others.
Final Natural Gas Consumption	This refers to total natural gas consumption by end-users, excluding consumption for electricity generation.

SECTORAL ACTIVITIES

Industrial-related

Industrial-related consumption is defined by the following sub-sectors. This is in accordance to the Singapore Standard Industrial Classification 2015 (SSIC 2015).

Agriculture and Fishing	SSIC Section A, Division 1-3
Mining and Quarrying	SSIC Section B, Division 8-9
Manufacturing	SSIC Section C, Division 10-32
Utilities	SSIC Section D, Division 35, and Section E, Division 36-38
Construction	SSIC Section F, Division 41-43

Commerce & Services-related

Commerce & Services-related consumption is defined by the following sub-sectors. This is in accordance to the Singapore Standard Industrial Classification 2015 (SSIC 2015).

Wholesale and Retail Trade	SSIC Section G, Division 46-47
Accommodation and Food Services Activities	SSIC Section I, Division 55 - 56
Information and Communications	SSIC Section J, Division 58-63
Financial and Insurance Activities	SSIC Section K, Division 64-66
Real Estate Activities	SSIC Section L, Division 68
Professional, Scientific and Technical Activities	SSIC Section M, Division 69-75
Administrative and Support Services Activities	SSIC Section N, Division 77-82
Public Administration and Defence	SSIC Section O, Division 84
Education	SSIC Section P, Division 85
Health and Social Services	SSIC Section Q, Division 86-88
Arts, Entertainment and Recreation	SSIC Section R, Division 90-93
Other Service Activities	SSIC Section S, Division 94-96
Activities of Households as Employers of Domestic Personnel	SSIC Section T, Division 97
Activities of Extra-Territorial Organisations and Bodies	SSIC Section U, Division 99

Households

The scope of the Households sector includes all households in their capacity as final consumers.

Transport-related

Transport-related consumption is defined by the following subsectors, This is in accordance to the Singapore Standard Industrial Classification 2015 (SSIC 2015).

Transport and Storage	SSIC Section H, Division 49-53
Land Transport	SSIC Division 49
Water Transport	SSIC Division 50
Air Transport	SSIC Division 51
Warehousing and Support Activities for Transportation	SSIC Division 52
Postal and Courier Activities	SSIC Division 53

Others

"Others" refer to sectors or activities not adequately defined in SSIC 2015.

PLANNING AREA

Central Region

Bishan, Bukit Merah, Bukit Timah, Downtown Core, Geylang, Kallang, Marine Parade, Marina East, Marina South, Museum, Newton, Novena, Orchard, Outram, Queenstown, River Valley, Rochor, Singapore River, Southern Islands, Straits View, Tanglin, Toa Payoh

East Region

Bedok, Changi, Changi Bay, Paya Lebar, Pasir Ris, Tampines

North-East Region

Ang Mo Kio, Hougang, Punggol, North Eastern Islands, Seletar, Sengkang, Serangoon

North Region

Central Water Catchment, Lim Chu Kang, Mandai, Simpang, Sembawang, Sungei Kadut, Woodlands, Yishun

West Region

Boon Lay, Bukit Batok, Bukit Panjang, Choa Chu Kang, Clementi, Jurong East, Jurong West, Jurong Island, Pioneer, Tengah, Tuas, Western Islands, Western Water Catchment

ELECTRICITY TARIFFS COMPONENTS

Energy Costs	This is paid to the generation companies and reflects the cost of power generation.
Grid Charges	This is paid to SP Power Assets to recover the costs of transporting electricity through the grid.
Market Support Services Fees	This is paid to SP Services to recover the costs of billing and meter reading.
Power System Operation & Market Administration Fees	This is paid to the Power System Operator and Energy Market Company to recover the costs of operating the power system and electricity wholesale market.

PRICE INDICES

Consumer Price Index (CPI)	This price index measures the average price changes in a fixed basket of consumption goods and services commonly purchased by the households over time.
Import Price Index (IPI)	This price index measures changes in the prices of goods imported into Singapore over time.
Export Price Index (EPI)	This price index measures changes in the price of all exports of merchandise from Singapore, including re-exports.
Domestic Supply Price Index (DSPI)	This is an Input-based Producer Price Index of goods. It measures the price changes of locally manufactured goods and imports which are retained for use in the domestic market.
Singapore Manufactured Product Price Index (SMPPI)	This is an Output-based Producer Price Index of the manufacturing sector. It measures changes in the prices of goods produced by local manufacturers for sale in the local and international markets.

GRID EMISSION FACTOR

Grid Emission Factor (GEF)	The Grid Emission Factor measures average CO_2 emission emitted per MWh of electricity. It is calculated using the Average Operating Margin (OM) method. This is the generation-weighted average CO_2 emissions per unit net electricity generation of all generating power plants serving the system.
Build Margin (BM) Emission Factor	The Build Margin Emission Factor refers to the generation-weighted average CO_2 emissions per unit net electricity generation, of the set of five power units most recently built; and/or the set of power capacity additions that comprise 20% of system generation that have been built recently.
Methane Emission Factor (MEF)	The Methane Emission Factor measures average CH_4 emission emitted per MWh of the set of five power units as defined in the BM.

