

SINGAPORE ENERGY STATISTICS

2018



ENERGY MARKET AUTHORITY

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

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PREFACE

I am pleased to present to you the eighth edition of the Singapore Energy Statistics (SES) report with an additional dataset that provides an overview of the number of electricity accounts over the years.

With the inclusion of this new dataset, the 47 data tables across seven energy-related topics will provide you with a comprehensive understanding of Singapore's energy landscape.

In April this year, EMA commenced the soft launch of the Open Electricity Market (OEM) in Jurong to allow over 100,000 electricity accounts, comprising both households and businesses, to choose who they wish to buy electricity from. A full rollout to the remaining 1.3 million accounts in Singapore will follow starting from the second half of 2018. This publication also provides a short commentary on our OEM journey thus far.

The SES 2018 report can be accessed online via a dedicated micro-site*. Additional energy-related statistics not covered in this report can also be found online^.

I wish to extend my deepest gratitude to the organisations, government ministries and statutory boards that provided the key information, without which this publication would not have been possible. We look forward to your continued support.

BERNARD NEE

Deputy Chief Executive
Energy Planning & Development Division
Energy Market Authority
Singapore
August 2018

* http://www.ema.gov.sg/Singapore_Energy_Statistics.aspx

^ <https://www.ema.gov.sg/Statistics.aspx>

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Notes:

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

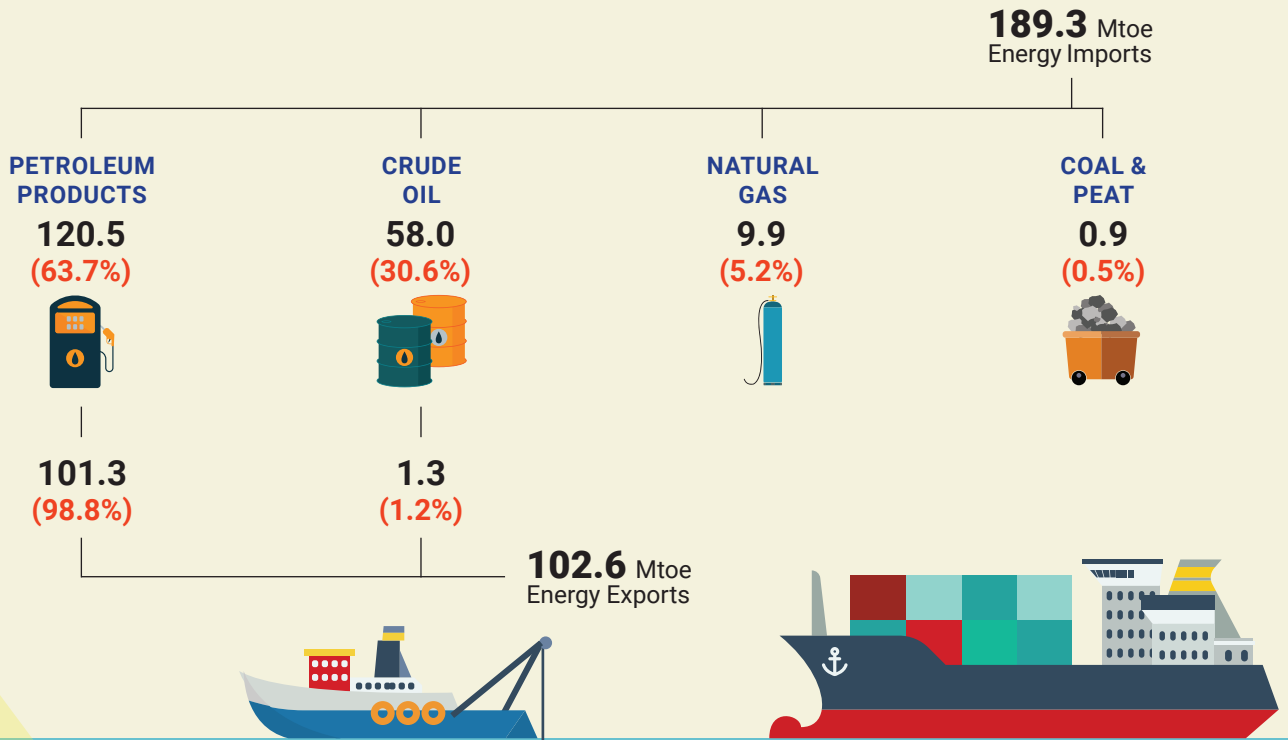
Notations used in data tables:

"-" – nil, negligible or not applicable

"s" – suppressed to avoid disclosure of individual data

ENERGY SNAPSHOT OF SINGAPORE 2018

IMPORTS & EXPORTS



NUMBER OF EMPLOYEES IN POWER SECTOR

5,340
as of 2016

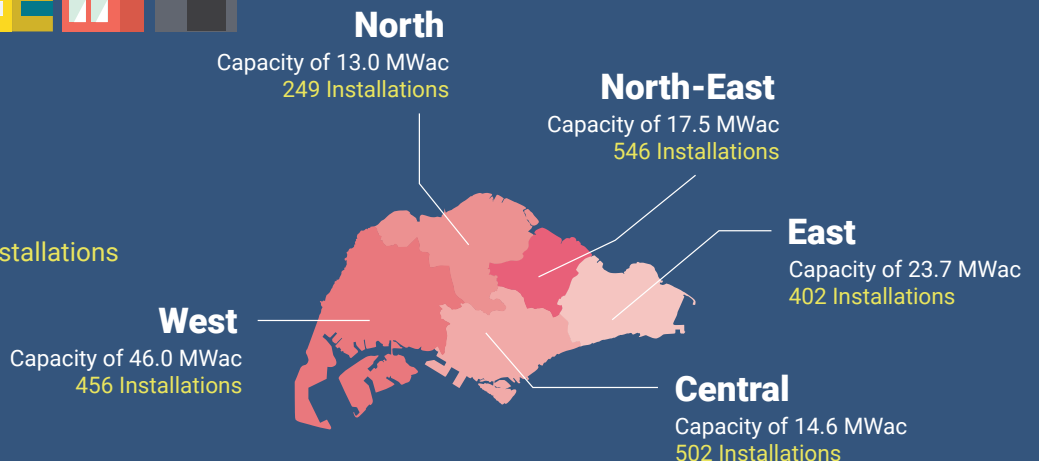
4.7%
Non-Residents

95.3%
Singapore Residents

SOLAR

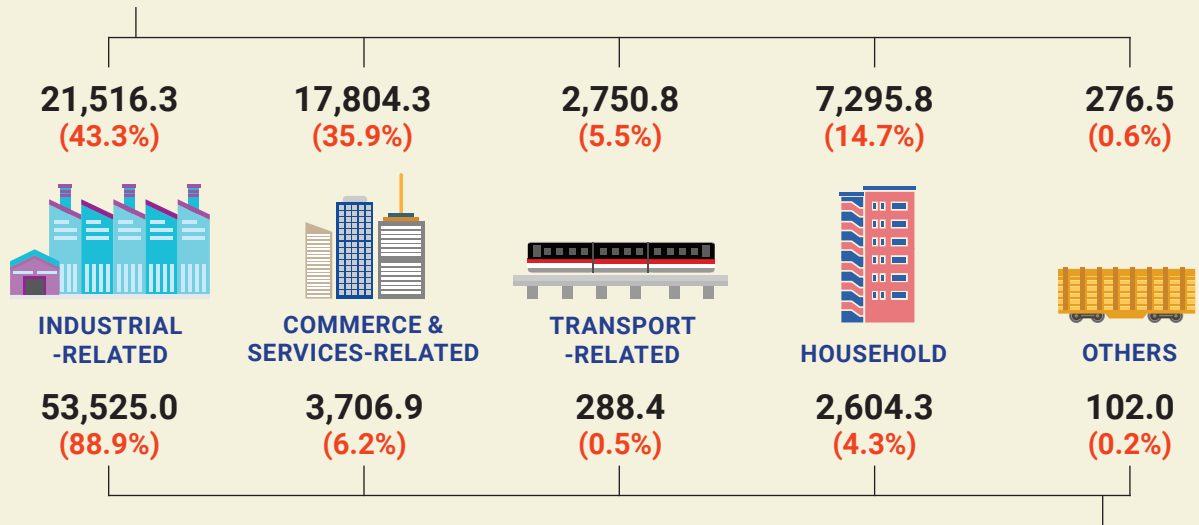
For Singapore
As at end 1Q 2018

- Installed Capacity
- Number of Solar PV Installations



Singapore Consumed

49,643.7 GWh
of Electricity

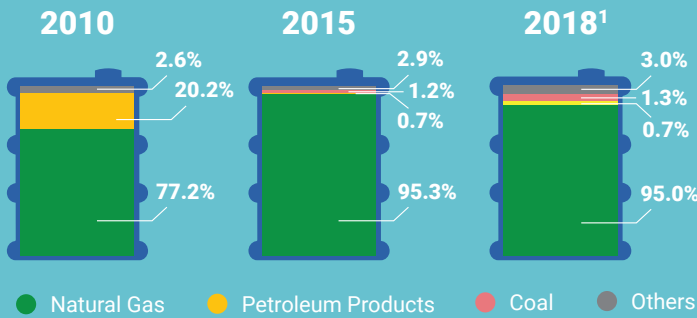


60,226.6 TJ
of Natural Gas



ENERGY FLOWS

Annual Fuel Mix for Electricity Generation by Energy Products



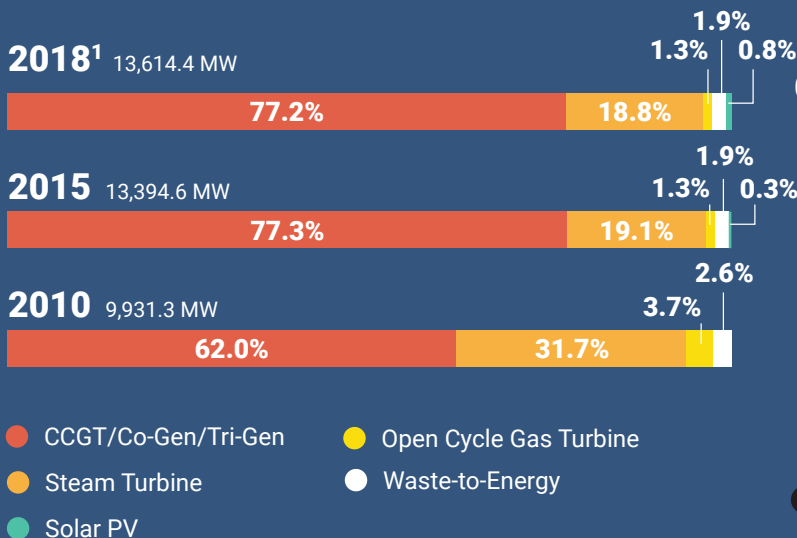
1 Mtoe = 11,630 GWh

9.6 Mtoe

Total Energy Inputs into Generation Companies

4.5 Mtoe

Total Gross Electricity Generated by the Generation Companies



Electricity Generation Capacity by Technology Type



¹ Data for 2018 as at end 1Q 2018.

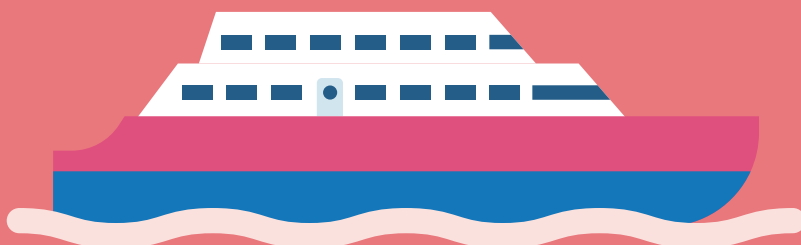
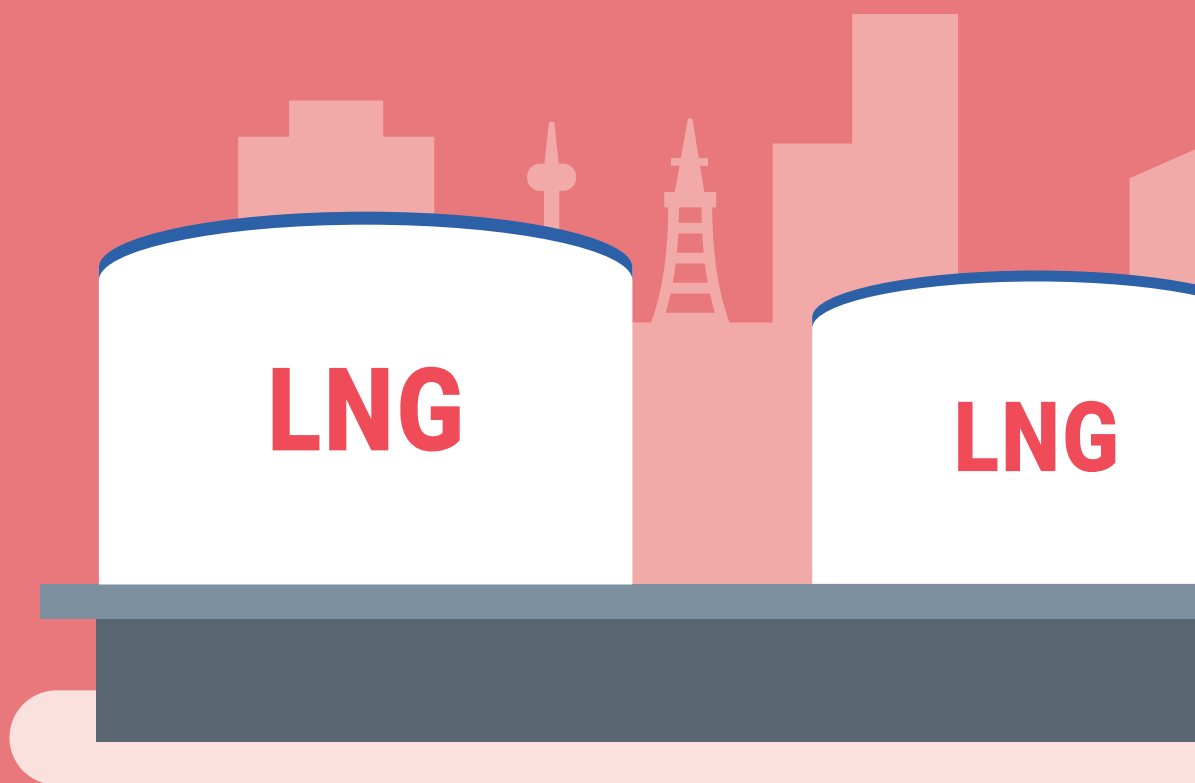
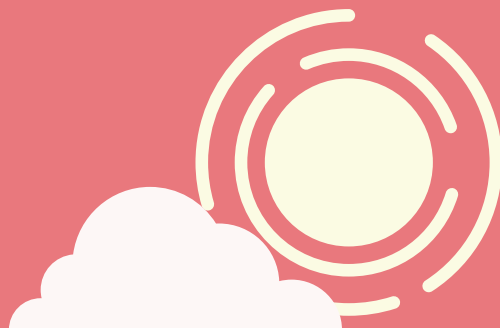
EXECUTIVE SUMMARY

ENERGY FLOWS

- Singapore's imports of energy products grew by 7.4% from 176.3 Mtoe in 2016 to 189.3 Mtoe in 2017. The exports of energy products registered a 3.3% increase from 99.3 Mtoe in 2016 to 102.6 Mtoe in 2017. The bulk of energy imports and exports were Petroleum Products.
- Imports of Natural Gas (NG) increased by 2.0% from 9.7 Mtoe in 2016 to 9.9 Mtoe in 2017, with Liquefied Natural Gas (LNG) accounting for 27.6% of NG imports.
- Electricity generation rose by 1.2% from 51.6 TWh in 2016 to 52.2 TWh in 2017. In 2017, NG accounted for 95.2% of the fuel mix. Main Power Producers in Singapore accounted for 92.4% of total electricity generated. The remaining 7.6% was attributed to Autoproducers.
- Total electricity generation capacity in Singapore was 13,614.4 MW as at end March 2018. More than three quarters (10,508.2 MW or 77.2% of total capacity) was attributed to Combined Cycle Gas Turbines, Co-Generation Plants and/or Tri-Generation Plants.
- Electricity consumption grew by 2.1% from 48.6 TWh in 2016 to 49.6 TWh in 2017. Industrial-related sectors, Commerce & Services-related sectors and Households comprised 43.3%, 35.9% and 14.7% of total consumption respectively.
- End-users' consumption of NG increased by 5.8%, from 56,949.2 TJ in 2016 to 60,226.6 TJ in 2017, due to stronger demand by the Industrial-related sector.

ENERGY SUPPLY

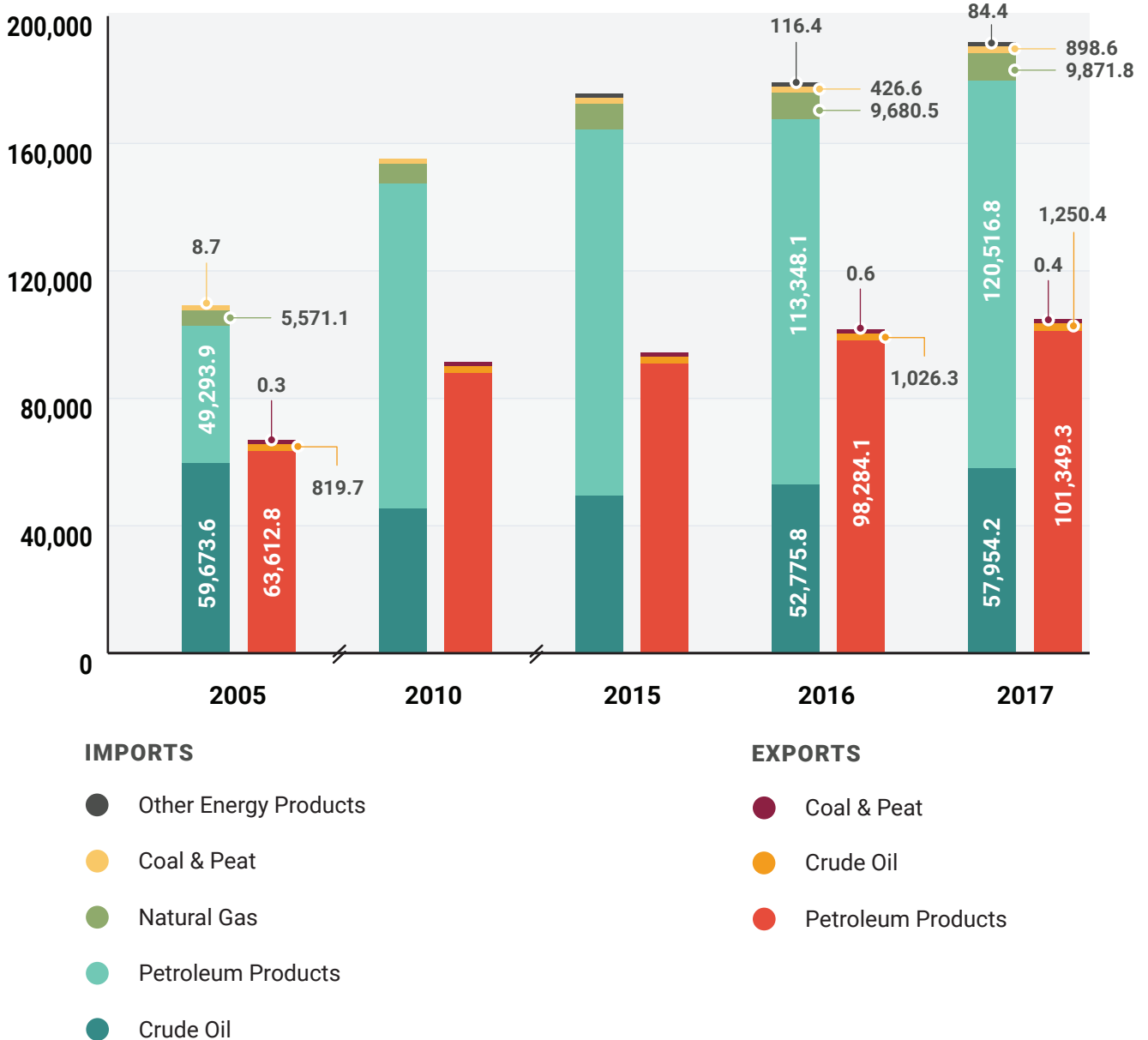
01





IMPORTS & EXPORTS OF ENERGY PRODUCTS

Unit: ktoe



Each component in the chart above is ordered according to the legend

The import of fuels is a critical avenue for Singapore to secure a reliable and diversified supply of competitively-priced energy.

Singapore imported 189.3 Mtoe of energy products in 2017, 7.4% higher than the 176.3 Mtoe recorded in the preceding year. Petroleum Products comprised the bulk (i.e. 63.7%) of total imports, followed by Crude Oil (i.e. 30.6%). Imports of Natural Gas (NG), mainly in the form of Pipeline Natural Gas (PNG),

which accounted for 72.4% of total NG imports in 2017, grew by 2.0% to 9.9 Mtoe.

Overall energy exports grew by 3.3%, from 99.3 Mtoe in 2016 to 102.6 Mtoe in 2017. This increase was primarily driven by stronger external demand for Fuel Oil and Jet Fuel Kerosene.



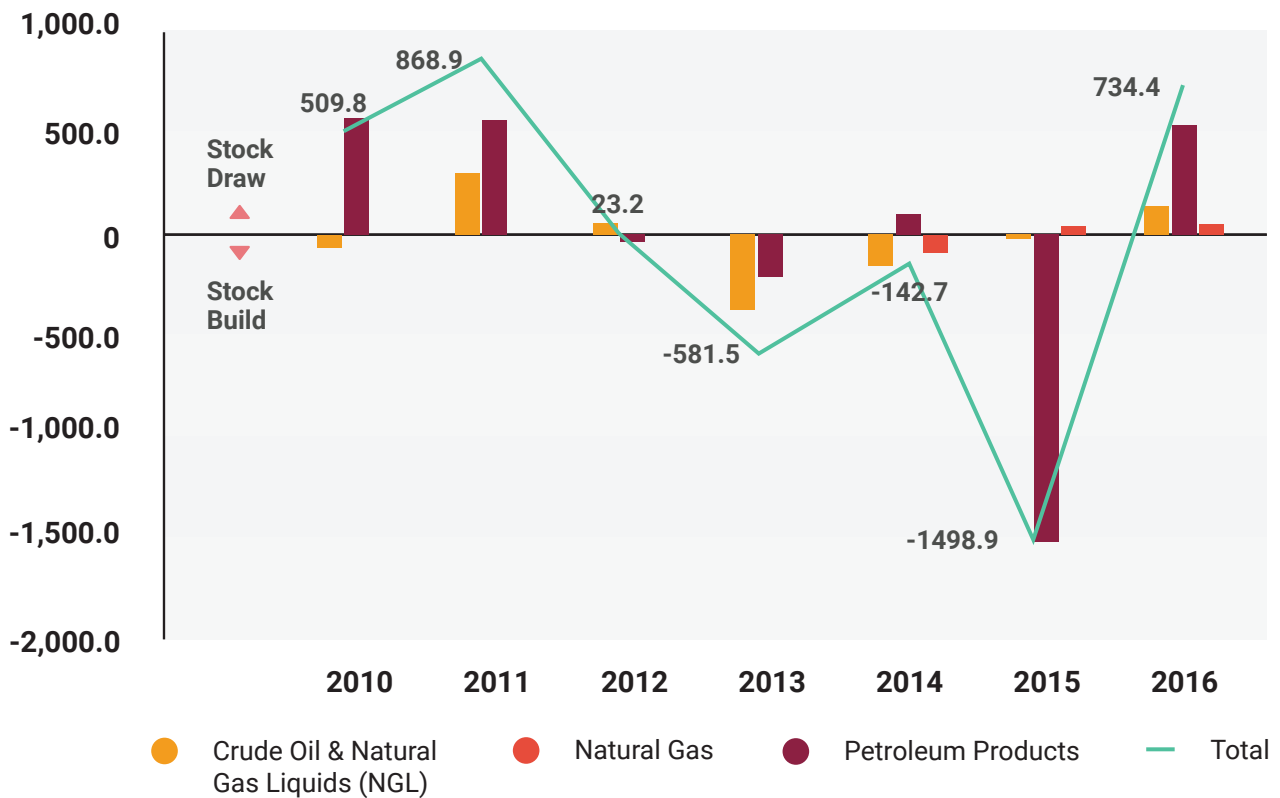
LNG

LNG

STOCK CHANGE

Stock change is the difference between the opening and closing stock levels at the national level 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) definition.