JOB CATEGORIES FOR POWER SECTOR EMPLOYEES

Management	Management refers to Chief Executive Officer and Head of Division/ Department/Section.
Engineers	Engineers refer to Senior Engineer, Engineer, Executive Engineer, Principal Engineer, Shift Manager, Team Leader and Deputy Team Leader.
Technical Officer	Technical Officer refers to Principal Technical Officer, Senior Technical Officer and Technical Officer.
Technician	Technician refers to Senior Technician, Technician, Mechanic and Electrician.
Corporate Service Staff	Corporate Service Staff refers to those in Finance, Human Resource, Legal, Administration, Information Technology and Corporate Communications.
Commercial Staff	Commercial Staff refers to Customer Accounts Manager, Business Analyst and those in Business Development, Sales and Marketing.
Trading Staff	Trading Staff refer to System Balance Trader, Position Trader and Quantitative Analyst.
Others	"Others" include Assistant Technician, Semi-skilled Staff and Artisan and other occupations not elsewhere classified.

LICENSED ELECTRICAL, GAS SERVICE AND CABLE DETECTION WORKERS

Electrical Engineer

An electrical engineer's licence entitles the holder to carry out the following electrical work:

a) design, install, repair, maintain, operate, inspect, test and take full charge and responsibility for any electrical installation.

b) an electrical engineer's licence has a range of operation voltage restrictions. They are as follows:-

i. in operation : "up to 1000 volts"

ii. in operation : "up to 22000 volts"

iii. in operation : "up to 66000 volts"

iv. in operation : "up to 230000 volts"

v. restricted to particular installations

Electrical Technician

An electrical technician's licence entitles the holder to carry out the following electrical work:

a) install, repair, maintain, operate, inspect and test an electrical installation where the operating voltage of such an installation does not exceed 1000 volts and the approved load of such installation does not exceed 500 kVA;

b) design and submit plans and drawings of an electrical installation. The operating voltage of such an installation does not exceed 1000 volts and the approved load of such installation does not exceed 150 kVA. The limitation of 1000 volts shall not apply in the case of an Electric Discharge Lighting Circuit; and

c) carry out any work or switching operation as instructed by or under the supervision of an authorised high voltage switching engineer.

Electrician

An electrician's licence entitles the holder to carry out the following electrical work:

a) design, install, repair, maintain, operate, inspect and test an electrical/supply installation where the operating voltage of such an installation does not exceed 1000 volts and the approved load of such installation does not exceed 45 kVA. The limitation of 1000 volts shall not apply in the case of an Electric Discharge Lighting Circuit;

b) install, repair, maintain and operate, under the supervision of an electrical technician. The operating voltage of the, electrical/supply installation should not exceed 1000 volts and the approved load of such installation should be more than 45 kVA but does not exceed 500 kVA; and

c) carry out any work as instructed by or under the supervision of an authorised high voltage switching engineer.

Gas Service Worker

A gas service worker licence entitles the holder to carry out the following gas service work where the operating pressure is not more than 30 mbar:

a) to construct, fix, alter, repair and renew gas pipes and fittings;

b) to install, maintain, repair and test gas appliances; and

c) to install or remove gas meters and to turn-on the gas supply on behalf of a gas licensee.

Gas Service Worker (Restricted)

A gas service worker licence (restricted) entitles the holder to carry out the following gas service work where the operating pressure is not more than 30 mbar:

a) to install, maintain, repair and test gas appliances; and

b) to install or remove gas meters and to turn-on the gas supply on behalf of a gas licensee.

Cable Detection Workers

A licensed cable detection worker is entitled to perform cable detection work. To minimise damages to electricity cables, it is mandatory to perform cable detection work prior to the commencement of any earthworks.

Cable detection work must be carried out by a licensed cable detection worker. He should inform or advise the earthworks contractor, who engaged him, of the location of the cables detected within the worksite.

ORGANISED BY

ENERGY MARKET AUTHORITY

Smart Energy, Sustainable Future

SIEW 2016

NEW ENERGY REALITIES

WHERE THE ENERGY WORLD MEETS

ONE WEEK

ONE LOCATION

24 - 28 OCTOBER 2016

MARINA BAY SANDS

WWW.SIEW.SG

SIEW 2016 HIGHLIGHTS

SIEW OPENING KEYNOTE ADDRESS

SINGAPORE ENERGY SUMMIT

Youth@SIEW

ASIA CLEAN ENERGY SUMMIT CONFERENCE & EXHIBITION

ASIAN DOWNSTREAM WEEK 2016

EEI Edison Electric INSTITUTE

GAS GAS ASIA SUMMIT Summit and Exhibition

CONNECT WITH US SIEW.sg @siew_sg bit.ly/SIEWLinkedin

Comments on this publication and suggestions for further issues of SES are welcome. Please write to:

Research & Statistics Unit
Planning Department
Energy Planning & Development Division
Energy Market Authority

991G Alexandra Road
#01/02-29, Singapore 119975
Republic of Singapore

E RSU_Enquiry@ema.gov.sg
T +65 6835 8000
F +65 6835 8020