Unit: ktoe



A stock draw of 734.4 ktoe of energy products was registered in 2016. This contrasted with a stock build of 1,498.9 ktoe in 2015.

The overall stock draw in 2016 was due primarily to a stock draw of Petroleum Products (i.e. 541.0 ktoe), Crude Oil & NGL (i.e. 141.8 ktoe) and Natural Gas (i.e. 51.6 ktoe).

**TABLE 1.1: IMPORTS
OF ENERGY PRODUCTS**

Unit: ktoe

	2005	2010	2014	2015	2016	2017
Total	114,547.3	153,679.1	161,139.8	172,811.7	176,347.4	189,325.8
Coal & Peat	8.7	7.9	396.2	406.5	426.6	898.6
Crude Oil	59,673.6	45,396.1	47,479.9	49,437.7	52,775.8	57,954.2
Crude Oil	58,884.6	44,332.2	47,147.8	48,089.0	51,645.4	56,631.0
Other Crude Oil	789.0	1,063.9	332.1	1,348.6	1,130.4	1,323.1
Petroleum Products	49,293.9	101,060.6	103,801.5	113,432.9	113,348.1	120,516.8
Fuel Oil	29,551.2	58,020.0	62,279.9	69,902.8	68,560.6	76,356.2
Gas / Diesel Oil	3,999.7	17,459.2	14,322.8	14,809.2	15,896.1	14,321.4
Gasoline	7,619.5	14,858.7	14,774.5	15,614.9	16,891.2	16,683.2
Jet Fuel Kerosene	2,180.7	3,602.7	2,041.2	2,007.7	3,131.1	3,085.8
Naphtha	4,095.0	5,970.2	8,981.5	9,684.5	7,221.5	8,258.9
Other Petroleum Products	1,847.7	1,149.6	1,401.6	1,413.8	1,647.5	1,811.3
Natural Gas (NG)	5,571.1	7,214.5	9,417.8	9,453.5	9,680.5	9,871.8
Pipeline NG	5,571.1	7,214.5	7,384.5	7,133.6	7,418.6	7,143.4
Liquefied NG	-	-	2,033.3	2,319.9	2,261.9	2,728.4
Other Energy Products	-	-	44.4	81.1	116.4	84.4

Sources: Enterprise Singapore and Energy Market Authority (EMA)

Notes:

- Numbers may not add up to the totals due to rounding.
- All data are compiled from Enterprise Singapore's trade statistics except Natural Gas, Other Energy Products and biomass trade data, which are compiled from EMA's administrative returns.
- Enterprise Singapore releases trade data in mass units. EMA releases similar data in energy units (ktoe).
- The product classification of energy products aligns with International Energy Agency's (IEA) classification and may differ from that used for trade statistics.
- Biomass trade recorded is for energy use only.

**TABLE 1.2: EXPORTS
OF ENERGY PRODUCTS****Unit: ktoe**

	2005	2010	2014	2015	2016	2017
Total	64,432.8	88,897.5	86,180.7	91,992.7	99,311.0	102,600.2
Coal & Peat	0.3	0.1	7.7	0.1	0.6	0.4
Crude Oil	819.7	766.6	668.5	1,064.2	1,026.3	1,250.4
Crude Oil	177.3	40.3	0.1	62.1	0.0	156.4
Other Crude Oil	642.4	726.2	668.5	1,002.2	1,026.3	1,094.1
Petroleum Products	63,612.8	88,130.8	85,504.5	90,928.2	98,284.1	101,349.3
Fuel Oil	16,066.7	21,802.3	24,688.2	28,927.5	30,696.2	32,529.1
Gas / Diesel Oil	15,208.8	27,376.4	22,679.9	23,428.2	25,527.0	25,422.4
Gasoline	15,183.0	24,037.6	25,234.0	25,330.0	26,082.2	25,566.9
Jet Fuel Kerosene	6,955.3	7,208.9	5,050.3	4,953.6	6,155.0	7,413.3
Naphtha	2,470.2	990.4	453.4	788.3	1,106.2	1,024.4
Other Petroleum Products	7,728.7	6,715.2	7,398.6	7,500.5	8,717.5	9,393.1

Sources: Enterprise Singapore and Energy Market Authority (EMA)

Notes:

- All data are compiled from Enterprise Singapore's trade statistics.
- Enterprise Singapore releases trade data in mass units. EMA releases similar data in energy units (ktoe).
- The product classification of energy products differs from that used by Enterprise Singapore for trade statistics.

TABLE 1.2.1: DOMESTIC EXPORTS OF ENERGY PRODUCTS**Unit: ktoe**

	2005	2010	2014	2015	2016	2017
Total	58,060.2	55,302.4	71,516.5	78,402.6	88,694.6	94,687.5
Coal & Peat	0.0	0.0	0.2	0.0	0.0	0.4
Crude Oil	425.7	479.8	584.2	753.4	751.2	785.3
Crude Oil	-	0.1	-	0.7	0.0	-
Other Crude Oil	425.7	479.7	584.2	752.7	751.2	785.3
Petroleum Products	57,634.5	54,822.6	70,932.0	77,649.1	87,943.4	93,901.6
Fuel Oil	14,755.4	11,715.8	23,873.1	27,661.8	30,053.0	31,423.5
Gas / Diesel Oil	14,126.0	19,099.3	14,828.7	17,480.9	20,180.8	22,035.9
Gasoline	12,732.2	11,641.7	20,954.3	20,716.5	23,627.9	24,282.7
Jet Fuel Kerosene	6,114.7	5,033.3	3,932.7	4,136.1	4,769.2	6,316.8
Naphtha	2,448.9	911.7	436.6	703.1	1,105.8	1,008.7
Other Petroleum Products	7,457.2	6,420.8	6,906.7	6,950.7	8,206.7	8,834.0

Sources: Enterprise Singapore and Energy Market Authority (EMA)

Notes:

- All data are compiled from Enterprise Singapore's trade statistics.
- Enterprise Singapore releases trade data in mass units. EMA releases similar data in energy units (ktoe).
- The product classification of energy products differs from that used by Enterprise Singapore for trade statistics.

**TABLE 1.2.2: RE-EXPORTS
OF ENERGY PRODUCTS****Unit: ktoe**

	2005	2010	2014	2015	2016	2017
Total	6,372.6	33,595.0	14,664.2	13,590.1	10,616.5	7,912.8
Coal & Peat	0.3	0.0	7.5	0.1	0.6	0.1
Crude Oil	394.0	286.8	84.3	310.8	275.1	465.1
Crude Oil	177.3	40.2	0.0	61.4	0.0	156.4
Other Crude Oil	216.7	246.6	84.3	249.5	275.1	308.7
Petroleum Products	5,978.3	33,308.2	14,572.4	13,279.1	10,340.8	7,447.7
Fuel Oil	1,311.3	10,086.5	815.1	1,265.7	643.2	1,105.6
Gas / Diesel Oil	1,082.8	8,277.1	7,851.2	5,947.3	5,346.2	3,386.6
Gasoline	2,450.7	12,395.9	4,279.8	4,613.5	2,454.4	1,284.2
Jet Fuel Kerosene	840.6	2,175.7	1,117.6	817.5	1,385.8	1,096.4
Naphtha	21.4	78.7	16.9	85.2	0.4	15.7
Other Petroleum Products	271.5	294.4	491.9	549.8	510.8	559.1

Sources: Enterprise Singapore and Energy Market Authority (EMA)

Notes:

- All data are compiled from Enterprise Singapore's trade statistics.
- Enterprise Singapore releases trade data in mass units. EMA releases similar data in energy units (ktoe).
- The product classification of energy products differs from that used by Enterprise Singapore for trade statistics.

TABLE 1.3: STOCK CHANGE**Unit: ktoe**

	2010	2012	2013	2014	2015	2016
Total	509.8	23.2	-581.5	-142.7	-1,498.9	734.4
Crude Oil & Natural Gas Liquids (NGL)	-64.0	59.2	-372.9	-155.7	-20.9	141.8
Petroleum Products	573.8	-36.0	-208.7	101.2	-1,519.4	541.0
Light Distillates	42.5	180.0	-181.6	-155.2	-138.1	-54.1
Middle Distillates	-82.8	-223.8	444.2	-70.7	-277.5	146.2
Heavy Distillates & Residuum	614.0	7.8	-471.2	327.0	-1,103.9	448.9
Natural Gas (NG)	-	-	-	-88.2	41.4	51.6

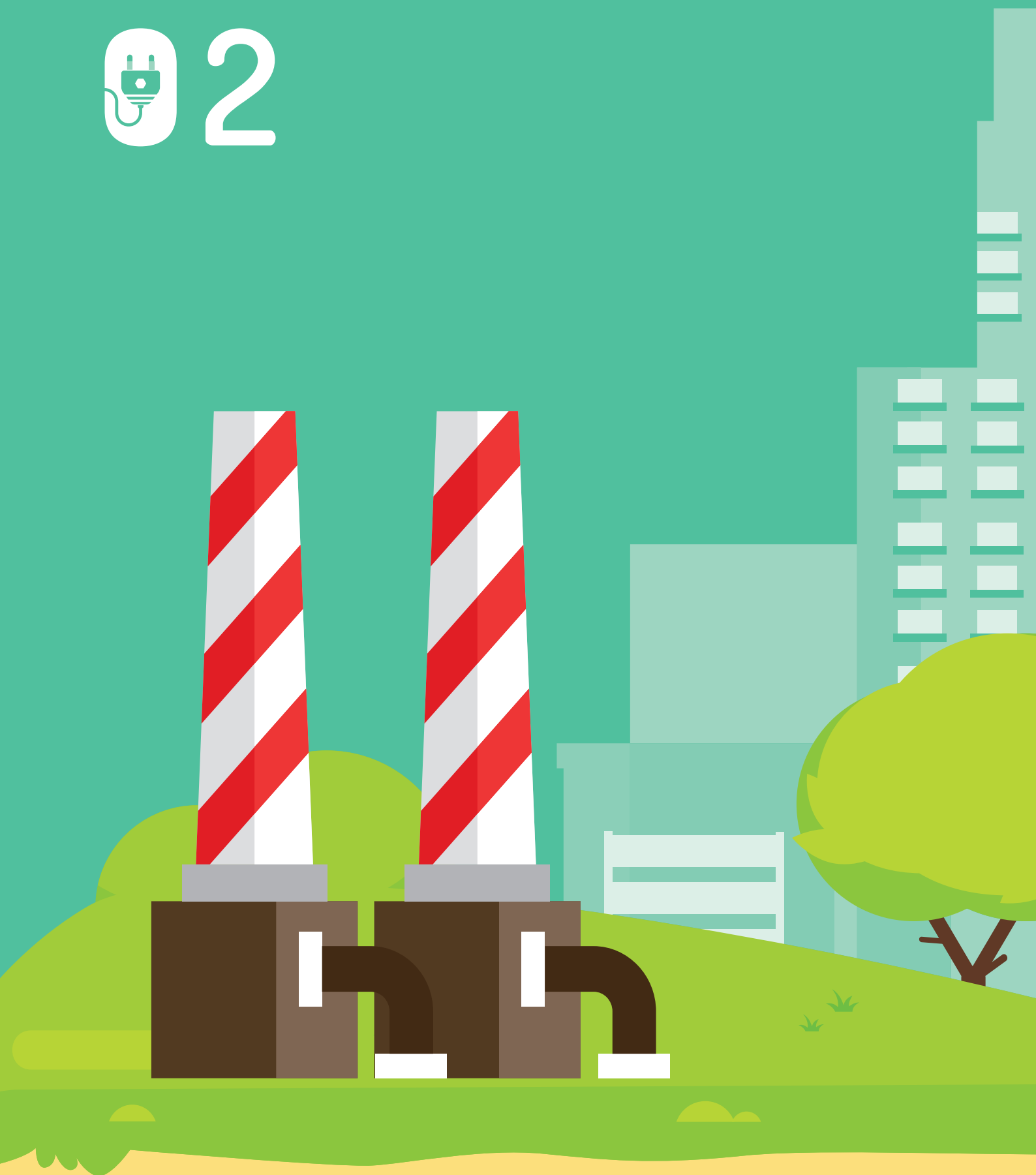
Source: Energy Market Authority (EMA)

Notes:

a. 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 at the end of the calendar year respectively.

b. A negative figure denotes a stock build. A positive figure denotes a stock draw.

ENERGY TRANSFORMATION





ELECTRICITY GENERATION

Around 4,490.6 ktoe (52.2 TWh) of electricity was generated in 2017, an increase by 1.2% from the 4,435.6 ktoe (51.6 TWh) produced in 2016. Main Power Producers (MPPs) contributed 92.4% (4,147.5 ktoe) of total electricity generation, while the remaining 7.6% (343.1 ktoe) was accounted for by Autoproducers¹.

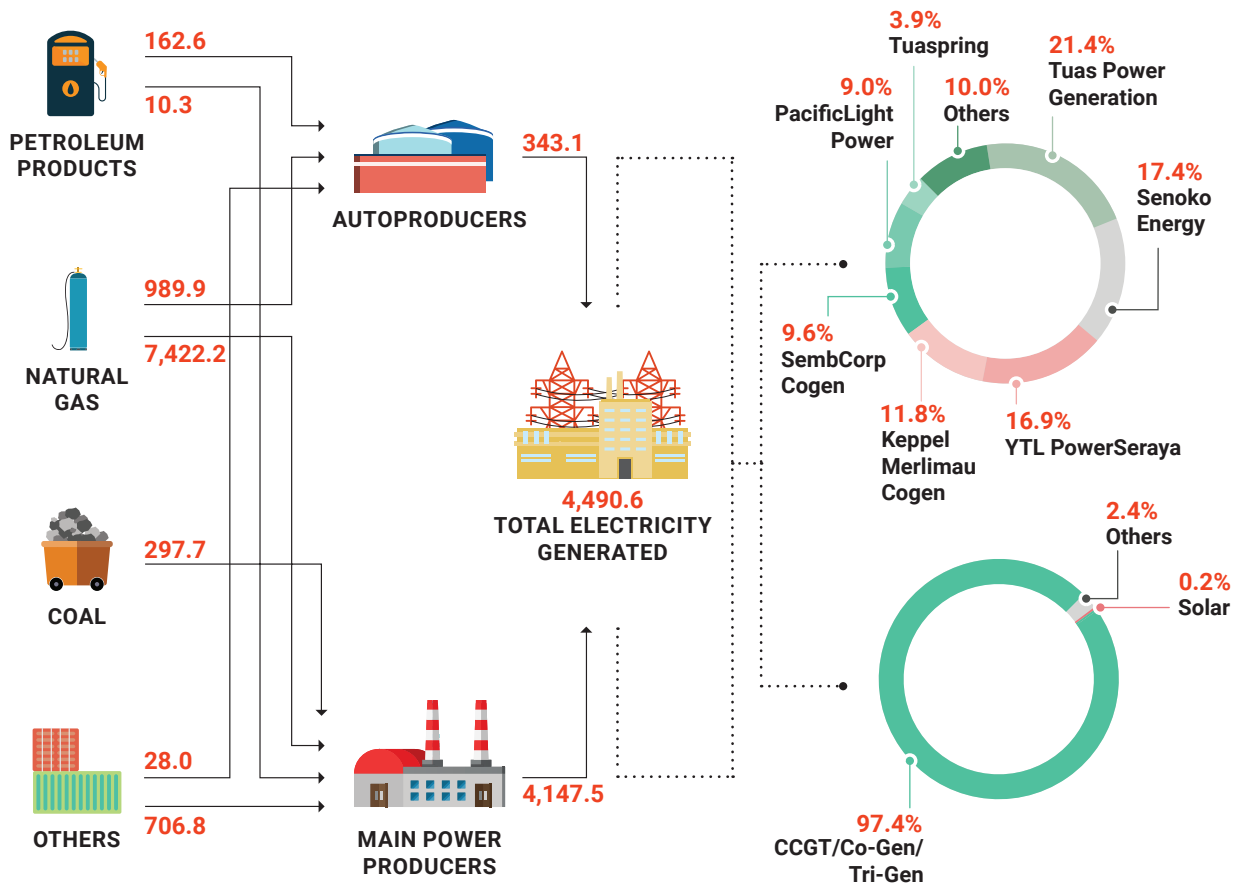
Autoproducers' share of electricity generation has steadily grown over the years. From only 2.5% in 2008, this has climbed to 2.8% in 2010, and subsequently to 7.6% in 2017.

Unit: ktoe

2017	Petroleum Products	Natural Gas	Coal	Others	Electricity
Total Electricity Generation	-172.9	-8,412.1	-297.7	-734.8	4,490.6
Main Power Producers	-10.3	-7,422.2	-297.7	-706.8	4,147.5
Autoproducers	-162.6	-989.9	-	-28.0	343.1

Notes:

A negative sign indicates the use of energy products for electricity generation as part of energy transformation.



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

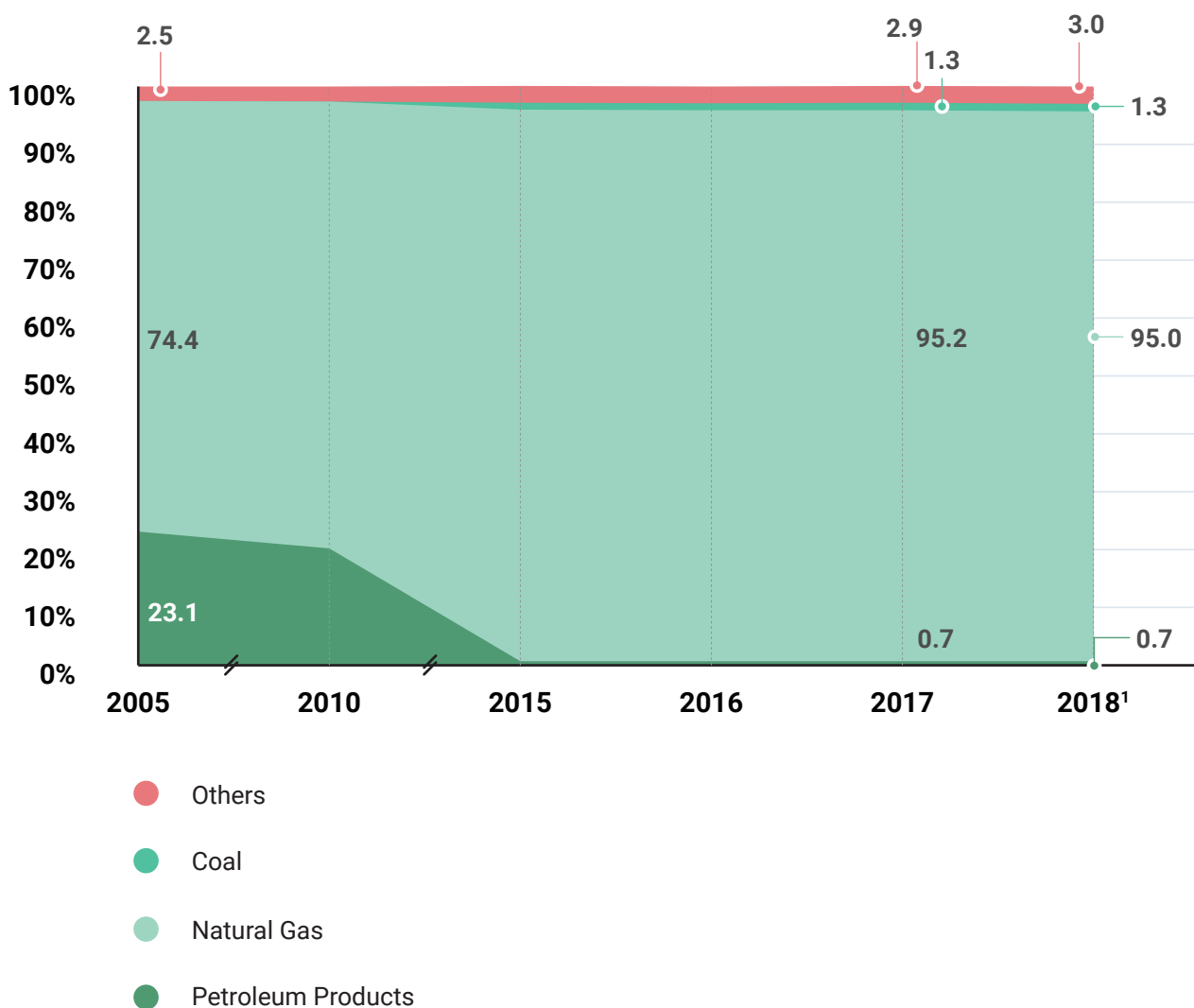
FUEL MIX FOR ELECTRICITY GENERATION

Singapore's dependence on steam turbine plants for electricity generation has gradually declined over the years with the introduction of new Combined Cycle Gas Turbine (CCGT) plants. This resulted in an increase in the share of Natural Gas (NG), the primary fuel of CCGTs, in Singapore's fuel mix. Singapore's dependence on Fuel Oil, the primary fuel of steam plants, has thus fallen over time.

In 2017, NG accounted for 95.2% of fuel mix. Other energy products (e.g. Municipal Waste, Biomass and Solar) accounted for 2.9% while the rest was contributed by Coal (i.e. 1.3%) and Petroleum Products, mainly in the form of Diesel and Fuel Oil (i.e. 0.7%).

ELECTRICITY GENERATION FUEL MIX

Unit: Percent (%)



Each component in the chart above is ordered according to the legend.

¹ Data for 2018 is as of 1Q 2018.

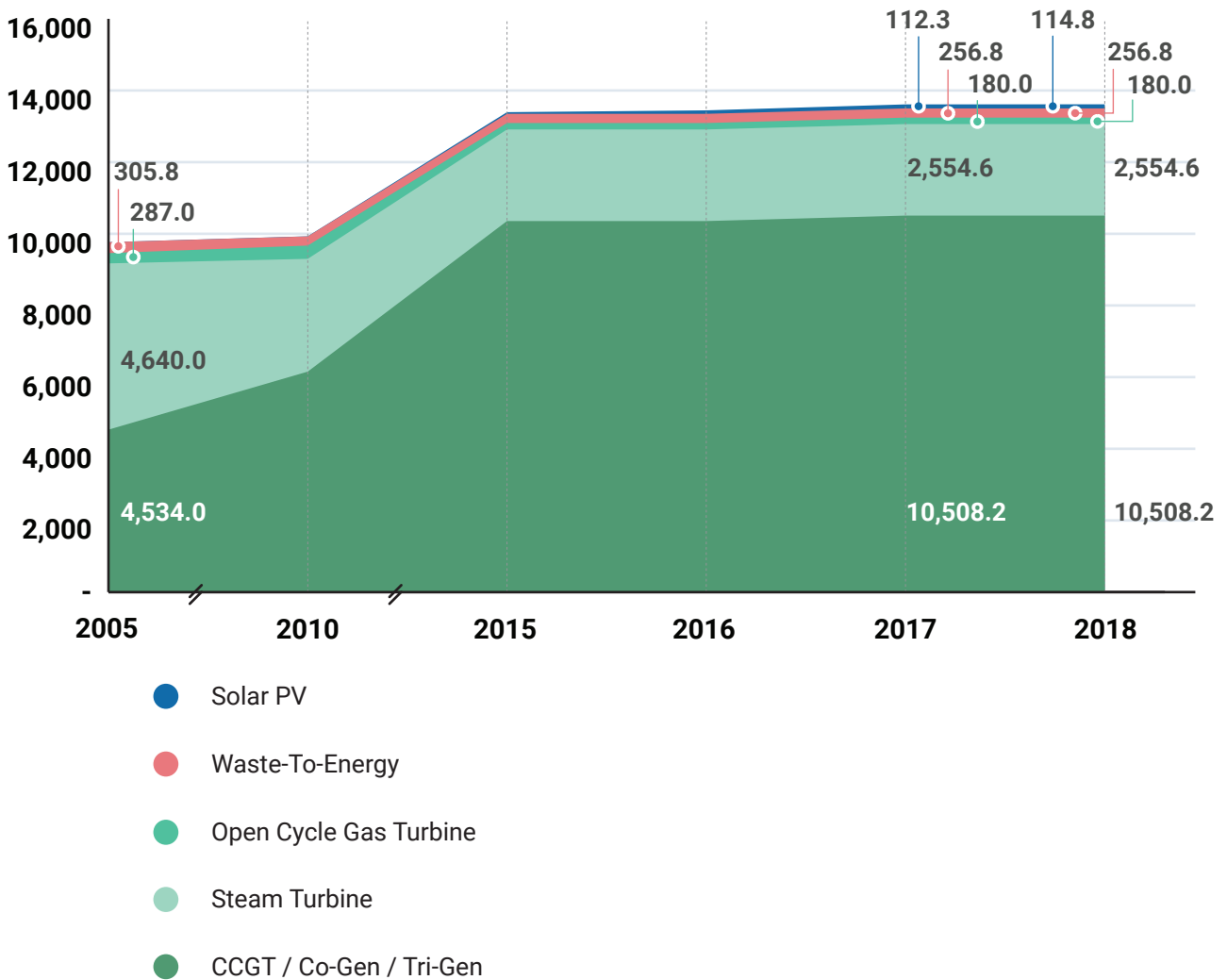
ELECTRICITY GENERATION INDUSTRY

The total electricity generation capacity in Singapore grew slightly from 13,611.9 MW in 2017 to 13,614.4 MW in 2018¹ due to an increase in the generation capacity of Solar Photovoltaic (PV). The CCGT, Co-Generation and/or Tri-Generation Plants (CCGT/Co-Gen/Tri-Gen) constituted 77.2% (or 10,508.2 MW) of this capacity, while Steam Turbines constituted 18.8% (or 2,554.6 MW). Open Cycle Gas Turbine, Waste-To-Energy and Solar PV contributed to the remaining 1.3% (or 180.0 MW), 1.9% (or 256.8 MW) and 0.8% (or 256.8 MW) of total electricity capacity respectively.

Over the years, the repowering of Steam Turbine plants into more efficient CCGT/Co-Gen/Tri-Gen plants have resulted in a decline of Steam Turbine plants' licensed generation capacity from 4,640.0 MW in 2005 to 2,554.6 MW as at end March 2018.

ELECTRICITY GENERATION CAPACITY BY TECHNOLOGY TYPE

Unit: MW



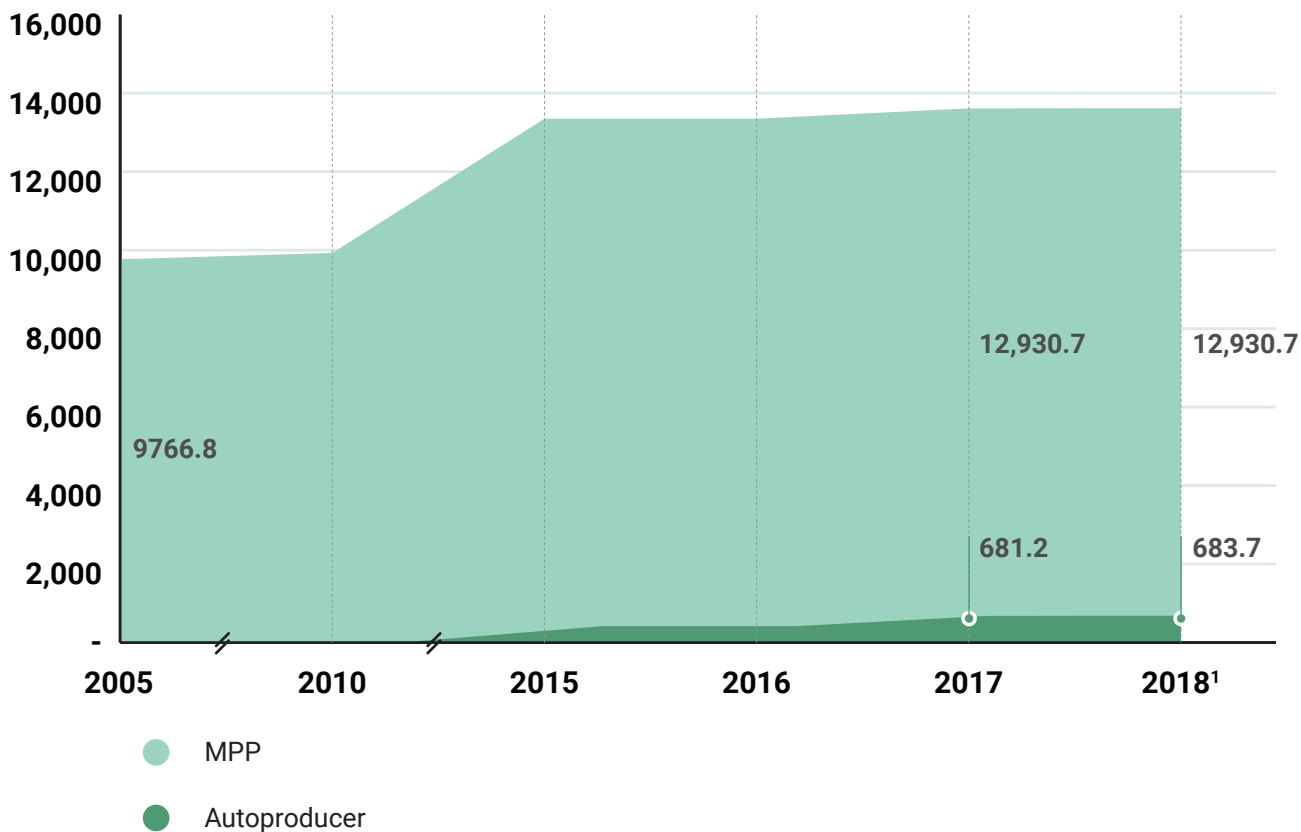
Each component in the chart above is ordered according to the legend.

¹ Data for 2018 is as of 1Q 2018.

MPPs accounted for 95.0% (or 12,930.7 MW) of total electricity generation capacity, while Autoproducers made up the remaining 5.0% (683.7 MW).

ELECTRICITY GENERATION CAPACITY BY MAIN POWER PRODUCER (MPP) AND AUTOPRODUCER

Unit: MW



Each component in the chart above is ordered according to the legend.

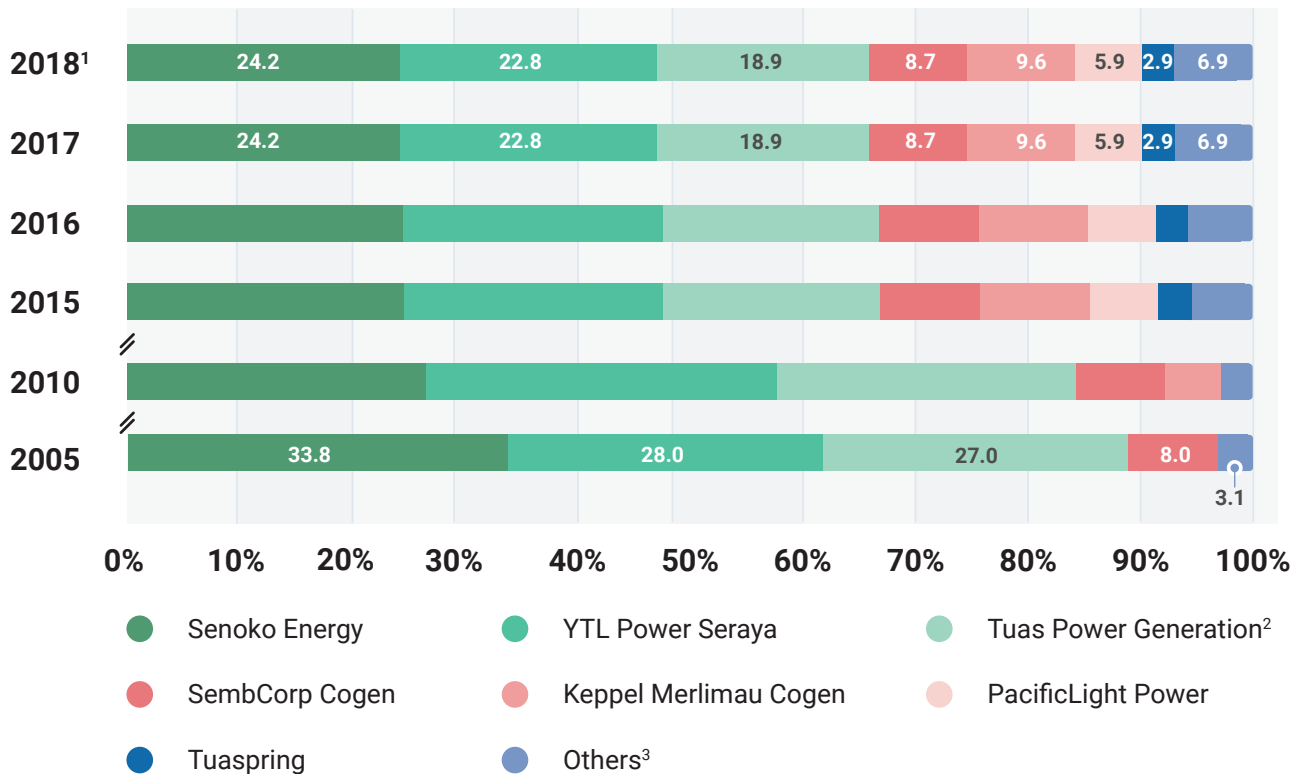
¹Data for 2018 is as of 1Q 2018.

In recent years, the power generation market has been increasingly competitive with the expansion of smaller existing MPPs, and the entry of new MPPs (i.e. PacificLight Power in 2014, and Tuaspring in 2015). This had resulted in a fall in the generation

capacity market share of the three major MPPs – Senoko Energy, YTL PowerSeraya and Tuas Power – from 88.8% in 2005, to 84.3% in 2010, and subsequently to 66.0% as at end March 2018.

PERCENTAGE CONTRIBUTION TO TOTAL ELECTRICITY GENERATION CAPACITY, BY GENERATOR

Unit: Percent (%)



¹Data for 2018 is as of 1Q 2018.

²Includes electricity generation by TP Utilities.

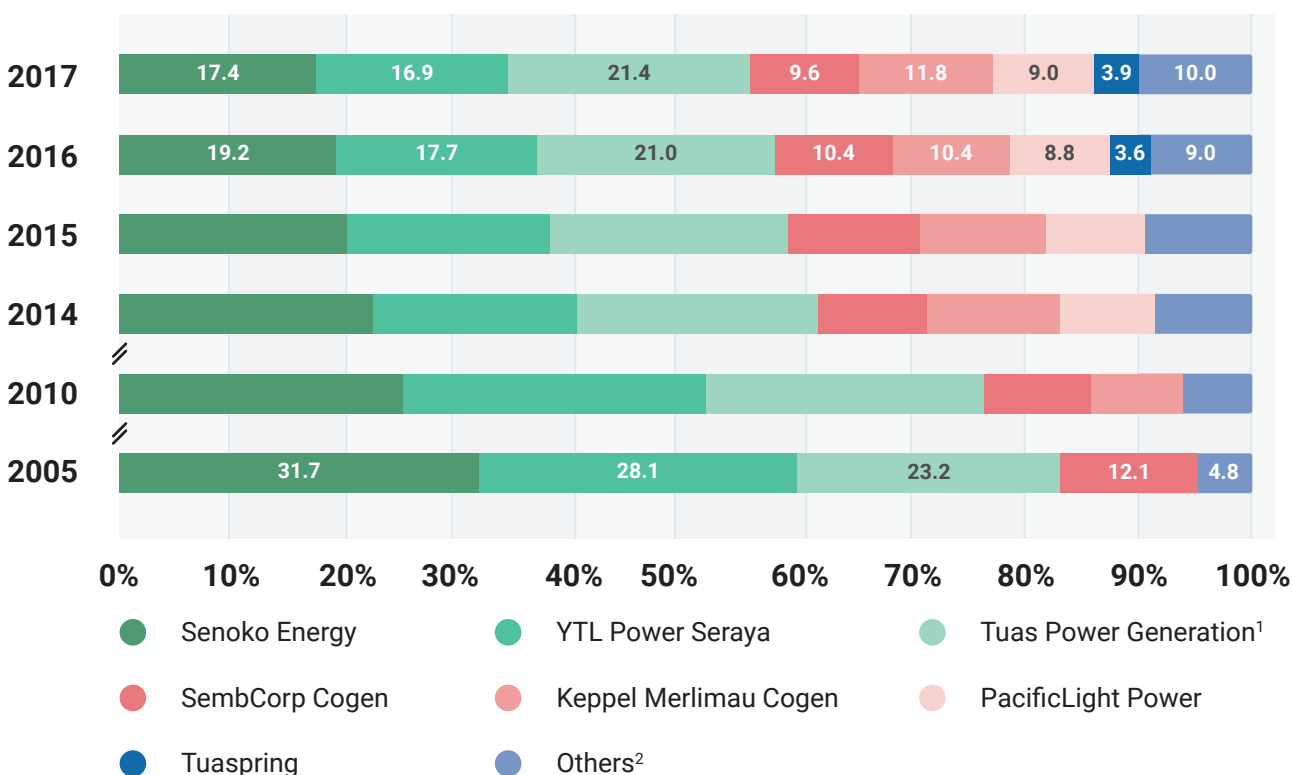
³Includes electricity generation by Wholesale Licensees, Waste-To-Energy Plants and Solar PV

The electricity generation market share for the three major MPPs also registered a gradual decline since 2005. With a combined market dominance of 83.0% in 2005, this fell to 76.3% in 2010, and subsequently to 55.7% in 2017. This decline correlated with their decreasing share of generation capacity.

Conversely, the next 2 largest MPPs – Keppel Merlimau Cogen and Sembcorp Cogen – gradually expanded their combined market share from 12.1% in 2005, to 17.5% in 2010, and to 21.4% in 2017.

MARKET SHARES FOR ELECTRICITY GENERATION

Unit: Percent (%)



¹ Includes electricity generation by TP Utilities.

² Includes electricity generation by Wholesale Licensees, Waste-To-Energy Plants and Solar PV units.

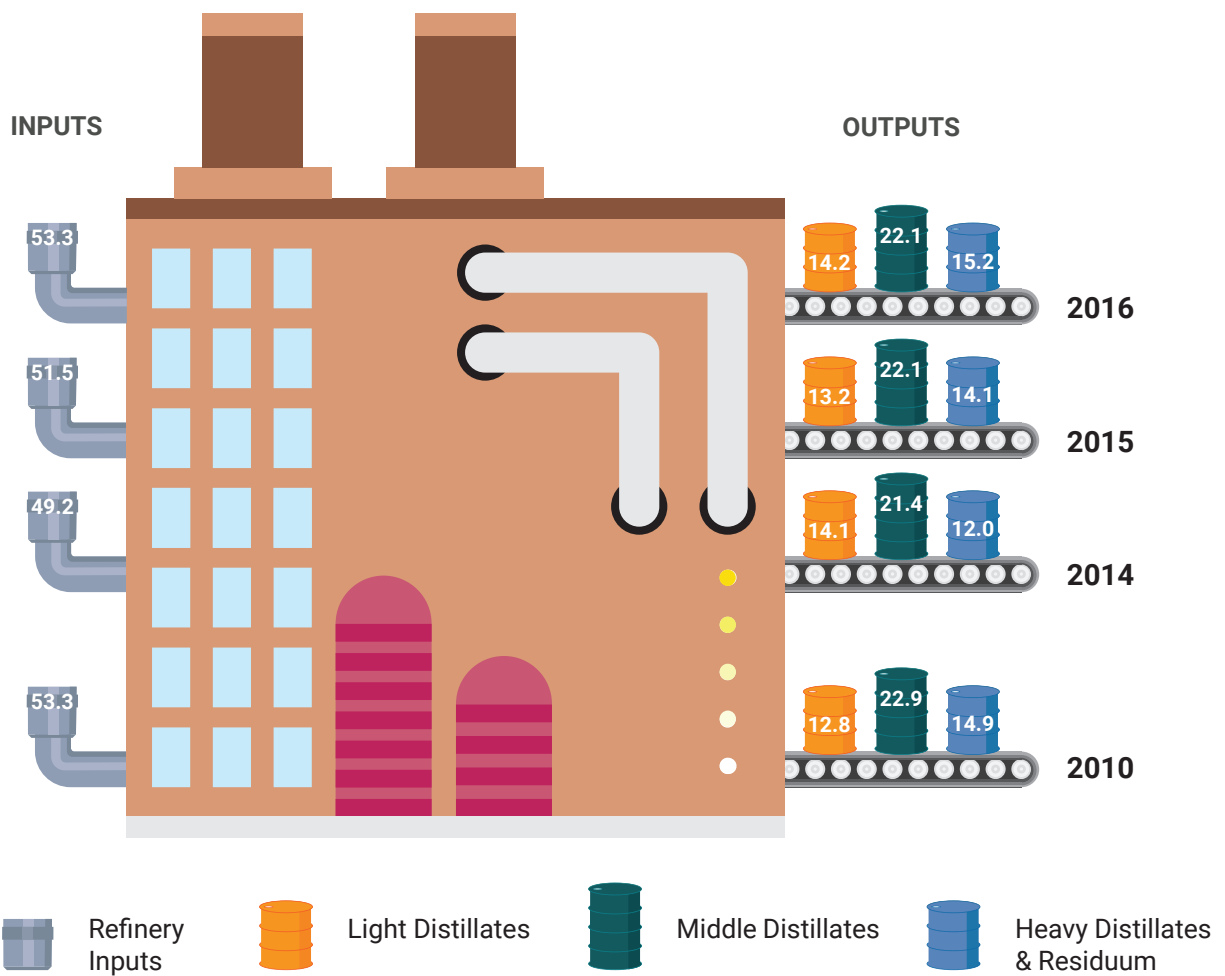
ENERGY FLOWS IN THE OIL REFINING SECTOR

About 53.3 Mtoe of refinery inputs were consumed by the oil refining sector in 2016, a 3.5% increase from the 51.5 Mtoe recorded in 2015. These inputs yielded 51.5 Mtoe of refinery outputs, 4.3% higher than the corresponding output of 49.3 Mtoe a year earlier.

In 2016, Light Distillates and Heavy Distillates & Residuum recorded outputs totalling 14.2 Mtoe and 15.2 Mtoe, about 7.8% and 7.7% higher than their corresponding output in 2015. Middle Distillates output stood at 22.1 Mtoe in 2016, consistent with that recorded in 2015.

REFINERY INPUTS & OUTPUTS

Unit: Mtoe



**TABLE 2.1: ENERGY FLOWS
FOR ELECTRICITY GENERATION****Unit: ktoe**

	2005	2010	2014	2015	2016	2017
Total Energy Inputs into Electricity Generators	7,190.2	8,781.2	9,223.5	9,299.4	9,534.9	9,617.5
Total Gross Electricity Generated by the Electricity Generators	3,285.7	3,900.8	4,239.9	4,322.6	4,435.6	4,490.6
Energy Inputs into Main Power Producers	7,190.2	8,235.3	8,204.5	8,205.3	8,409.6	8,437.0
Petroleum Products	2,445.6	1,915.2	28.6	14.9	47.3	10.3
Natural Gas	4,744.6	5,732.8	7,258.9	7,268.9	7,378.5	7,422.2
Coal and Peat	-	-	226.3	243.1	259.2	297.7
Others	0.0	587.3	690.8	678.4	724.6	706.8
Of Which: Biomass excluding Municipal Waste	-	-	44.5	63.4	69.3	68.1
Gross Electricity Generated by Main Power Producers	3,285.7	3,791.7	3,984.2	4,044.0	4,133.0	4,147.5
Energy Inputs into Autoproducers	-	545.9	1,019.0	1,094.1	1,125.2	1,180.5
Petroleum Products	-	313.2	209.6	184.9	75.5	162.6
Natural Gas	-	232.7	809.4	889.5	985.7	989.9
Others	-	-	-	19.8	64.0	28.0
Gross Electricity Generated by Autoproducers	-	109.0	255.7	278.6	302.7	343.1

Source: Energy Market Authority (EMA)

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

	2005	2010	2015	2016	2017	2018 ¹
Petroleum Products	23.1	20.2	0.7	0.7	0.7	0.7
Natural Gas	74.4	77.2	95.3	95.2	95.2	95.0
Coal	-	-	1.2	1.2	1.3	1.3
Others	2.5	2.6	2.9	2.9	2.9	3.0

Source: Energy Market Authority (EMA)

¹Data for 2018 is as of 1Q 2018.

Notes

- a. 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.
- b. From 2016, the category "Others" includes solar.

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

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

2016												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Petroleum Products	0.1	0.3	0.2	0.2	0.2	0.1	0.4	0.5	1.0	0.2	3.9	1.0
Natural Gas	95.7	95.3	95.5	95.7	95.5	95.8	95.6	96.2	94.4	95.6	92.0	94.8
Coal	1.0	1.1	1.3	1.3	1.4	1.4	1.3	0.7	1.4	1.4	1.3	1.3
Others	3.2	3.4	3.0	2.8	2.9	2.8	2.7	2.6	3.3	2.9	2.7	3.0

2017												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Petroleum Products	0.6	0.9	0.9	0.9	0.8	0.4	0.3	0.8	0.4	0.6	0.8	0.9
Natural Gas	95.0	95.1	95.5	94.6	94.9	95.3	95.5	94.8	96.3	95.2	95.1	94.4
Coal	1.3	1.1	0.8	1.5	1.5	1.5	1.5	1.5	0.7	1.4	1.3	1.6
Others	3.1	2.9	2.9	3.1	2.7	2.8	2.7	2.9	2.7	2.8	2.8	3.2

2018			
	Jan	Feb	Mar
Petroleum Products	0.8	0.7	0.6
Natural Gas	94.5	94.6	95.8
Coal	1.5	1.5	1.0
Others	3.1	3.2	2.6

Source: Energy Market Authority (EMA)

Notes:

- a. 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.
- b. From 2016, the category "Others" includes solar.

TABLE 2.3: ELECTRICITY GENERATION CAPACITY BY TECHNOLOGY TYPE**Unit: MW**

	2005	2010	2015	2016	2017	2018 ¹
Total Registered Generation Capacity	9,766.8	9,931.3	13,394.6	13,445.1	13,611.9	13,614.4
CCGT/Co-Gen/Tri-Gen	4,534.0	6,153.5	10,355.5	10,355.5	10,508.2	10,508.2
Steam Turbine	4,640.0	3,148.0	2,556.5	2,556.1	2,554.6	2,554.6
Open Cycle Gas Turbine	287.0	370.0	180.0	180.0	180.0	180.0
Waste-To-Energy	305.8	256.8	256.8	256.8	256.8	256.8
Of Which: Main Power Producers	9,766.8	9,906.8	12,930.7	12,930.7	12,930.7	12,930.7
CCGT/Co-Gen/Tri-Gen	4,534.0	6,132.0	9,952.9	9,952.9	9,952.9	9,952.9
Steam Turbine	4,640.0	3,148.0	2,541.0	2,541.0	2,541.0	2,541.0
Open Cycle Gas Turbine	287.0	370.0	180.0	180.0	180.0	180.0
Waste-To-Energy	305.8	256.8	256.8	256.8	256.8	256.8
Of Which: Autoproducers	-	24.5	463.9	514.4	681.2	683.7
CCGT/Co-Gen/Tri-Gen	-	21.5	402.6	402.6	555.3	555.3
Steam Turbine	-	-	15.5	15.1	13.6	13.6
Open Cycle Gas Turbine	-	-	-	-	-	-
Solar PV	-	2.9	45.8	96.7	112.3	114.8

Source: Energy Market Company (EMC)

¹ Data for 2018 is as at end-March 2018.

Notes:

- a. CCGT/Co-Gen/Tri-Gen refer to Combined Cycle Gas Turbines, Co-Generation Plants and/or Tri-Generation Plants.
b. Electricity Generation Capacity includes solar PV capacity (in MWac).

TABLE 2.3.1: ELECTRICITY GENERATION CAPACITY BY GENERATOR

Unit: MW

	2005	2010	2015	2016	2017	2018 ¹
Total Registered Generation Capacity	9,766.8	9,931.3	13,394.6	13,445.1	13,611.9	13,614.4
Of Which: Main Power Producers						
Senoko Energy Pte Ltd	3,300.0	2,635.0	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
Steam Turbine	1,250.0	500.0	493.0	493.0	493.0	493.0
Open Cycle Gas Turbine	105.0	190.0	-	-	-	-
YTL PowerSeraya Pte Ltd	2,736.0	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
Steam Turbine	2,190.0	1,448.0	1,448.0	1,448.0	1,448.0	1,448.0
Open Cycle Gas Turbine	182.0	180.0	180.0	180.0	180.0	180.0
Tuas Power Generation² Pte Ltd	2,640.0	2,640.0	2,579.4	2,579.4	2,579.4	2,579.4
CCGT/Co-Gen/Tri-Gen	1,440.0	1,440.0	1,979.4	1,979.4	1,979.4	1,979.4
Steam Turbine	1,200.0	1,200.0	600.0	600.0	600.0	600.0
Open Cycle Gas Turbine	-	-	-	-	-	-
SembCorp Cogen Pte Ltd	785.0	785.0	1,188.8	1,188.8	1,188.8	1,188.8
CCGT/Co-Gen/Tri-Gen	785.0	785.0	1,188.8	1,188.8	1,188.8	1,188.8
Steam Turbine	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-
Keppel Merlimau Cogen Pte Ltd	-	490.0	1,310.0	1,310.0	1,310.0	1,310.0
CCGT/Co-Gen/Tri-Gen	-	490.0	1,310.0	1,310.0	1,310.0	1,310.0
Steam Turbine	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-
PacificLight Power Pte Ltd	-	-	800.0	800.0	800.0	800.0
CCGT/Co-Gen/Tri-Gen	-	-	800.0	800.0	800.0	800.0
Steam Turbine	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-
Tuaspring Pte Ltd	-	-	395.7	395.7	395.7	395.7
CCGT/Co-Gen/Tri-Gen	-	-	395.7	395.7	395.7	395.7
Steam Turbine	-	-	-	-	-	-
Open Cycle Gas Turbine	-	-	-	-	-	-

TABLE 2.3.1: ELECTRICITY GENERATION CAPACITY BY GENERATOR (CONTINUED)**Unit: MW**

	2005	2010	2015	2016	2017	2018 ¹
National Environment Agency	250.8	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
Keppel Seghers Tuas WTE Pte Ltd	-	22.0	22.0	22.0	22.0	22.0
Waste-To-Energy	-	22.0	22.0	22.0	22.0	22.0
Senoko WTE Pte Ltd	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	-	24.5	463.9	514.4	681.2	683.7
CCGT/Co-Gen/Tri-Gen	-	21.5	402.6	402.6	555.3	555.3
Steam Turbine	-	-	15.5	15.1	13.6	13.6
Open Cycle Gas Turbine	-	-	-	-	-	-
Solar PV	-	2.9	45.8	96.7	112.3	114.8

Source: Energy Market Company (EMC)

¹ Data for 2018 is as of 1Q 2018.² Includes electricity generation capacity by TP Utilities Pte Ltd.

Notes:

a. CCGT/Co-Gen/Tri-Gen refer to Combined Cycle Gas Turbines, Co-Generation and/or Tri-Generation Plants.

b. Electricity Generation Capacity includes solar PV capacity (in MWac).

TABLE 2.4: PLANT TECHNOLOGY SHARE OF ELECTRICITY GENERATION**Unit: Percent (%)**

	2010	2013	2014	2015	2016	2017
CCGT/Co-Gen/Tri-Gen	80.7	93.8	97.4	97.3	97.3	97.4
Steam Turbines	16.7	3.5	0.0	0.0	0.1	0.0
Solar	-	-	-	-	0.2	0.2
Others	2.6	2.7	2.6	2.6	2.5	2.4

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

b. CCGT/Co-Gen/Tri-Gen refer to Combined Cycle Gas Turbines, Co-Generation and/or Tri-Generation Plants.

TABLE 2.5: MARKET SHARE OF ELECTRICITY GENERATION**Unit: Percent (%)**

	2005	2010	2014	2015	2016	2017
Tuas Power Generation ¹ Pte Ltd	23.2	24.6	21.3	21.0	21.0	21.4
Senoko Energy Pte Ltd	31.7	25.0	22.4	20.1	19.2	17.4
YTL PowerSeraya Pte Ltd	28.1	26.7	18.0	17.9	17.7	16.9
Keppel Merlimau Cogen Pte Ltd	-	8.1	11.8	11.2	10.4	11.8
SembCorp Cogen Pte Ltd	12.1	9.4	9.6	11.6	10.4	9.6
PacificLight Power Pte Ltd	-	-	8.3	8.7	8.8	9.0
Tuaspring Pte Ltd	-	-	-	-	3.6	3.9
Others ²	4.8	6.2	8.6	9.5	9.0	10.0

Source: Energy Market Authority (EMA)

¹ Includes electricity generation by TP Utilities Pte Ltd.² Includes electricity generation by Wholesale Licensees, Waste-To-Energy Plants and Solar PV units.**TABLE 2.6: ENERGY FLOWS IN THE OIL REFINING SECTOR****Unit: Percent (%)**

	2011	2012	2013	2014	2015	2016
Refinery Inputs¹	56,326.6	56,674.7	52,128.4	49,153.0	51,479.8	53,304.7
Crude Oil & Natural Gas Liquids	49,467.3	48,888.2	44,730.0	41,653.3	44,801.4	46,654.9
Other Feedstocks ³	6,859.3	7,786.6	7,398.4	7,499.8	6,678.5	6,649.8
Refinery Outputs²	53,713.1	54,542.1	50,993.2	47,432.9	49,349.8	51,452.8
Light Distillates	12,907.9	13,952.3	12,915.1	14,071.7	13,161.1	14,183.0
Middle Distillates	24,877.4	25,854.8	23,582.3	21,369.9	22,098.7	22,088.6
Heavy Distillates & Residuum	15,927.8	14,735.0	14,495.8	11,991.3	14,090.1	15,181.2

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.

ENERGY CONSUMPTION

03





MARKET SHARE FOR ELECTRICITY RETAIL

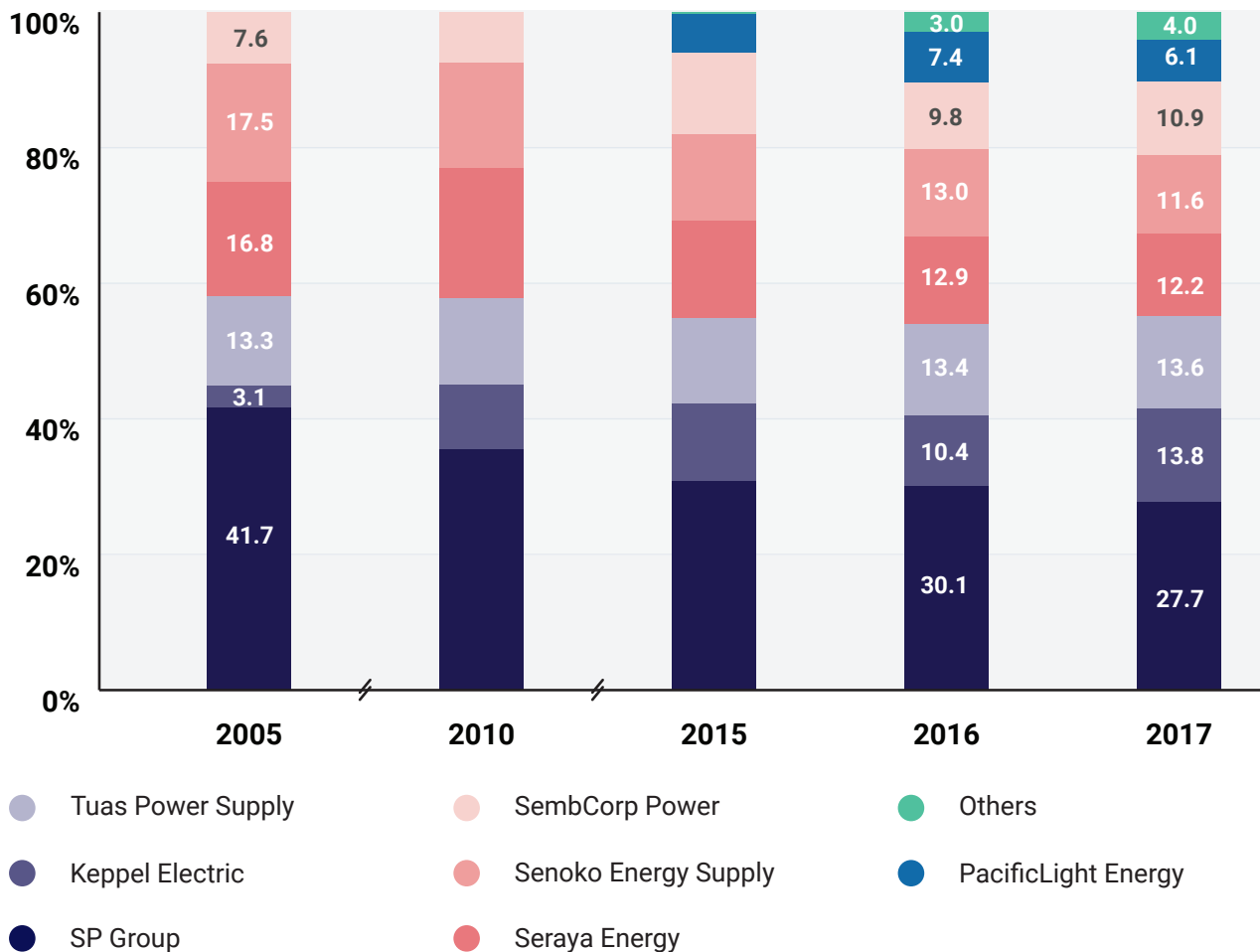
The launch of the electricity futures market in 2015 facilitated the entry of more independent retailers, hence increasing retail competition and bringing benefits to consumers. The electricity retail market considerably expanded with the entry of four new retailers in 2017. These were (i) Union Power, (ii) Energy Supply Solutions, (iii) Just Electric and (iv) Ohm Energy.

In 2017, the market share of SP Group stood at 27.7%. Keppel Electric had a 13.8% market share,

while that for Tuas Power Supply stood at 13.6%. These were closely followed by Seraya Energy (12.2%) and Senoko Energy Supply (11.6%). SembCorp Power and PacificLight Energy accounted for market shares of 10.9% and 6.1% respectively, with the remaining 4.0% distributed among the smaller and newer entrants.

MARKET SHARE FOR ELECTRICITY RETAIL BASED ON ELECTRICITY SALES

Unit: Percent (%)



LIBERALISATION OF RETAIL ELECTRICITY MARKET

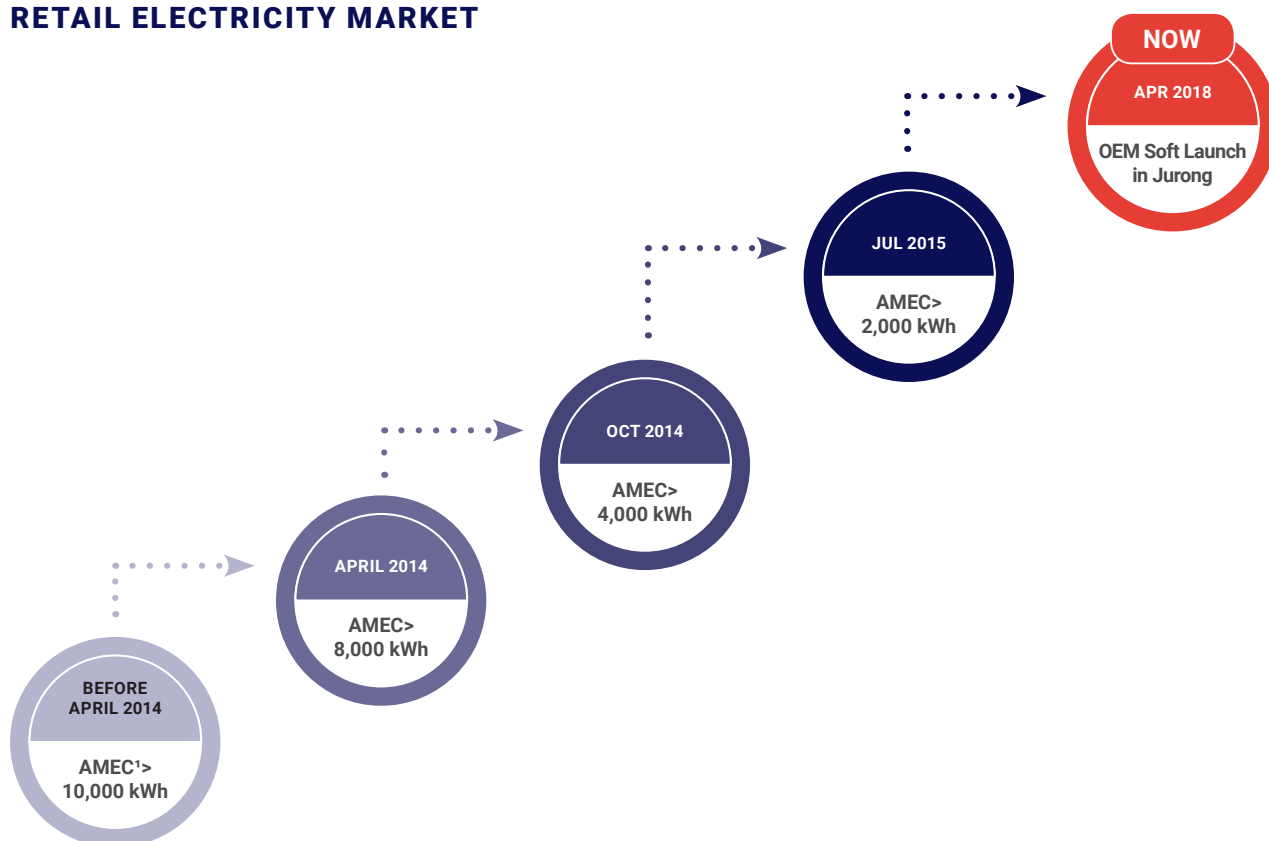
Since 2001, EMA has progressively opened the retail electricity market to competition to allow business consumers more options to manage their energy cost. Instead of buying from SP Group at the regulated tariff, eligible consumers can choose to buy from a retailer at a price plan that best meet their needs, or buy from the wholesale electricity market at the half-hourly wholesale electricity prices. Those who exercise this choice are termed as contestable consumers.

Currently, business consumers with an average monthly electricity consumption of at least 2,000 kWh (equivalent to a monthly electricity bill of at least \$400) are eligible to become contestable. Around 90,000 business accounts, making up about 80% of the total electricity demand, are eligible to exercise this choice and flexibility in their electricity purchases.

Since 1 April 2018, the soft launch of the Open Electricity Market (OEM) in Jurong has provided consumers with choice and flexibility in their electricity purchases. Households and businesses in Jurong can choose to buy electricity from a retailer at a price plan that best meets their needs, or continue buying electricity from SP Group at the regulated tariff.

The soft launch of Open Electricity Market will allow EMA, SP Group and electricity retailers to gather feedback and fine-tune processes where necessary, to enhance the consumer experience of buying electricity in a competitive market. This choice and flexibility is expected to be extended to the rest of Singapore from the fourth quarter of 2018. Please visit www.openelectricitymarket.sg for more information.

LIBERALISATION JOURNEY FOR RETAIL ELECTRICITY MARKET



¹AMEC refers to the average monthly electricity consumption.



ELECTRICITY CONSUMPTION BY CONTESTABILITY & SECTOR

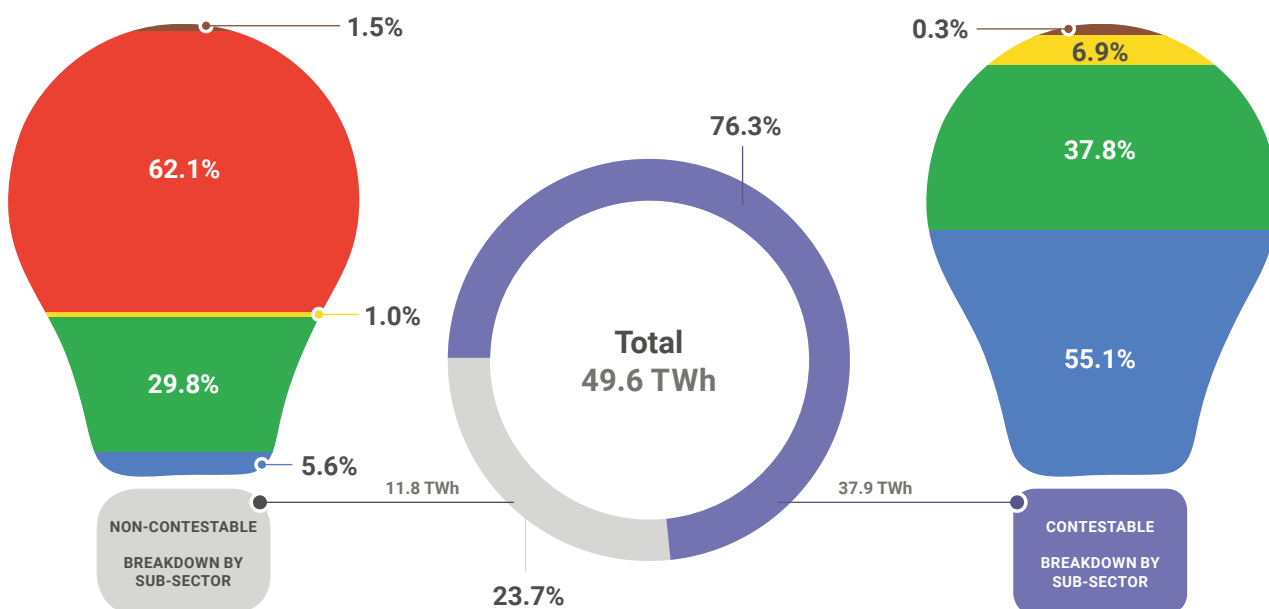
Singapore's total electricity consumption rose by 2.1% from 48.6 TWh in 2016 to 49.6 TWh in 2017. Contestable Consumers (CCs) made up the bulk of consumption, accounting for 76.3% of the total consumption in 2017. The rest were from non-CCs.

The majority of CCs' consumption was attributed to those in the Industrial-related sector (55.1% or 20.9

TWh), followed by the Commerce & Services-related sector (37.8% or 14.3 TWh).

Households accounted for the bulk of total consumption by non-CCs (62.1% or 7.3 TWh), while consumption by Commerce & Services-related sector constituted another 29.8% (3.5 TWh).

ELECTRICITY CONSUMPTION BY CONTESTABILITY AND SECTOR, 2017



OVERALL

- Contestable Consumers
- Non-Contestable Consumers

PERCENTAGE CONTRIBUTION

- Others
- Households
- Transport-related
- Commerce & Services-related
- Industrial-related

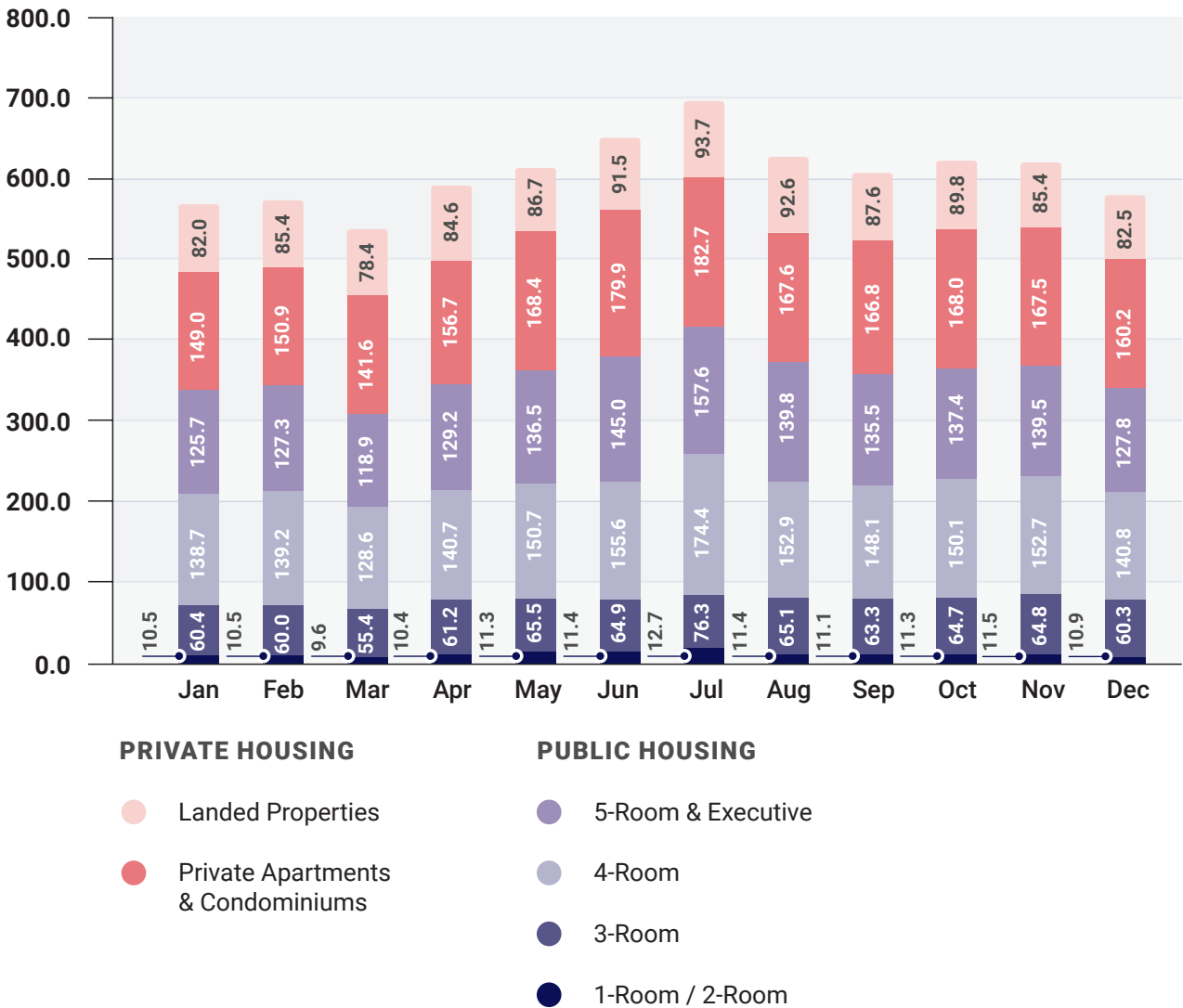
HOUSEHOLD ELECTRICITY CONSUMPTION

Total electricity consumed by Households decreased by 3.9% from 7,589.4 GWh in 2016 to 7,295.8 GWh in 2017. About 58.8% (4,287.2 GWh)

of total consumption was by public housing units, while another 41.1% (2,999.3 GWh) was attributed to private housing units.

TOTAL ELECTRICITY CONSUMPTION OF HOUSEHOLDS, 2017

Unit: GWh



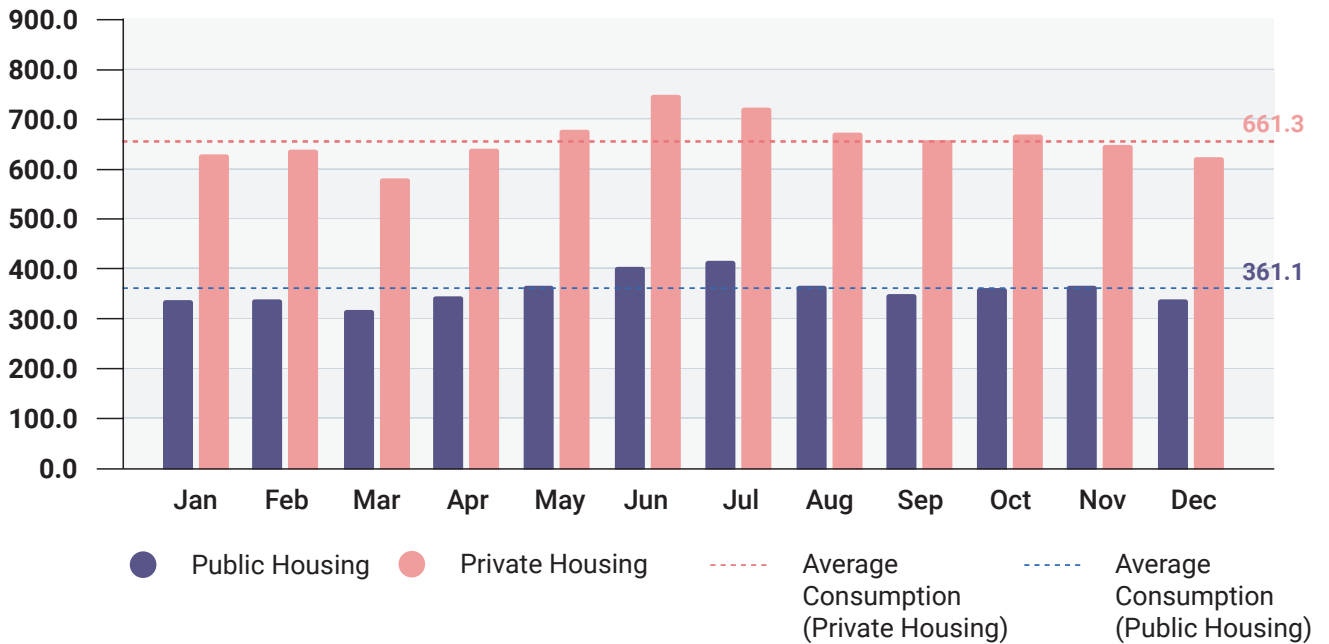
Each component in the chart above is ordered according to the legend.

The average monthly household electricity consumption decreased by 6.6%, from 475.6 kWh in 2016 to 444.3 kWh in 2017. The average monthly Households' electricity consumption for public

housing units registered a 5.9% decrease to reach 361.1 kWh in 2017 while that for private housing units fell by 8.8% to 661.3 kWh in 2017.

AVERAGE MONTHLY HOUSEHOLD ELECTRICITY CONSUMPTION, 2017

Unit: kWh

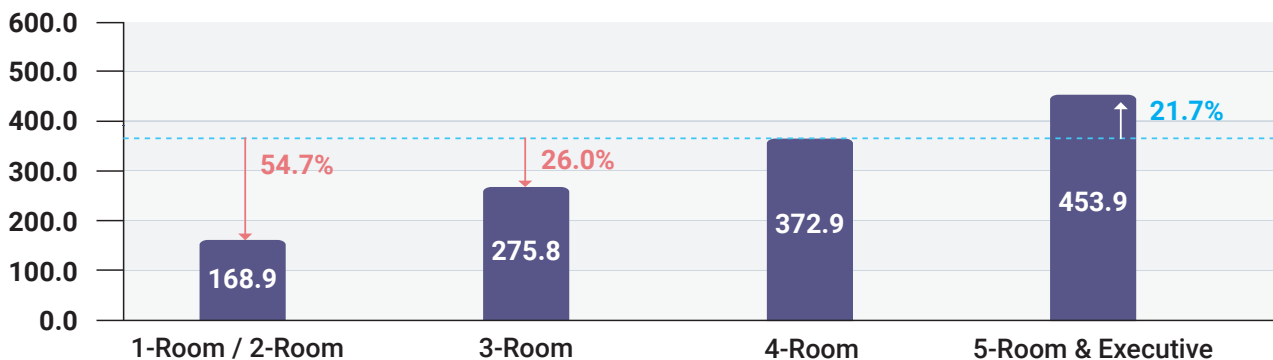


The average monthly household electricity consumption of a 4-room public housing unit was 372.9 kWh in 2017. The average monthly electricity consumption of 1-room/ 2-room and 3-room units were 54.7% and 26.0% respectively, lower than that

of a 4-room unit. On the other hand, the average monthly household electricity consumption of a 5-room & executive flat was 21.7% more than that of a 4-room unit.

AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PUBLIC HOUSING DWELLING TYPE, 2017

Unit: kWh

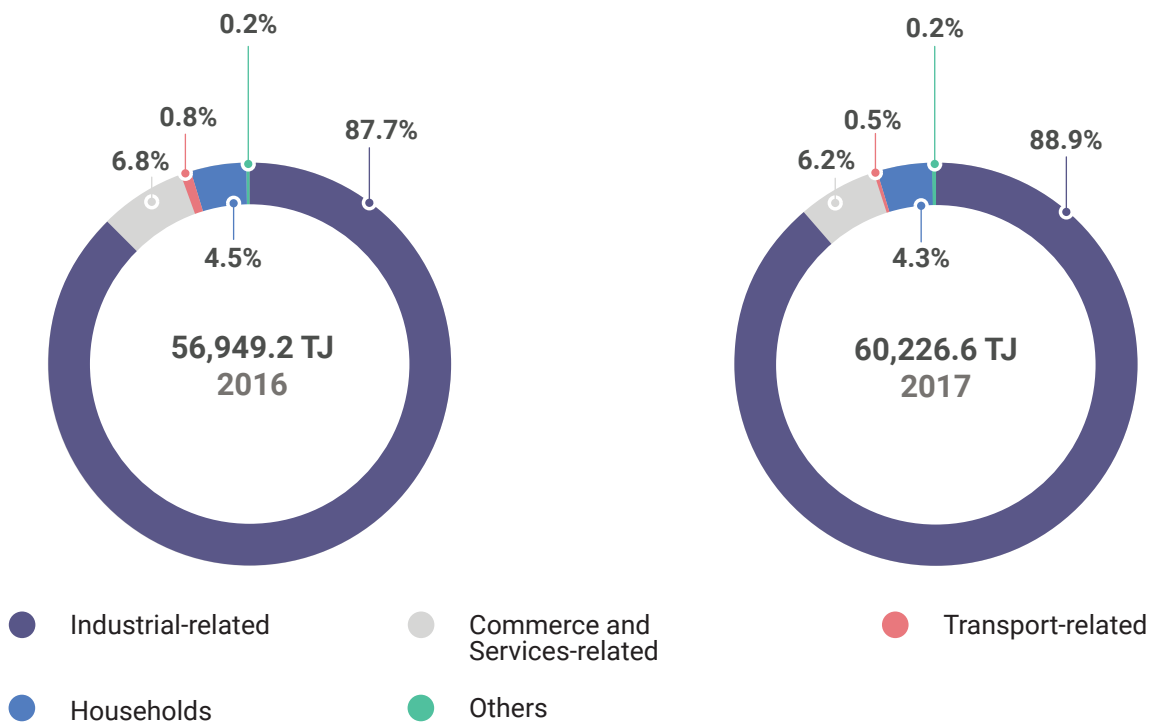


FINAL NATURAL GAS CONSUMPTION

End-users¹ consumption of NG increased by 5.8%, from 56,949.2 TJ in 2016 to 60,226.6 TJ in 2017. Industrial-related consumption, which comprised the bulk (i.e. 88.9%) of NG's end use, increased from 49,968.5 TJ in 2016 to 53,525.0 TJ in 2017, catalysing the rise in overall NG consumption.

Households' consumption of NG rose by 2.2% to 2,604.3 TJ in 2017. In contrast, the Commerce & Services-related sector declined by 3.9% to 3,706.9 TJ in 2017.

FINAL NATURAL GAS CONSUMPTION BY SECTOR



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

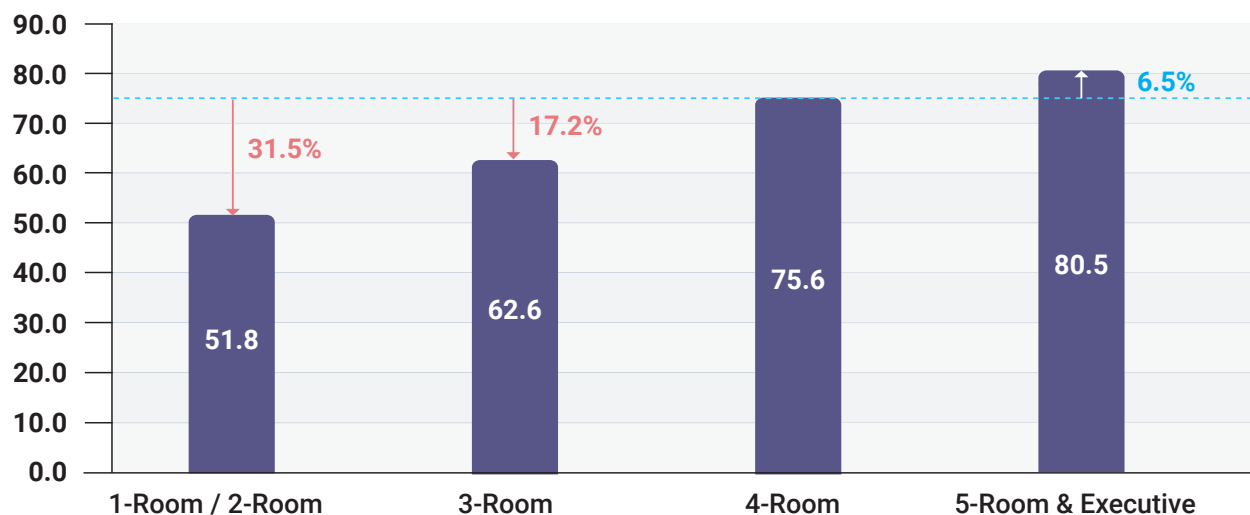
HOUSEHOLD TOWN GAS CONSUMPTION

Households use NG in the form of town gas, which is manufactured by City Gas and subsequently sold to households and other end-consumers. The average monthly household town gas consumption fell by 1.4%, from 78.3 kWh in 2016 to 77.2 kWh in 2017.

In 2017, the average monthly town gas consumption of a 4-room public housing unit was 75.6 kWh. The average monthly household town gas consumption of a 1-room/ 2-room and a 3-room unit was about 31.5% and 17.2% respectively less than that of a 4-room unit. On the other hand, a 5-room & executive flat consumed on average, about 6.5% more town gas than that of a 4-room unit on a monthly basis.

AVERAGE MONTHLY TOWN GAS CONSUMPTION BY PUBLIC HOUSING DWELLING TYPE, 2017

Unit: kWh



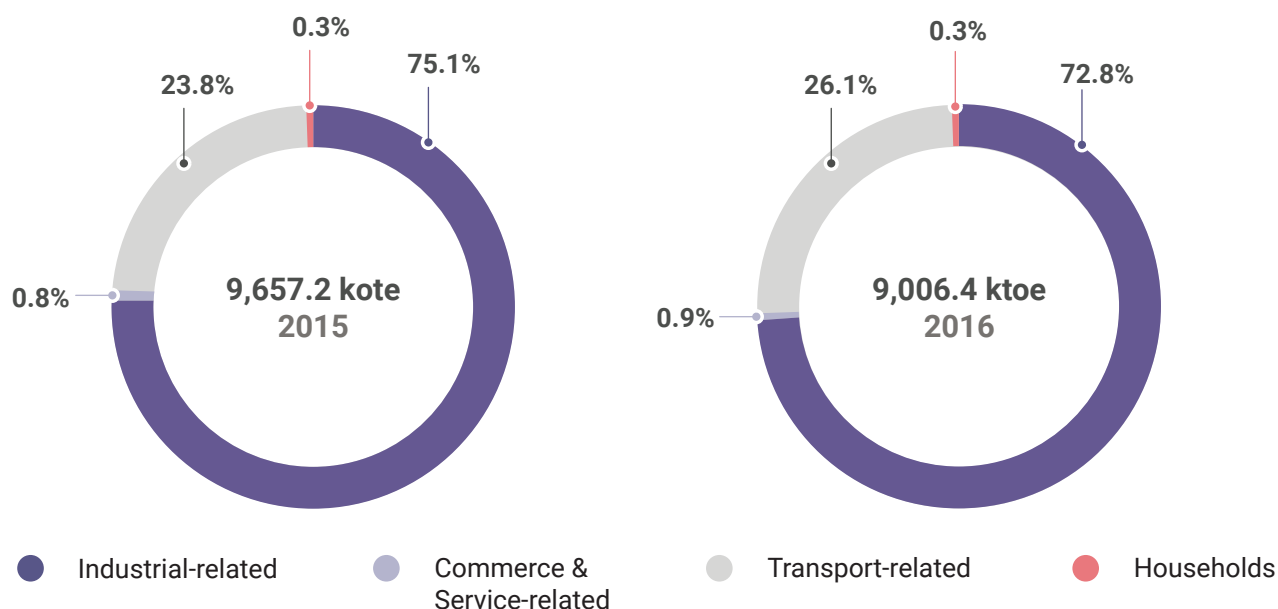
OIL CONSUMPTION

Total oil consumption amounted to 9,006.4 ktoe in 2016, about 6.7% lower than the 9,657.2 ktoe recorded in 2015.

In 2016, Industrial-related activities accounted for almost three quarters (i.e. 72.8% or 6,554.3 ktoe)

of total oil consumption while another quarter was attributed to the Transport-related sector (i.e. 26.1% or 2,349.0 ktoe).

TOTAL OIL CONSUMPTION BY SECTOR



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

TOTAL FINAL ENERGY CONSUMPTION

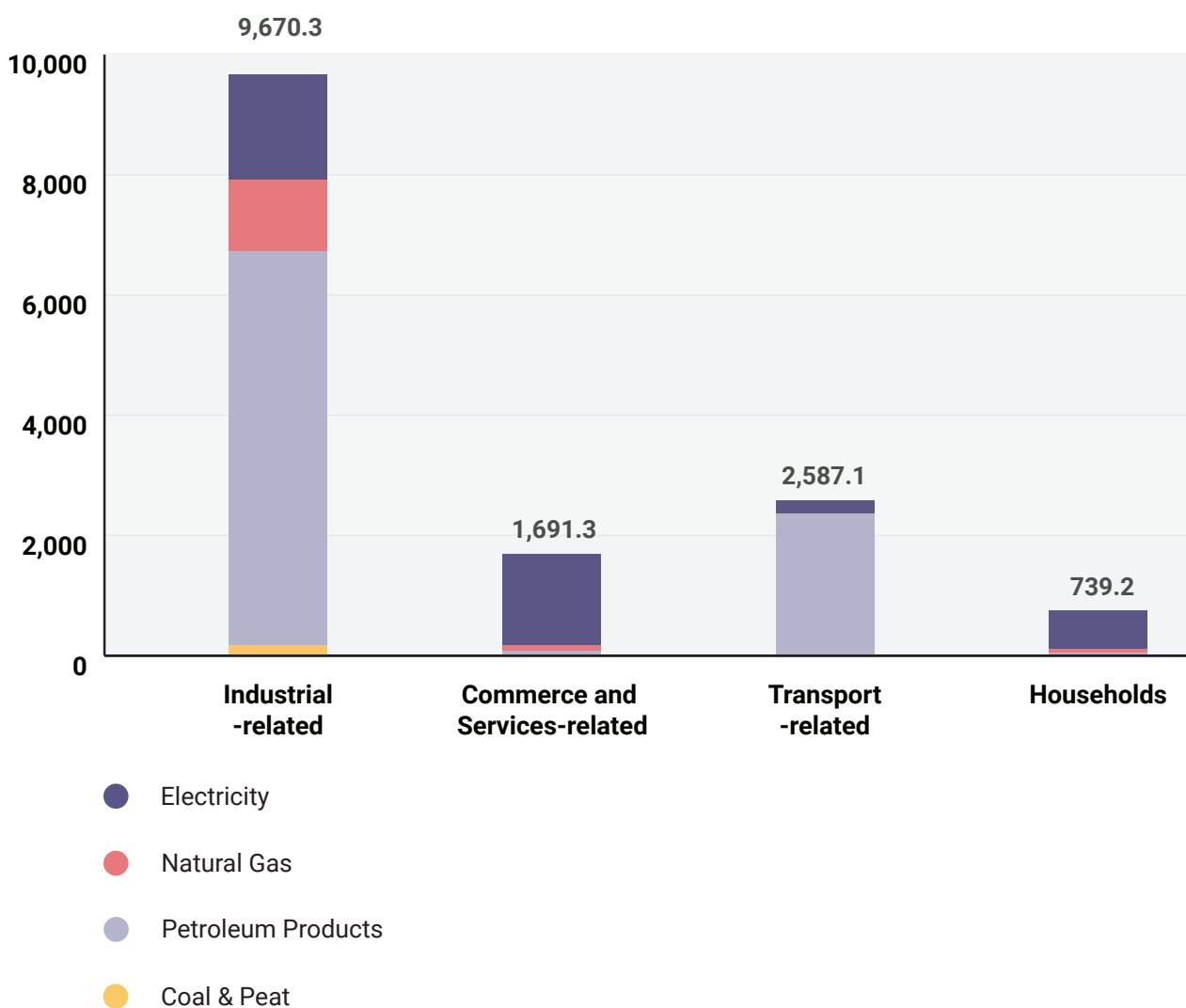
Singapore's Total Final Energy Consumption (TFEC) decreased by 3.5%, from 15,246.4 ktoe in 2015 to 14,714.6 ktoe in 2016.

Almost two-thirds (i.e. 65.7% or 9,670.3 ktoe) of TFEC was accounted for by the Industrial-related sector. This was predominantly in the form of Petroleum Products (i.e. 6,554.3 ktoe). Consumers in the Transport-related and Commerce & Services-related sectors accounted for 17.6% (i.e. 2,587.1

ktoe) and 11.5% (i.e. 1,691.3 ktoe) of end-user energy consumption respectively. The Transport-related sector consumed mainly Petroleum Products (i.e. 2,349.0 ktoe), while the Commerce & Services-related sector consumed mostly electricity (i.e. 1,521.9 ktoe). Households accounted for 5.0% (i.e. 739.2 ktoe) of total energy consumption, which was primarily in the form of electricity (i.e. 652.6 ktoe) and NG by way of town gas (i.e. 60.9 ktoe).

TOTAL ENERGY CONSUMPTION BY SECTOR & ENERGY PRODUCT, 2016

Unit: ktoe



Each component in the chart above is ordered according to the legend.

**TABLE 3.1: MARKET SHARE OF ELECTRICITY
RETAIL BASED ON ELECTRICITY SALES****Unit: Percent (%)**

	2005	2010	2014	2015	2016	2017
SP Group	41.7	35.5	33.0	30.8	30.1	27.7
Keppel Electric Pte Ltd	3.1	9.5	13.4	11.5	10.4	13.8
Tuas Power Supply Pte Ltd	13.3	12.8	12.7	12.6	13.4	13.6
Seraya Energy Pte Ltd	16.8	19.1	14.2	14.3	12.9	12.2
Senoko Energy Supply Pte Ltd	17.5	15.6	14.6	12.7	13.0	11.6
SembCorp Power Pte Ltd	7.6	7.5	8.3	12.2	9.8	10.9
PacificLight Energy Pte Ltd	-	-	3.8	5.6	7.4	6.1
Red Dot Power Pte Ltd	-	-	-	0.0	0.8	1.4
I Switch Pte Ltd	-	-	-	-	0.3	0.8
Hyflux Energy Pte Ltd	-	-	-	0.3	1.6	0.7
Sunseap Energy Pte Ltd	-	-	-	-	0.2	0.4
Best Electricity Supply Pte Ltd	-	-	-	-	0.1	0.4
Charis Electric Pte Ltd	-	-	-	-	0.0	0.2
Union Power Pte Ltd	-	-	-	-	-	0.1
Sun Electric Power Pte Ltd	-	-	-	-	0.0	0.0
Environmental Solutions (Asia) Pte Ltd	-	-	-	-	0.0	0.0
Energy Supply Solutions Pte Ltd	-	-	-	-	-	0.0
Just Electric Pte Ltd	-	-	-	-	-	0.0
Ohm Energy Pte Ltd	-	-	-	-	-	0.0

Source: Energy Market Authority (EMA)

TABLE 3.2: ELECTRICITY CONSUMPTION BY SUB-SECTOR (TOTAL)

Unit: GWh

	2005	2010	2014	2015	2016	2017
Overall	35,489.3	42,251.7	46,403.0	47,513.9	48,626.6	49,643.7
Industrial-related	14,509.0	17,662.6	19,753.2	20,088.0	20,418.4	21,516.3
Manufacturing	13,836.1	16,448.0	17,989.0	18,277.6	18,370.9	19,581.7
Construction	234.8	337.8	527.1	531.0	551.6	484.3
Utilities	411.0	843.4	1,198.0	1,237.2	1,450.1	1,402.6
Other Industrial-related	27.2	33.3	39.2	42.2	45.8	47.7
Commerce and Services-related	13,075.6	15,469.7	17,046.6	17,481.0	17,699.3	17,804.3
Wholesale and Retail Trade	2,109.8	1,923.0	2,020.5	2,107.4	2,073.4	1,994.5
Accommodation and Food Services	1,031.3	1,219.6	1,332.3	1,350.2	1,453.2	1,444.9
Information and Communications	667.2	925.5	1,294.5	1,426.7	1,848.0	1,873.5
Financial and Insurance Activities	1,291.9	1,927.0	2,574.1	2,718.1	2,361.7	2,342.8
Real Estate Activities	3,712.4	4,346.2	4,485.7	4,454.6	4,497.0	4,700.9
Professional, Scientific & Technical, Administration & Support Activities	650.2	885.8	681.0	713.7	683.4	703.8
Other Commerce and Services-related	3,612.7	4,242.7	4,658.5	4,710.3	4,782.6	4,743.9
Transport-related	1,200.0	2,098.7	2,441.0	2,444.8	2,639.4	2,750.8
Households	6,092.5	6,636.0	6,924.4	7,220.9	7,589.4	7,295.8
Others	612.1	384.8	237.7	279.1	280.1	276.5

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

**TABLE 3.2.1: ELECTRICITY CONSUMPTION
BY SUB-SECTOR (CONTESTABLE CONSUMERS)**

Unit: GWh

	2005	2010	2014	2015	2016	2017
Overall	22,833.4	29,035.4	33,079.9	34,756.0	35,866.7	37,892.2
Industrial-related	13,850.5	16,597.2	18,568.1	19,161.1	19,627.8	20,859.8
Manufacturing	13,369.0	15,709.2	17,324.9	17,755.6	17,937.2	19,246.1
Construction	80.9	82.8	110.9	191.5	244.9	221.2
Utilities	382.8	784.5	1,110.8	1,189.1	1,416.7	1,360.6
Other Industrial-related	17.8	20.7	21.5	24.9	29.1	31.9
Commerce and Services-related	7,828.8	10,438.2	12,203.4	13,250.3	13,681.3	14,307.3
Wholesale and Retail Trade	1,338.5	1,141.3	1,248.7	1,446.0	1,505.8	1,553.1
Accommodation and Food Services	642.3	789.8	826.0	868.4	988.4	1,093.0
Information and Communications	509.6	702.5	1,020.4	1,197.8	1,612.6	1,684.3
Financial and Insurance Activities	871.7	1,547.9	2,176.0	2,371.3	2,064.4	2,111.3
Real Estate Activities	1,341.2	2,405.2	2,781.6	2,978.6	2,970.5	3,214.2
Professional, Scientific & Technical, Administration & Support Activities	422.7	619.4	384.5	408.6	414.2	489.6
Other Commerce and Services-related	2,702.9	3,232.2	3,766.1	3,979.6	4,125.5	4,161.8
Transport-related	1,072.0	1,962.0	2,285.3	2,317.8	2,504.6	2,628.6
Households	-	-	-	-	-	-
Others	82.1	38.0	23.2	26.8	53.0	96.5

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

TABLE 3.2.2: ELECTRICITY CONSUMPTION BY SUB-SECTOR (NON-CONTESTABLE CONSUMERS)

Unit: GWh

	2005	2010	2014	2015	2016	2017
Overall	12,655.8	13,216.3	13,323.1	12,757.9	12,759.9	11,751.5
Industrial-related	658.5	1,065.4	1,185.2	926.9	790.6	656.5
Manufacturing	467.1	738.8	664.1	522.0	433.7	335.6
Construction	153.9	255.1	416.2	339.5	306.7	263.2
Utilities	28.2	58.9	87.2	48.1	33.5	42.1
Other Industrial-related	9.4	12.6	17.7	17.3	16.7	15.7
Commerce and Services-related	5,246.8	5,031.5	4,843.3	4,230.7	4,018.0	3,497.0
Wholesale and Retail Trade	771.2	781.7	771.8	661.4	567.6	441.4
Accommodation and Food Services	389.1	429.8	506.2	481.8	464.9	351.9
Information and Communications	157.6	223.0	274.2	229.0	235.4	189.2
Financial and Insurance Activities	420.3	379.1	398.1	346.8	297.3	231.5
Real Estate Activities	2,371.2	1,940.9	1,704.1	1,476.0	1,526.6	1,486.7
Professional, Scientific & Technical, Administration & Support Activities	227.6	266.3	296.4	305.1	269.2	214.2
Other Commerce and Services-related	909.8	1,010.5	892.5	730.7	657.1	582.1
Transport-related	128.0	136.6	155.7	127.1	134.7	122.1
Households	6,092.5	6,636.0	6,924.4	7,220.9	7,589.4	7,295.8
Others	530.0	346.8	214.5	252.3	227.1	180.0

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

TABLE 3.3: NUMBER OF ELECTRICITY ACCOUNTS BY SUB-SECTOR (TOTAL)

	2005	2010	2014	2015	2016	2017
Overall	1,230,660	1,305,070	1,429,650	1,475,360	1,524,640	1,577,000
Industrial-related	14,530	19,350	22,420	23,200	23,240	24,490
Manufacturing	8,120	9,660	10,760	11,050	11,350	11,600
Construction	5,080	8,490	10,050	10,430	10,160	10,990
Utilities	1,140	980	1,200	1,210	1,240	1,350
Other Industrial-related	180	220	410	510	500	550
Commerce and Services-related	100,770	110,410	124,730	125,420	129,230	131,750
Wholesale and Retail Trade	31,280	33,420	36,030	36,090	33,050	32,550
Accommodation and Food Services	7,700	10,460	12,540	14,800	18,540	19,050
Information and Communications	8,590	9,460	10,730	10,990	11,260	11,550
Financial and Insurance Activities	3,860	4,120	4,660	4,760	4,680	4,690
Real Estate Activities	20,700	18,840	21,710	22,190	22,440	23,250
Professional, Scientific & Technical, Administration & Support Activities	8,380	9,910	11,720	12,050	12,460	12,450
Other Commerce and Services-related	20,260	24,220	27,340	24,540	26,810	28,200
Transport-related	2,420	2,800	3,320	3,490	3,730	3,800
Households	1,082,410	1,149,920	1,262,320	1,305,960	1,350,540	1,399,120
Others	30,520	22,600	16,870	17,290	17,910	17,840

Source: Energy Market Authority (EMA)

Notes:

a. Numbers have been rounded to the nearest tens.



TABLE 3.4: TOTAL HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE

2005	JAN	FEB	MAR	APR	MAY	JUN
Overall	447.8	437.1	479.7	533.6	535.0	560.2
Public Housing	280.7	270.8	295.4	331.6	330.5	347.9
1-Room / 2-Room	6.3	6.0	6.1	6.9	6.8	7.0
3-Room	52.9	51.5	55.4	61.4	61.5	64.4
4-Room	111.1	107.3	117.1	131.5	130.9	138.3
5-Room and Executive	110.4	106.0	116.8	131.8	131.2	138.1
Private Housing	166.2	165.5	183.3	200.9	203.5	211.3
Private Apartments and Condominiums	95.8	94.8	104.8	117.9	120.4	124.5
Landed Properties	70.4	70.7	78.5	83.1	83.1	86.8
Others	0.9	0.9	1.0	1.1	1.1	1.1

2010	JAN	FEB	MAR	APR	MAY	JUN
Overall	490.6	503.9	547.6	585.0	573.5	606.0
Public Housing	298.7	302.9	325.9	352.0	345.9	365.6
1-Room / 2-Room	6.2	6.1	6.4	6.8	7.0	7.2
3-Room	55.6	56.5	60.4	64.6	64.6	67.8
4-Room	119.0	120.2	129.4	140.2	137.3	145.6
5-Room and Executive	117.9	120.1	129.7	140.4	137.0	145.0
Private Housing	190.9	199.9	220.7	231.7	226.5	239.1
Private Apartments and Condominiums	113.9	117.5	132.7	140.3	138.6	145.2
Landed Properties	77.0	82.4	88.0	91.5	87.9	93.9
Others	1.0	1.0	1.1	1.2	1.2	1.3

2014	JAN	FEB	MAR	APR	MAY	JUN
Overall	509.7	489.3	488.7	568.1	609.5	639.0
Public Housing	307.1	293.9	288.3	335.5	359.6	383.6
1-Room / 2-Room	8.0	7.7	7.4	8.5	9.2	9.7
3-Room	55.8	53.3	52.4	61.2	66.1	69.0
4-Room	124.7	119.1	116.8	136.0	146.2	156.0
5-Room and Executive	118.5	113.7	111.7	129.7	138.1	149.0
Private Housing	201.7	194.6	199.5	231.6	248.9	254.3
Private Apartments and Condominiums	124.3	117.9	122.0	143.1	157.9	160.0
Landed Properties	77.4	76.7	77.5	88.5	91.0	94.3
Others	0.9	0.8	0.9	1.1	1.0	1.1

Unit: GWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2005
537.4	528.8	516.3	520.0	518.6	478.0	6,092.5	Overall
335.3	330.1	321.0	319.0	319.7	295.4	3,777.4	Public Housing
6.9	7.0	6.6	6.5	6.4	6.0	78.4	1-Room / 2-Room
61.9	61.7	59.4	59.1	59.1	55.3	703.5	3-Room
133.0	130.8	127.5	126.6	127.0	117.0	1,498.3	4-Room
133.5	130.7	127.6	126.8	127.2	117.2	1,497.2	5-Room and Executive
201.1	197.7	194.3	200.0	197.8	181.6	2,303.0	Private Housing
118.9	116.2	114.1	118.1	117.2	106.9	1,349.4	Private Apartments and Condominiums
82.2	81.4	80.2	81.9	80.6	74.7	953.6	Landed Properties
1.0	1.0	1.0	1.1	1.0	0.9	12.0	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2010
575.2	539.7	539.2	557.8	581.4	536.2	6,636.0	Overall
349.9	331.2	328.3	335.8	351.2	323.7	4,011.0	Public Housing
7.0	6.9	6.7	7.0	7.2	6.8	81.2	1-Room / 2-Room
64.7	61.8	60.8	62.7	65.3	59.9	744.6	3-Room
139.2	131.6	131.2	133.8	139.9	129.1	1,596.6	4-Room
139.0	130.8	129.6	132.4	138.8	127.9	1,588.5	5-Room and Executive
224.1	207.5	209.8	220.7	229.1	211.4	2,611.3	Private Housing
137.7	125.4	126.1	134.1	140.4	128.7	1,580.6	Private Apartments and Condominiums
86.4	82.1	83.7	86.6	88.7	82.7	1,030.7	Landed Properties
1.2	1.0	1.1	1.2	1.2	1.1	13.6	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2014
628.1	635.5	592.4	580.9	611.5	571.8	6,924.4	Overall
376.7	382.4	355.3	341.4	362.1	339.7	4,125.7	Public Housing
9.7	10.0	9.5	9.3	9.9	9.4	108.3	1-Room / 2-Room
68.3	68.9	63.9	62.4	65.6	61.3	748.2	3-Room
153.0	155.4	144.4	138.8	147.1	138.3	1,675.8	4-Room
145.7	148.1	137.5	131.0	139.5	130.7	1,593.3	5-Room and Executive
250.4	252.1	236.1	238.4	248.4	231.2	2,787.1	Private Housing
158.9	158.7	147.7	148.7	158.0	145.5	1,742.6	Private Apartments and Condominiums
91.5	93.4	88.3	89.7	90.4	85.7	1,044.5	Landed Properties
1.0	1.0	1.0	1.0	1.0	0.9	11.6	Others

TABLE 3.4: TOTAL HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE (CONTINUED)

2015	JAN	FEB	MAR	APR	MAY	JUN
Overall	525.2	493.6	513.9	594.2	610.7	632.3
Public Housing	314.6	294.9	303.0	349.8	359.2	374.7
1-Room / 2-Room	8.9	8.5	8.5	9.7	10.2	10.4
3-Room	56.4	53.1	54.8	63.4	65.2	67.5
4-Room	128.5	120.1	123.6	142.5	146.5	153.1
5-Room and Executive	120.7	113.3	116.2	134.3	137.2	143.8
Private Housing	209.7	197.8	210.1	243.4	250.6	256.6
Private Apartments and Condominiums	130.7	122.0	131.1	152.7	161.4	163.8
Landed Properties	79.0	75.8	79.0	90.7	89.2	92.8
Others	0.9	0.8	0.8	1.0	0.9	1.0

2016	JAN	FEB	MAR	APR	MAY	JUN
Overall	570.2	580.4	585.3	648.6	689.1	708.5
Public Housing	336.7	344.5	344.1	379.1	402.7	416.8
1-Room / 2-Room	10.2	10.0	9.7	10.8	11.6	11.9
3-Room	61.2	62.2	60.9	68.0	72.6	74.4
4-Room	137.9	141.2	141.2	155.3	164.9	171.1
5-Room and Executive	127.4	131.1	132.2	145.0	153.6	159.3
Private Housing	232.7	235.1	240.4	268.5	285.4	290.7
Private Apartments and Condominiums	148.4	148.7	152.9	172.5	186.6	190.0
Landed Properties	84.3	86.4	87.5	96.1	98.8	100.7
Others	0.9	0.8	0.8	1.0	1.0	1.0

2017	JAN	FEB	MAR	APR	MAY	JUN
Overall	567.2	574.0	533.1	583.7	619.9	649.0
Public Housing	335.4	337.0	312.4	341.6	364.0	376.8
1-Room / 2-Room	10.5	10.5	9.6	10.4	11.3	11.4
3-Room	60.4	60.0	55.4	61.2	65.5	64.9
4-Room	138.7	139.2	128.6	140.7	150.7	155.6
5-Room and Executive	125.7	127.3	118.9	129.2	136.5	145.0
Private Housing	231.0	236.3	220.0	241.4	255.1	271.4
Private Apartments and Condominiums	149.0	150.9	141.6	156.7	168.4	179.9
Landed Properties	82.0	85.4	78.4	84.6	86.7	91.5
Others	0.8	0.7	0.7	0.8	0.8	0.8

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

Unit: GWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2015
647.0	656.7	635.7	643.6	645.7	622.4	7,220.9	Overall
384.5	394.6	380.3	379.3	379.0	370.3	4,284.2	Public Housing
10.7	11.0	10.8	10.7	10.7	10.7	120.7	1-Room / 2-Room
69.4	70.7	67.9	67.7	68.0	66.0	770.1	3-Room
157.4	161.1	155.0	154.9	154.2	151.9	1,748.8	4-Room
147.1	151.7	146.6	145.9	146.1	141.7	1,644.6	5-Room and Executive
261.5	261.3	254.5	263.4	265.7	251.2	2,925.8	Private Housing
167.3	167.1	162.9	167.7	172.7	160.5	1,859.9	Private Apartments and Condominiums
94.2	94.2	91.6	95.7	93.0	90.7	1,065.8	Landed Properties
1.0	0.9	0.9	0.9	0.9	0.9	11.0	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2016
642.2	647.0	647.7	650.5	644.8	575.1	7,589.4	Overall
382.9	385.2	385.2	382.0	382.3	338.8	4,480.2	Public Housing
11.2	11.3	11.2	11.2	11.3	10.4	131.1	1-Room / 2-Room
68.2	69.2	68.7	68.2	67.7	60.6	801.8	3-Room
157.6	158.2	158.4	157.0	157.2	139.4	1,839.4	4-Room
145.9	146.5	146.9	145.6	146.1	128.4	1,708.0	5-Room and Executive
258.4	261.0	261.7	267.6	261.6	235.6	3,098.7	Private Housing
167.9	167.5	169.6	173.9	170.8	152.0	2,000.7	Private Apartments and Condominiums
90.5	93.5	92.1	93.7	90.9	83.6	1,098.0	Landed Properties
0.9	0.8	0.8	0.9	0.9	0.7	10.5	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2017
698.1	630.2	613.1	622.1	622.2	583.2	7,295.8	Overall
420.9	369.2	358.0	363.5	368.5	339.8	4,287.2	Public Housing
12.7	11.4	11.1	11.3	11.5	10.9	132.6	1-Room / 2-Room
76.3	65.1	63.3	64.7	64.8	60.3	761.9	3-Room
174.4	152.9	148.1	150.1	152.7	140.8	1,772.5	4-Room
157.6	139.8	135.5	137.4	139.5	127.8	1,620.3	5-Room and Executive
276.3	260.2	254.3	257.8	252.9	242.6	2,999.3	Private Housing
182.7	167.6	166.8	168.0	167.5	160.2	1,959.1	Private Apartments and Condominiums
93.7	92.6	87.6	89.8	85.4	82.5	1,040.2	Landed Properties
0.9	0.8	0.8	0.8	0.8	0.7	9.3	Others

TABLE 3.5: AVERAGE MONTHLY HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE

2005	JAN	FEB	MAR	APR	MAY	JUN
Overall	418.1	408.3	446.9	496.2	496.8	519.7
Public Housing	330.9	319.1	347.6	389.7	388.0	408.2
1-Room / 2-Room	135.2	129.0	131.5	148.0	147.0	151.1
3-Room	241.7	235.2	253.1	280.3	281.0	294.7
4-Room	345.6	333.6	363.4	407.4	404.9	427.4
5-Room and Executive	422.0	405.1	445.4	501.9	498.9	524.4
Private Housing	751.4	749.8	825.2	900.8	909.9	941.9
Private Apartments and Condominiums	624.8	619.2	679.3	759.2	772.9	796.0
Landed Properties	1,037.7	1,044.8	1,157.1	1,224.8	1,224.2	1,277.9
Others	594.2	572.7	637.1	723.3	693.5	711.8

2010	JAN	FEB	MAR	APR	MAY	JUN
Overall	433.4	446.1	482.1	513.5	505.4	531.5
Public Housing	343.2	348.4	373.2	402.6	396.8	418.5
1-Room / 2-Room	143.2	142.7	146.6	156.0	159.5	163.3
3-Room	255.8	260.1	277.1	296.0	296.8	311.2
4-Room	354.8	358.4	384.3	415.2	408.1	431.5
5-Room and Executive	429.8	438.5	471.8	510.9	500.1	528.4
Private Housing	734.7	773.4	845.7	880.6	866.5	903.2
Private Apartments and Condominiums	598.9	622.4	693.8	728.3	721.5	747.2
Landed Properties	1,105.4	1,182.4	1,262.0	1,296.4	1,268.6	1,333.7
Others	607.0	617.5	621.8	719.0	671.9	743.9

2014	JAN	FEB	MAR	APR	MAY	JUN
Overall	420.2	402.5	400.0	462.4	494.6	516.2
Public Housing	336.4	321.5	313.9	364.1	389.5	414.6
1-Room / 2-Room	151.4	144.7	137.2	154.8	167.4	173.3
3-Room	253.6	242.2	237.1	276.5	298.4	311.5
4-Room	347.5	331.0	323.0	374.9	401.8	427.8
5-Room and Executive	422.3	405.2	396.4	459.4	488.4	525.7
Private Housing	675.5	648.0	661.3	757.1	808.7	816.9
Private Apartments and Condominiums	544.0	513.7	525.9	610.8	666.1	669.0
Landed Properties	1,104.0	1,082.9	1,111.9	1,234.6	1,285.8	1,307.5
Others	581.9	587.3	605.4	746.8	734.9	777.1

Unit: kWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2005
497.7	489.3	477.7	480.8	479.7	441.6	471.1	Overall
393.3	387.2	376.7	374.4	375.5	347.0	369.9	Public Housing
147.8	148.8	141.2	139.7	140.4	132.7	141.1	1-Room / 2-Room
283.8	283.3	272.9	272.1	272.0	254.4	268.7	3-Room
410.7	403.8	393.6	390.9	392.2	361.3	386.3	4-Room
506.2	495.0	482.8	479.1	480.5	441.8	473.7	5-Room and Executive
890.6	872.3	856.0	877.9	866.8	791.2	853.0	Private Housing
754.1	733.1	717.7	739.5	732.1	662.8	716.2	Private Apartments and Condominiums
1,206.7	1,196.3	1,178.9	1,202.2	1,183.5	1,094.4	1,169.1	Landed Properties
622.7	604.5	605.1	644.3	640.7	569.7	634.2	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2010
502.4	471.9	472.0	486.9	509.6	466.3	485.1	Overall
399.3	378.3	375.3	383.0	401.4	368.2	382.4	Public Housing
158.1	154.9	150.4	156.8	160.8	149.6	153.5	1-Room / 2-Room
295.6	282.7	277.9	286.2	298.9	272.8	284.3	3-Room
411.8	389.7	388.7	395.2	414.2	380.2	394.4	4-Room
505.4	476.5	473.2	482.0	506.6	465.4	482.4	5-Room and Executive
839.5	778.7	789.4	826.6	866.6	785.9	824.3	Private Housing
699.5	639.6	642.4	681.7	717.6	648.4	678.6	Private Apartments and Condominiums
1,232.1	1,166.3	1,204.8	1,232.4	1,291.3	1,173.1	1,229.0	Landed Properties
689.9	582.4	642.1	699.4	667.6	629.1	657.8	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2014
506.6	510.0	474.7	463.5	486.8	453.0	466.1	Overall
406.7	411.4	381.6	365.5	386.7	361.6	371.3	Public Housing
171.9	176.6	166.5	160.9	171.7	161.2	161.7	1-Room / 2-Room
308.5	310.0	286.9	279.8	292.9	273.1	280.9	3-Room
419.1	423.8	393.3	376.4	398.2	372.9	382.6	4-Room
514.1	521.8	483.9	459.8	489.1	457.1	468.7	5-Room and Executive
802.0	800.1	748.8	749.9	780.1	718.9	748.0	Private Housing
658.6	653.5	605.3	604.2	638.6	583.0	606.9	Private Apartments and Condominiums
1,289.2	1,293.3	1,240.6	1,249.1	1,272.8	1,189.5	1,222.3	Landed Properties
723.4	697.7	716.9	754.7	783.0	668.3	696.5	Others

TABLE 3.5: AVERAGE MONTHLY HOUSEHOLD ELECTRICITY CONSUMPTION BY DWELLING TYPE (CONTINUED)

2015	JAN	FEB	MAR	APR	MAY	JUN
Overall	414.7	390.6	403.3	463.7	476.3	491.0
Public Housing	334.0	313.7	319.8	368.3	378.0	393.6
1-Room / 2-Room	153.1	144.8	143.3	163.6	171.0	173.3
3-Room	251.0	236.9	242.9	280.4	289.1	299.5
4-Room	345.4	322.9	329.6	378.9	389.3	405.4
5-Room and Executive	421.3	396.2	403.5	465.6	475.6	497.1
Private Housing	648.9	614.6	645.7	736.3	757.8	767.6
Private Apartments and Condominiums	519.0	486.5	513.9	590.7	622.4	625.4
Landed Properties	1,107.8	1,066.3	1,123.6	1,259.0	1,249.5	1,281.6
Others	657.7	594.2	605.9	754.1	703.3	726.9

2016	JAN	FEB	MAR	APR	MAY	JUN
Overall	436.2	443.4	445.0	490.7	520.9	531.9
Public Housing	349.8	357.8	355.8	391.1	415.0	428.4
1-Room / 2-Room	167.0	163.7	158.2	175.8	187.5	192.3
3-Room	268.9	273.5	266.6	297.3	317.3	324.8
4-Room	360.2	368.7	367.2	402.4	426.5	441.3
5-Room and Executive	437.6	449.8	452.0	494.6	523.8	542.0
Private Housing	677.3	681.4	692.9	764.6	812.4	812.6
Private Apartments and Condominiums	545.0	544.5	554.2	618.8	667.0	666.6
Landed Properties	1,182.6	1,200.5	1,231.9	1,325.4	1,381.6	1,385.7
Others	674.9	662.2	682.3	798.9	795.1	809.4

2017	JAN	FEB	MAR	APR	MAY	JUN
Overall	419.8	424.3	390.7	426.9	453.9	502.1
Public Housing	341.6	343.1	315.8	344.7	367.5	407.5
1-Room / 2-Room	164.5	164.1	148.8	161.9	174.7	184.3
3-Room	262.9	261.1	239.4	264.6	283.3	309.0
4-Room	353.5	354.5	324.9	354.8	380.0	420.4
5-Room and Executive	424.9	430.3	399.1	433.2	458.2	512.5
Private Housing	627.9	639.2	588.4	643.0	681.9	739.6
Private Apartments and Condominiums	502.8	507.0	468.6	517.6	555.9	604.2
Landed Properties	1,145.8	1,184.8	1,092.0	1,165.9	1,217.8	1,322.5
Others	709.4	651.6	642.7	692.9	704.7	795.3

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

Unit: kWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2015
500.4	507.9	491.8	494.2	506.8	476.6	468.4	Overall
402.9	413.1	397.8	394.9	405.2	384.9	375.6	Public Housing
177.2	183.3	178.4	175.4	179.8	174.5	168.3	1-Room / 2-Room
307.0	312.6	300.2	297.9	306.0	290.3	284.5	3-Room
415.7	425.2	408.5	406.2	416.4	397.3	386.9	4-Room
507.6	523.4	505.9	501.7	515.7	486.7	475.1	5-Room and Executive
775.8	776.1	759.0	773.5	787.6	733.3	732.3	Private Housing
630.1	632.2	616.1	625.7	645.0	593.2	592.7	Private Apartments and Condominiums
1,316.9	1,301.7	1,292.4	1,319.9	1,336.2	1,260.2	1,243.2	Landed Properties
739.6	704.6	713.4	738.3	735.3	698.6	697.1	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2016
481.0	484.0	484.4	484.1	479.2	425.9	475.6	Overall
393.3	395.4	394.7	390.3	390.2	345.1	383.9	Public Housing
181.0	182.1	179.5	178.6	178.5	163.4	175.7	1-Room / 2-Room
297.7	302.0	299.5	296.6	294.5	263.5	291.9	3-Room
405.9	407.0	406.9	401.9	401.9	355.4	395.5	4-Room
496.0	497.8	498.6	493.1	494.4	433.8	484.5	5-Room and Executive
716.9	722.1	726.4	735.6	717.6	640.9	725.0	Private Housing
582.3	580.5	587.1	597.6	582.9	514.9	586.8	Private Apartments and Condominiums
1,254.6	1,282.8	1,289.3	1,286.9	1,268.4	1,154.6	1,270.5	Landed Properties
737.7	732.0	746.9	786.5	778.0	665.7	739.0	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2017
507.8	454.1	443.2	447.8	446.9	416.8	444.3	Overall
423.8	369.0	358.3	362.3	366.3	336.8	361.1	Public Housing
193.5	171.9	166.7	167.6	169.6	159.3	168.9	1-Room / 2-Room
329.4	279.2	271.9	277.3	276.9	257.0	275.8	3-Room
438.2	381.6	370.1	373.2	378.7	347.9	372.9	4-Room
528.2	465.6	452.2	457.3	463.7	424.1	453.9	5-Room and Executive
726.7	674.1	664.2	670.0	656.9	623.6	661.3	Private Housing
593.5	536.6	535.8	538.8	534.2	506.6	533.5	Private Apartments and Condominiums
1,292.1	1,257.5	1,221.9	1,229.4	1,196.2	1,131.8	1,204.5	Landed Properties
796.2	676.9	706.7	706.4	697.3	659.6	703.0	Others

TABLE 3.6: AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PLANNING AREA AND DWELLING TYPE (ANNUAL)

OVERALL PUBLIC HOUSING						
	2005	2010	2014	2015	2016	2017
Overall	370.1	382.4	371.3	375.6	383.9	361.1
Central Region	319.4	333.0	331.2	334.8	342.7	319.7
Bishan	417.4	423.7	405.7	410.9	416.6	389.3
Bukit Merah	302.4	324.0	321.6	323.4	334.0	312.1
Bukit Timah	409.1	405.9	395.9	399.6	399.2	371.7
Geylang	332.4	345.0	344.6	348.5	356.3	334.7
Kallang	301.8	316.6	317.5	324.4	329.4	303.0
Marine Parade	309.5	323.3	318.7	321.0	331.1	308.5
Novena	339.1	356.9	351.8	359.4	363.3	329.5
Outram	228.7	230.6	273.9	280.4	289.9	276.6
Queenstown	289.8	303.7	304.2	303.8	312.6	294.5
Rochor	312.7	333.3	331.7	339.8	352.5	330.3
Tanglin	448.8	448.4	416.8	413.1	411.6	377.4
Toa Payoh	319.5	336.0	331.1	336.1	343.8	320.2
East Region	410.6	415.6	403.5	406.8	415.6	390.6
Bedok	348.7	358.6	351.7	357.6	363.5	342.4
Pasir Ris	490.3	493.1	478.0	475.1	490.9	459.5
Tampines	434.2	435.9	419.0	421.2	429.7	403.7
North East Region	375.0	391.8	371.7	372.5	382.3	362.7
Ang Mo Kio	310.1	323.3	321.6	324.3	331.2	319.3
Hougang	405.9	417.1	394.8	397.4	405.6	378.9
Punggol	389.6	420.9	368.8	358.8	371.5	355.5
Sengkang	398.2	417.6	386.5	386.6	399.5	375.5
Serangoon	401.7	410.1	398.2	406.6	410.6	394.2
North Region	386.5	403.8	388.2	400.5	408.6	383.1
Sembawang	386.2	411.7	397.4	411.8	424.7	376.3
Woodlands	397.3	413.4	402.6	412.7	425.5	397.5
Yishun	373.3	388.8	368.0	382.5	384.1	369.7
West Region	378.9	389.7	378.8	382.7	389.4	366.6
Bukit Batok	361.1	372.1	364.1	373.3	376.1	350.3
Bukit Panjang	379.4	395.8	377.1	371.4	383.6	365.7
Choa Chu Kang	412.9	419.9	407.7	407.6	400.6	383.5
Clementi	318.1	328.8	320.3	322.5	329.8	307.7
Jurong East	377.1	377.1	363.6	368.9	378.6	356.0
Jurong West	390.1	403.5	394.8	403.4	415.9	388.4

Unit: kWh

1-ROOM / 2-ROOM						
	2005	2010	2014	2015	2016	2017
Overall	141.5	153.5	161.7	168.3	175.7	168.9
Central Region	140.5	152.6	159.9	164.5	171.0	163.3
Bishan	108.2	112.4	139.4	144.1	149.8	139.6
Bukit Merah	138.3	150.6	158.8	163.0	171.8	164.9
Bukit Timah	-	-	-	-	-	-
Geylang	154.4	164.8	173.5	178.9	178.7	172.3
Kallang	120.8	137.9	143.8	149.9	156.1	147.6
Marine Parade	170.1	188.5	195.5	199.4	208.2	201.8
Novena	149.9	171.5	190.3	200.7	198.1	173.4
Outram	123.3	135.5	144.0	148.9	156.7	152.6
Queenstown	153.5	164.0	168.6	172.4	179.3	170.0
Rochor	161.1	177.6	183.3	188.9	205.1	203.0
Tanglin	-	-	-	-	-	-
Toa Payoh	147.9	157.3	161.6	165.0	172.1	164.0
East Region	141.3	156.0	162.2	168.4	175.3	172.2
Bedok	139.7	156.9	159.6	161.7	166.1	167.5
Pasir Ris	224.5	276.3	148.1	184.7	200.4	192.1
Tampines	151.4	145.8	171.2	176.8	186.6	175.5
North East Region	150.2	158.9	169.3	175.7	184.0	177.3
Ang Mo Kio	150.0	162.1	168.7	170.9	176.2	173.4
Hougang	147.1	151.9	174.1	182.3	188.6	173.4
Punggol	-	96.5	167.3	181.2	191.3	179.8
Sengkang	-	149.7	168.9	175.9	189.2	182.8
Serangoon	162.2	166.3	167.9	177.3	177.9	181.4
North Region	131.0	137.6	152.2	167.2	177.4	168.6
Sembawang	-	134.1	152.5	163.4	185.4	152.2
Woodlands	125.2	135.6	145.7	160.3	171.7	162.8
Yishun	165.1	146.9	163.3	180.7	182.7	184.8
West Region	142.5	162.7	165.5	175.1	182.3	175.3
Bukit Batok	140.8	140.8	143.2	158.4	166.9	165.1
Bukit Panjang	-	-	159.2	159.8	177.5	174.3
Choa Chu Kang	145.4	138.9	170.1	175.1	175.6	171.8
Clementi	132.2	140.6	144.4	158.4	165.8	163.4
Jurong East	141.4	142.9	157.8	172.8	178.5	173.0
Jurong West	159.3	189.5	183.2	192.9	200.3	186.6

TABLE 3.6: AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PLANNING AREA AND DWELLING TYPE (ANNUAL) (CONTINUED)

	3-ROOM					
	2005	2010	2014	2015	2016	2017
Overall	268.9	284.3	280.9	284.5	291.9	275.8
Central Region	275.5	290.1	286.0	288.5	295.6	275.4
Bishan	262.4	277.8	273.6	276.9	279.8	262.7
Bukit Merah	283.0	294.7	287.5	287.6	296.2	275.3
Bukit Timah	279.0	278.0	280.2	282.3	286.2	265.3
Geylang	272.0	288.3	285.5	289.8	296.5	280.4
Kallang	284.6	294.9	293.1	297.7	305.4	280.1
Marine Parade	260.7	284.6	281.8	285.0	294.0	272.7
Novena	285.9	307.3	303.7	310.0	316.7	289.2
Outram	296.1	297.5	285.2	289.1	295.2	278.2
Queenstown	258.5	271.9	266.6	267.1	273.6	257.9
Rochor	279.0	298.4	299.6	304.7	314.4	292.8
Tanglin	253.3	359.1	369.4	325.7	335.4	299.6
Toa Payoh	278.7	297.2	294.9	297.6	304.3	282.4
East Region	277.7	289.7	285.6	289.2	297.8	282.0
Bedok	269.1	283.0	280.4	284.7	293.0	278.1
Pasir Ris	-	-	39.7	211.2	278.1	284.4
Tampines	293.2	301.7	295.0	297.8	305.6	287.8
North East Region	267.8	283.2	278.5	280.7	288.4	277.7
Ang Mo Kio	269.2	284.0	283.3	285.3	291.0	282.5
Hougang	267.7	287.9	280.9	287.4	292.0	274.5
Punggol	-	17.7	249.7	242.8	276.6	274.2
Sengkang	-	237.0	248.5	251.9	277.9	271.4
Serangoon	260.9	275.7	272.0	281.0	283.0	267.7
North Region	253.8	276.9	274.2	285.8	291.7	277.1
Sembawang	-	-	184.9	239.9	266.2	213.1
Woodlands	247.0	271.0	272.4	283.5	292.6	273.4
Yishun	256.5	279.4	276.9	287.8	291.9	281.0
West Region	256.7	273.3	273.5	276.8	284.2	269.1
Bukit Batok	251.9	270.1	271.3	277.6	282.3	267.0
Bukit Panjang	249.6	267.4	261.5	263.7	279.9	269.5
Choa Chu Kang	266.1	280.6	281.0	277.3	268.3	267.3
Clementi	259.1	274.8	268.7	271.9	278.3	259.4
Jurong East	264.3	277.6	276.7	280.4	289.1	273.7
Jurong West	254.2	272.5	280.3	282.9	293.1	278.5

Unit: kWh

4-ROOM						
	2005	2010	2014	2015	2016	2017
Overall	386.3	394.4	382.6	386.9	395.5	372.9
Central Region	384.4	388.0	383.8	386.6	393.6	364.7
Bishan	399.9	409.5	397.0	401.7	407.5	381.8
Bukit Merah	372.5	390.7	381.9	382.2	391.7	364.4
Bukit Timah	377.4	382.8	377.6	390.8	400.0	369.6
Geylang	402.5	407.5	408.2	408.8	419.6	393.9
Kallang	401.4	397.3	389.3	398.8	397.6	358.2
Marine Parade	360.9	366.1	355.5	354.9	366.8	337.8
Novena	377.8	384.7	375.4	381.4	374.0	336.5
Outram	370.0	272.8	386.6	397.1	408.4	387.8
Queenstown	361.6	356.5	356.9	349.6	359.8	335.1
Rochor	375.6	384.9	377.8	389.7	402.0	378.5
Tanglin	426.3	421.4	404.1	397.7	391.3	352.7
Toa Payoh	376.7	384.8	375.7	383.3	390.0	360.0
East Region	412.0	417.3	406.8	409.5	419.2	394.6
Bedok	386.4	393.6	387.5	392.9	400.0	376.6
Pasir Ris	424.0	430.3	419.9	416.3	433.5	407.7
Tampines	425.6	429.6	415.7	418.7	427.2	402.3
North East Region	387.1	393.9	374.3	375.0	387.0	368.3
Ang Mo Kio	382.0	386.6	381.6	384.3	391.9	373.0
Hougang	406.0	414.6	394.9	396.5	406.7	382.5
Punggol	361.0	368.6	343.5	336.7	356.3	347.8
Sengkang	360.1	376.0	358.2	362.5	379.0	359.4
Serangoon	399.0	405.5	398.5	407.1	412.5	394.6
North Region	374.7	389.6	377.7	392.4	400.7	379.5
Sembawang	348.3	365.2	355.3	372.8	387.1	348.4
Woodlands	373.0	385.9	380.1	391.9	404.5	379.6
Yishun	384.8	401.9	382.3	398.9	401.0	389.3
West Region	377.7	387.6	377.7	380.9	387.2	366.0
Bukit Batok	377.1	388.3	382.9	393.2	395.6	368.8
Bukit Panjang	358.4	373.4	357.4	354.5	368.1	352.3
Choa Chu Kang	380.5	386.3	381.7	380.8	375.4	362.6
Clementi	375.7	377.4	363.2	359.6	368.6	343.1
Jurong East	386.2	387.2	373.8	378.4	388.1	368.6
Jurong West	384.4	398.2	388.4	397.4	408.9	381.8

TABLE 3.6: AVERAGE MONTHLY ELECTRICITY CONSUMPTION BY PLANNING AREA AND DWELLING TYPE (ANNUAL) (CONTINUED)

Unit: kWh

5-ROOM / EXECUTIVE						
	2005	2010	2014	2015	2016	2017
Overall	473.3	482.4	468.7	475.1	484.5	453.9
Central Region	477.2	476.1	460.4	466.2	476.4	444.5
Bishan	508.7	506.8	476.2	483.0	489.5	458.1
Bukit Merah	438.4	457.1	446.3	450.3	465.1	431.2
Bukit Timah	492.2	481.1	461.7	462.9	472.1	445.0
Geylang	504.4	499.2	495.2	499.2	512.1	476.2
Kallang	467.6	472.8	457.9	468.3	471.9	438.0
Marine Parade	443.5	438.9	428.5	431.3	442.0	412.4
Novena	493.3	495.6	484.2	493.7	506.1	466.5
Outram	653.0	276.1	449.5	465.6	486.4	458.6
Queenstown	458.5	460.0	448.9	449.5	455.4	429.8
Rochor	490.1	494.1	491.1	505.5	541.1	493.5
Tanglin	512.8	492.8	438.8	446.5	447.6	418.0
Toa Payoh	489.3	486.3	450.1	458.7	469.7	441.1
East Region	522.7	519.2	504.9	511.1	521.1	488.7
Bedok	495.4	491.1	472.5	484.1	487.7	455.7
Pasir Ris	533.6	533.9	524.3	528.0	544.0	507.9
Tampines	530.5	524.4	509.2	513.9	523.3	493.3
North East Region	451.3	475.3	457.0	457.9	466.9	439.3
Ang Mo Kio	460.1	459.4	443.1	452.3	462.8	440.4
Hougang	502.3	510.1	491.4	493.5	502.7	469.4
Punggol	399.5	454.6	435.4	428.7	435.9	411.7
Sengkang	423.7	456.6	440.8	442.8	454.4	424.7
Serangoon	512.4	518.3	501.3	511.9	518.8	508.9
North Region	462.2	482.8	471.5	485.8	498.5	465.7
Sembawang	413.9	451.1	448.0	465.2	478.9	433.3
Woodlands	465.9	485.8	479.9	492.9	509.9	477.1
Yishun	499.9	508.4	474.2	488.9	491.0	470.4
West Region	461.3	466.6	457.2	464.4	471.9	442.2
Bukit Batok	480.1	481.7	467.5	481.9	483.7	443.0
Bukit Panjang	429.9	445.6	435.1	434.1	445.1	421.7
Choa Chu Kang	462.3	471.1	462.9	466.2	460.3	439.0
Clementi	478.7	469.9	448.6	448.8	451.2	417.9
Jurong East	469.7	459.5	446.7	454.2	467.5	434.7
Jurong West	466.6	470.9	465.2	478.1	493.8	459.4

Source: Energy Market Authority (EMA)

Notes:

a. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

TABLE 3.7: MARKET SHARE FOR NATURAL GAS RETAIL¹ BASED ON NATURAL GAS RETAIL SALES

Unit: Percent (%)

	2010	2014	2015	2016	2017
SembCorp Gas Pte Ltd	50.7	46.2	42.8	39.4	43.5
Pavilion Gas Pte Ltd	-	2.2	34.6	37.5	31.3
City-OG Gas Energy Services Pte Ltd	-	12.6	13.5	12.3	12.5
City Gas Pte Ltd	18.6	9.2	9.0	10.2	11.2
Keppel Gas Pte Ltd	-	-	0.0	0.5	0.8
YTL PowerSeraya Pte Ltd	-	-	-	0.2	0.6
Tuas Power Supply Pte Ltd	-	-	-	-	0.1
Senoko Gas Supply Pte Ltd	-	-	-	-	0.0
Union Gas Pte Ltd	-	-	-	-	0.0
Gas Supply Pte Ltd	30.7	29.7	-	-	-

Source: Energy Market Authority (EMA)

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

Notes:

a. All Gas Supply Pte Ltd (GSPL)'s gas retail contracts have been novated and transferred to Pavilion Gas Pte Ltd on 1 November 2014. GSPL's gas retailer licence was terminated with effect from 18 March 2015.

TABLE 3.8: NATURAL GAS CONSUMPTION BY SUB-SECTOR

Unit: TJ

	2010	2013	2014	2015	2016	2017
Overall	47,244.3	54,917.5	56,735.7	56,121.0	56,949.2	60,226.6
Industrial-related	40,801.6	47,977.0	49,937.5	49,239.8	49,968.5	53,525.0
Manufacturing	40,298.5	47,310.7	49,535.0	48,926.1	49,628.4	53,199.1
Construction	154.6	286.1	251.0	234.3	256.5	264.4
Utilities	348.4	380.0	151.1	78.0	82.2	59.2
Other Industrial-related	-	0.3	0.4	1.3	1.4	2.3
Commerce and Services-related	3,278.5	3,740.4	3,571.2	3,691.2	3,855.4	3,706.9
Wholesale and Retail Trade	113.8	170.7	186.4	285.2	306.7	218.5
Accommodation and Food Services	2,202.6	2,379.3	2,362.6	2,395.1	2,462.4	2,472.9
Information and Communications	0.3	0.4	0.4	0.6	1.5	1.9
Financial and Insurance Activities	288.4	285.4	277.1	261.1	306.9	193.5
Real Estate Activities	77.4	242.6	69.3	68.0	73.5	84.5
Professional, Scientific & Technical, Administration & Support Activities	98.3	125.7	121.5	137.1	139.6	117.6
Other Commerce and Services-related	497.7	536.4	553.9	544.0	564.8	618.1
Transport-related	872.9	759.2	727.4	599.6	468.6	288.4
Households	2,257.2	2,409.1	2,464.6	2,508.0	2,547.8	2,604.3
Others	34.1	31.9	35.0	82.5	108.9	102.0

Source: Energy Market Authority (EMA)

**TABLE 3.9: TOTAL HOUSEHOLD TOWN
GAS CONSUMPTION BY DWELLING TYPE**

2005	JAN	FEB	MAR	APR	MAY	JUN
Overall	48.6	48.1	48.2	49.0	47.3	47.5
Public Housing	41.1	40.5	40.8	41.4	39.9	40.1
1-Room / 2-Room	1.1	1.1	1.0	1.1	1.0	1.0
3-Room	6.6	6.5	6.5	6.6	6.2	6.3
4-Room	16.0	15.8	15.9	16.1	15.6	15.7
5-Room and Executive	17.4	17.2	17.5	17.7	17.1	17.1
Private Housing	6.9	6.9	6.8	7.0	6.8	6.9
Private Apartments and Condominiums	5.9	6.0	5.9	6.1	5.9	5.9
Landed Properties	1.0	1.0	1.0	1.0	0.9	0.9
Others	0.6	0.6	0.5	0.5	0.5	0.5

2010	JAN	FEB	MAR	APR	MAY	JUN
Overall	51.6	51.8	52.0	53.2	51.1	51.3
Public Housing	40.9	41.1	41.4	42.5	40.5	40.8
1-Room / 2-Room	1.1	1.0	1.0	1.0	1.0	1.0
3-Room	6.1	6.0	6.0	6.2	5.9	6.0
4-Room	16.2	16.3	16.3	16.8	16.0	16.2
5-Room and Executive	17.5	17.8	18.0	18.5	17.5	17.7
Private Housing	9.5	9.5	9.5	9.6	9.4	9.3
Private Apartments and Condominiums	8.6	8.6	8.5	8.6	8.4	8.4
Landed Properties	0.9	0.9	1.0	1.0	0.9	0.9
Others	1.3	1.2	1.1	1.1	1.2	1.1

2014	JAN	FEB	MAR	APR	MAY	JUN
Overall	56.2	58.8	57.8	57.6	55.2	57.3
Public Housing	42.7	44.8	43.9	43.9	42.1	44.0
1-Room / 2-Room	1.2	1.2	1.2	1.2	1.2	1.2
3-Room	6.1	6.3	6.2	6.2	6.0	6.2
4-Room	17.5	18.2	17.7	17.8	17.1	17.9
5-Room and Executive	18.0	19.1	18.8	18.7	17.8	18.7
Private Housing	12.2	12.7	12.6	12.6	12.0	12.1
Private Apartments and Condominiums	11.3	11.7	11.7	11.6	11.0	11.2
Landed Properties	0.9	1.0	0.9	1.0	0.9	0.9
Others	1.2	1.3	1.3	1.1	1.2	1.2

Unit: GWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2005
46.4	48.3	48.9	48.2	49.2	46.4	576.1	Overall
39.3	40.7	41.0	40.4	41.4	39.0	485.6	Public Housing
1.0	1.0	1.0	1.0	1.0	1.0	12.3	1-Room / 2-Room
6.1	6.4	6.3	6.2	6.3	6.0	76.0	3-Room
15.4	15.9	16.1	15.8	16.3	15.3	189.7	4-Room
16.8	17.4	17.6	17.4	17.7	16.6	207.6	5-Room and Executive
6.6	7.1	7.3	7.2	7.3	6.8	83.6	Private Housing
5.7	6.1	6.4	6.2	6.4	6.0	72.4	Private Apartments and Condominiums
0.9	0.9	1.0	0.9	0.9	0.9	11.2	Landed Properties
0.5	0.6	0.6	0.6	0.6	0.6	6.9	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2010
50.6	53.1	54.6	53.4	53.6	50.7	627.0	Overall
40.3	42.2	43.2	42.4	42.2	40.0	497.5	Public Housing
1.0	1.1	1.1	1.1	1.1	1.0	12.4	1-Room / 2-Room
5.8	6.1	6.2	6.1	6.0	5.8	72.2	3-Room
16.0	16.7	17.2	16.8	16.7	15.9	197.2	4-Room
17.5	18.3	18.8	18.4	18.4	17.3	215.7	5-Room and Executive
9.1	9.7	10.1	9.9	10.1	9.5	115.1	Private Housing
8.2	8.8	9.2	8.9	9.1	8.6	103.9	Private Apartments and Condominiums
0.9	0.9	1.0	0.9	1.0	0.9	11.3	Landed Properties
1.2	1.2	1.2	1.1	1.3	1.2	14.3	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2014
55.2	58.3	58.5	57.3	57.0	55.4	684.6	Overall
42.5	44.9	44.7	43.2	43.2	41.9	521.9	Public Housing
1.2	1.3	1.3	1.3	1.3	1.3	14.7	1-Room / 2-Room
6.0	6.4	6.2	6.1	6.1	5.9	73.5	3-Room
17.3	18.3	18.2	17.6	17.6	17.1	212.4	4-Room
17.9	19.0	19.1	18.3	18.3	17.6	221.2	5-Room and Executive
11.6	12.1	12.6	12.9	12.6	12.4	148.4	Private Housing
10.7	11.2	11.7	12.0	11.6	11.5	137.1	Private Apartments and Condominiums
0.9	0.9	1.0	0.9	0.9	0.9	11.3	Landed Properties
1.2	1.2	1.2	1.2	1.2	1.1	14.3	Others

**TABLE 3.9: TOTAL HOUSEHOLD TOWN
GAS CONSUMPTION BY DWELLING TYPE (CONTINUED)**

2015	JAN	FEB	MAR	APR	MAY	JUN
Overall	57.3	58.6	60.3	60.7	55.5	56.0
Public Housing	42.9	43.9	45.0	46.5	42.4	42.9
1-Room / 2-Room	1.4	1.4	1.4	1.4	1.3	1.3
3-Room	6.0	6.1	6.3	6.5	6.0	6.0
4-Room	17.6	17.9	18.3	18.9	17.3	17.6
5-Room and Executive	17.9	18.5	19.1	19.6	17.7	18.0
Private Housing	13.2	13.5	14.1	14.1	12.9	12.9
Private Apartments and Condominiums	12.3	12.6	13.1	13.1	12.0	12.0
Landed Properties	0.9	0.9	1.0	1.0	0.9	0.9
Others	1.2	1.2	1.3	0.2	0.1	0.1

2016	JAN	FEB	MAR	APR	MAY	JUN
Overall	56.5	57.3	59.2	61.5	57.3	58.8
Public Housing	42.9	43.5	44.9	47.0	43.8	44.8
1-Room / 2-Room	1.5	1.4	1.4	1.5	1.4	1.4
3-Room	6.1	6.2	6.2	6.5	6.2	6.3
4-Room	17.7	17.9	18.5	19.4	18.0	18.5
5-Room and Executive	17.6	18.0	18.8	19.6	18.2	18.6
Private Housing	13.4	13.7	14.1	14.4	13.3	13.9
Private Apartments and Condominiums	12.5	12.8	13.1	13.4	12.4	12.9
Landed Properties	0.9	0.9	1.0	1.0	0.9	1.0
Others	0.2	0.1	0.2	0.1	0.2	0.1

2017	JAN	FEB	MAR	APR	MAY	JUN
Overall	56.7	60.6	61.9	63.2	59.0	58.7
Public Housing	42.1	45.0	45.4	46.4	43.3	43.4
1-Room / 2-Room	1.5	1.5	1.5	1.5	1.4	1.4
3-Room	6.0	6.3	6.2	6.4	6.1	5.8
4-Room	17.5	18.7	18.8	19.3	18.0	18.0
5-Room and Executive	17.1	18.5	18.9	19.2	17.8	18.2
Private Housing	14.4	15.6	16.3	16.7	15.4	15.3
Private Apartments and Condominiums	13.5	14.6	15.3	15.7	14.5	14.3
Landed Properties	0.9	1.0	1.0	1.0	0.9	1.0
Others	0.2	0.1	0.2	0.1	0.2	0.1

Source: Energy Market Authority (EMA)

Notes:

a. Solar PV statistics have been included in this table from 2016.

Unit: GWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2015
56.4	58.8	58.9	58.4	57.9	57.9	696.7	Overall
43.7	46.1	45.6	44.8	44.2	44.4	532.3	Public Housing
1.3	1.5	1.4	1.4	1.4	1.4	16.5	1-Room / 2-Room
6.2	6.4	6.4	6.2	6.1	6.2	74.5	3-Room
17.9	18.9	18.6	18.3	18.1	18.3	217.8	4-Room
18.2	19.4	19.2	18.8	18.6	18.4	223.4	5-Room and Executive
12.6	12.5	13.2	13.5	13.6	13.4	159.5	Private Housing
11.6	11.6	12.2	12.5	12.6	12.5	148.1	Private Apartments and Condominiums
0.9	0.9	1.0	1.0	1.0	1.0	11.4	Landed Properties
0.1	0.1	0.1	0.1	0.1	0.1	4.9	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2016
57.9	60.8	61	59.3	61	57.2	707.7	Overall
44.4	46.5	46	44.6	45.7	42.6	536.8	Public Housing
1.4	1.5	1.4	1.4	1.5	1.4	17.2	1-Room / 2-Room
6.2	6.5	6.4	6.3	6.3	6.0	75.3	3-Room
18.4	19.2	19.0	18.4	18.9	17.6	221.4	4-Room
18.4	19.3	19.2	18.5	19.0	17.6	222.9	5-Room and Executive
13.4	14.2	14.8	14.6	15.1	14.5	169.2	Private Housing
12.5	13.2	13.8	13.6	14.1	13.6	157.8	Private Apartments and Condominiums
0.9	1.0	1.0	1.0	1.0	0.9	11.4	Landed Properties
0.1	0.1	0.2	0.1	0.2	0.1	1.7	Others

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2017
63.6	59.3	59.0	61.1	62.2	58.0	723.4	Overall
48.3	44.4	43.5	44.7	45.4	42.1	534.2	Public Housing
1.6	1.5	1.4	1.4	1.5	1.4	17.6	1-Room / 2-Room
7.0	6.2	6.1	6.2	6.2	5.9	74.5	3-Room
20.2	18.5	18.1	18.6	18.9	17.5	222.1	4-Room
19.5	18.2	17.9	18.5	18.8	17.3	220.0	5-Room and Executive
15.2	14.9	15.4	16.2	16.6	15.7	187.5	Private Housing
14.2	13.9	14.4	15.2	15.6	14.8	175.9	Private Apartments and Condominiums
1.0	1.0	1.0	1.0	1.0	0.9	11.6	Landed Properties
0.2	0.1	0.1	0.1	0.2	0.1	1.7	Others

TABLE 3.10: AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY DWELLING TYPE

2005	JAN	FEB	MAR	APR	MAY	JUN
Overall	90.1	88.9	88.9	90.2	86.8	87.0
Public Housing	89.4	88.0	88.7	89.9	86.4	86.6
1-Room / 2-Room	66.9	64.5	62.3	64.5	62.1	61.9
3-Room	82.2	81.0	81.1	82.3	77.9	78.7
4-Room	93.6	92.0	92.5	93.9	90.4	90.8
5-Room and Executive	90.5	89.3	90.6	91.6	88.3	88.4
Private Housing	87.5	87.9	85.3	87.2	84.0	84.1
Private Apartments and Condominiums	82.3	82.8	80.0	82.0	79.0	79.0
Landed Properties	144.1	144.5	144.1	144.9	140.8	142.3

2010	JAN	FEB	MAR	APR	MAY	JUN
Overall	85.0	85.3	85.2	87.0	83.7	83.7
Public Housing	82.7	83.2	83.3	85.5	81.7	82.0
1-Room / 2-Room	60.8	59.5	57.3	58.2	57.9	56.5
3-Room	74.2	73.9	73.1	75.2	72.6	72.5
4-Room	86.2	86.2	86.3	88.6	84.6	84.9
5-Room and Executive	84.6	86.0	86.9	89.0	84.6	85.3
Private Housing	86.0	86.5	85.4	85.6	84.1	83.1
Private Apartments and Condominiums	82.9	83.2	81.7	82.0	80.7	79.8
Landed Properties	132.7	136.2	140.6	139.6	136.1	132.0

2014	JAN	FEB	MAR	APR	MAY	JUN
Overall	83.5	87.2	85.1	84.5	80.8	83.4
Public Housing	79.7	83.6	81.4	81.2	77.6	80.8
1-Room / 2-Room	57.0	58.8	53.8	53.9	53.4	53.3
3-Room	68.5	71.2	69.5	69.0	67.0	68.5
4-Room	82.2	85.6	83.0	83.1	79.5	82.9
5-Room and Executive	84.2	89.1	87.5	87.0	82.7	86.8
Private Housing	90.7	94.0	92.4	91.1	86.1	86.1
Private Apartments and Condominiums	88.5	91.6	90.0	88.6	83.5	83.7
Landed Properties	132.1	138.3	136.0	137.6	133.9	129.6

Unit: kWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2005
84.8	88.1	88.9	87.5	89.1	83.7	87.8	Overall
84.8	87.6	88.3	86.9	88.8	83.5	87.4	Public Housing
60.2	62.1	61.8	60.6	62.1	61.3	62.5	1-Room / 2-Room
77.1	79.9	79.8	78.8	79.6	76.1	79.5	3-Room
89.0	91.7	92.4	90.9	93.4	87.6	91.5	4-Room
86.3	89.3	90.3	88.9	90.6	84.6	89.1	5-Room and Executive
80.2	85.1	87.4	85.3	85.9	79.7	84.9	Private Housing
75.3	80.0	82.5	80.4	81.2	75.4	80.0	Private Apartments and Condominiums
137.3	143.9	144.4	142.1	140.7	131.8	141.8	Landed Properties

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2010
82.3	86.4	88.9	86.7	87.1	81.7	85.3	Overall
80.8	84.6	86.8	84.9	84.7	79.8	83.3	Public Housing
55.6	59.4	59.3	61.4	59.6	56.2	58.5	1-Room / 2-Room
70.9	74.3	75.1	73.7	73.0	69.7	73.2	3-Room
84.0	87.6	90.1	87.9	87.7	82.8	86.4	4-Room
83.9	88.0	90.8	88.7	88.8	83.1	86.6	5-Room and Executive
80.2	85.6	89.0	86.5	88.2	82.2	85.2	Private Housing
76.9	82.5	85.7	83.3	84.9	79.3	81.9	Private Apartments and Condominiums
129.8	133.3	139.5	134.5	139.2	125.9	134.9	Landed Properties

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2014
80.2	84.2	84.3	82.1	81.4	78.7	82.9	Overall
78.1	82.2	81.6	78.4	78.3	75.6	79.9	Public Housing
53.0	55.8	54.9	52.8	54.5	52.5	54.4	1-Room / 2-Room
67.2	70.2	68.3	66.5	66.5	64.8	68.1	3-Room
80.2	84.1	83.4	80.2	79.9	77.4	81.8	4-Room
83.2	87.9	88.2	84.4	84.2	80.8	85.5	5-Room and Executive
81.7	85.2	88.3	89.5	86.7	84.5	88.0	Private Housing
79.2	82.8	85.9	87.2	84.4	82.3	85.6	Private Apartments and Condominiums
129.1	131.4	134.8	133.7	132.3	127.6	133.0	Landed Properties

TABLE 3.10: AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY DWELLING TYPE (CONTINUED)

2015	JAN	FEB	MAR	APR	MAY	JUN
Overall	81.0	82.9	84.6	85.0	77.5	77.8
Public Housing	77.0	78.9	80.1	82.6	75.2	75.8
1-Room / 2-Room	55.4	55.6	54.4	55.6	52.2	52.2
3-Room	65.6	66.2	67.3	69.7	64.6	64.5
4-Room	79.2	80.7	81.5	84.2	76.9	77.5
5-Room and Executive	82.0	84.9	87.1	89.5	80.7	81.7
Private Housing	89.4	91.8	94.3	93.1	85.3	84.4
Private Apartments and Condominiums	87.3	89.7	92.3	90.8	83.1	82.1
Landed Properties	131.8	133.7	134.8	139.5	130.0	130.8

2016	JAN	FEB	MAR	APR	MAY	JUN
Overall	76.4	77.5	79.4	82.3	76.3	78.0
Public Housing	74.2	75.3	77.3	80.7	75.0	76.6
1-Room / 2-Room	55.2	53.8	51.4	54.5	51.3	51.7
3-Room	64.1	64.8	64.5	67.8	64.0	65.1
4-Room	75.9	76.7	78.8	82.4	76.3	78.1
5-Room and Executive	79.0	80.9	84.2	87.7	81.1	82.9
Private Housing	84.1	85.3	86.4	87.5	80.6	82.7
Private Apartments and Condominiums	82.0	83.2	84.1	85.3	78.3	80.4
Landed Properties	128.1	129.4	135.4	133.9	130.8	131.1

2017	JAN	FEB	MAR	APR	MAY	JUN
Overall	73.8	78.8	79.7	81.1	75.6	79.1
Public Housing	70.9	75.8	75.8	77.3	72.3	76.7
1-Room / 2-Room	52.9	54.1	52.0	53.0	50.8	52.3
3-Room	61.4	64.5	63.0	64.6	61.2	64.3
4-Room	72.5	77.2	77.0	78.8	73.7	78.1
5-Room and Executive	75.5	81.8	83.1	84.3	78.3	83.5
Private Housing	82.8	88.7	91.8	93.5	86.1	86.4
Private Apartments and Condominiums	80.9	86.7	89.9	91.6	84.3	84.4
Landed Properties	126.0	134.9	137.5	137.0	129.0	131.4

Source: Energy Market Authority (EMA)

Unit: kWh

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2015
78.0	81.1	81.2	79.9	80.4	78.7	80.7	Overall
76.9	80.9	79.9	78.0	78.6	77.1	78.4	Public Housing
52.9	56.6	54.7	53.0	54.9	54.6	54.3	1-Room / 2-Room
65.6	68.0	67.3	65.7	65.8	65.5	66.3	3-Room
78.8	82.6	81.4	79.6	80.2	78.9	80.1	4-Room
82.5	87.5	86.7	84.6	85.1	82.8	84.6	5-Room and Executive
81.3	81.3	85.2	86.0	86.6	84.5	86.9	Private Housing
79.0	79.0	82.9	83.7	84.2	82.2	84.6	Private Apartments and Condominiums
128.4	127.0	133.5	133.4	136.6	131.9	132.6	Landed Properties

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2016
76.6	80.3	80.3	77.9	79.7	74.6	78.3	Overall
75.7	79.3	78.3	75.6	77.2	71.9	76.4	Public Housing
52.9	56.4	53.2	52.1	53.8	50.9	53.1	1-Room / 2-Room
63.7	66.9	65.8	64.3	64.6	61.4	64.7	3-Room
77.4	80.7	79.8	76.9	78.5	73.2	77.9	4-Room
81.7	85.9	85.1	82.1	84.2	77.6	82.7	5-Room and Executive
79.3	83.4	86.6	85.3	87.3	83.5	84.3	Private Housing
77.3	81.3	84.6	83.3	85.3	81.6	82.2	Private Apartments and Condominiums
124.3	130.1	132.2	130.2	133.4	126.0	130.4	Landed Properties

JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	2017
81.0	74.9	74.6	77.0	78.1	72.5	77.2	Overall
80.0	73.0	71.7	73.5	74.5	68.8	74.2	Public Housing
55.9	51.3	50.0	50.1	51.8	48.4	51.8	1-Room / 2-Room
69.8	61.1	60.2	61.5	61.4	58.0	62.6	3-Room
81.9	74.5	73.0	74.8	75.9	70.0	75.6	4-Room
85.5	79.3	78.1	80.4	81.6	74.9	80.5	5-Room and Executive
83.4	80.7	83.8	88.1	89.4	84.2	86.6	Private Housing
81.5	78.7	81.9	86.3	87.7	82.5	84.7	Private Apartments and Condominiums
127.6	127.6	129.1	132.3	132.0	125.1	130.8	Landed Properties

TABLE 3.11: AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY PLANNING AREA AND DWELLING TYPE (ANNUAL)

OVERALL PUBLIC HOUSING						
	2005	2010	2014	2015	2016	2017
Overall	87.4	83.3	79.9	78.4	76.4	74.2
Central Region	86.8	79.1	76.2	74.6	73.0	70.4
Bishan	86.5	79.9	79.3	78.2	76.9	74.6
Bukit Merah	89.0	79.3	75.1	73.2	72.0	69.1
Bukit Timah	93.6	88.3	84.4	81.2	77.7	74.5
Downtown	101.7	86.3	79.5	76.3	74.6	71.5
Geylang	93.3	85.5	80.2	78.0	75.2	72.8
Kallang	89.9	82.5	81.0	79.9	77.8	75.2
Marine Parade	75.5	72.8	68.2	66.8	66.9	65.2
Novena	89.0	82.9	79.9	78.9	78.0	72.5
Outram	85.0	68.0	67.5	66.4	64.7	62.4
Queenstown	79.9	73.6	70.0	68.5	67.0	64.8
Rochor	99.4	88.4	86.6	85.9	84.3	82.6
Tanglin	96.3	92.2	87.1	82.3	81.0	73.1
Toa Payoh	83.0	76.7	76.3	74.8	73.3	70.7
East Region	90.3	85.4	81.1	79.4	77.1	75.6
Bedok	90.2	84.9	79.9	78.8	76.0	74.3
Pasir Ris	90.0	85.5	82.6	80.2	78.4	76.2
Tampines	90.7	86.0	81.3	79.5	77.3	76.7
North East Region	82.3	80.2	76.6	75.1	73.5	72.0
Ang Mo Kio	83.9	78.4	76.1	74.5	72.7	72.7
Hougang	90.9	86.9	82.3	80.1	77.8	74.7
Punggol	61.6	70.5	69.7	69.1	68.1	67.3
Sengkang	82.6	81.3	77.8	76.1	74.7	72.6
Serangoon	92.7	87.1	82.3	81.7	80.3	81.1
North Region	88.1	88.8	84.9	84.1	81.7	79.4
Sembawang	84.4	85.0	83.8	83.2	81.9	78.6
Woodlands	88.7	91.4	87.6	86.5	84.7	81.5
Yishun	91.1	86.1	79.6	79.7	75.6	76.1
West Region	89.9	86.6	83.6	82.2	79.8	76.7
Bukit Batok	86.1	82.5	78.8	78.1	76.4	72.9
Bukit Panjang	87.8	84.5	80.9	78.4	76.4	74.9
Choa Chu Kang	92.4	88.6	85.6	83.6	79.3	76.3
Clementi	82.8	76.7	72.9	71.6	70.9	67.8
Jurong East	93.0	88.9	85.8	84.5	81.9	79.0
Jurong West	92.0	90.5	88.4	88.1	86.4	82.2

Unit: kWh

1-ROOM / 2-ROOM						
	2005	2010	2014	2015	2016	2017
Overall	62.5	58.5	54.4	54.3	53.1	51.8
Central Region	63.1	58.1	54.5	53.0	51.9	50.3
Bishan	53.1	49.3	53.8	50.6	50.5	48.5
Bukit Merah	63.5	59.0	55.7	53.8	52.6	50.9
Bukit Timah	-	-	-	-	-	29.4
Downtown	-	-	-	-	-	-
Geylang	68.3	61.9	57.3	56.9	54.8	54.0
Kallang	59.0	53.8	50.3	48.7	46.7	46.9
Marine Parade	70.5	65.2	61.2	58.8	59.3	60.0
Novena	65.6	63.4	61.2	61.7	63.6	57.0
Outram	65.6	57.8	51.5	51.1	49.2	47.2
Queenstown	60.9	57.0	53.7	52.7	53.1	50.5
Rochor	66.3	57.9	55.7	62.0	54.7	56.4
Tanglin	-	-	-	-	-	-
Toa Payoh	61.2	56.1	52.8	51.0	50.4	48.2
East Region	59.9	59.5	52.2	53.4	51.1	52.7
Bedok	59.0	59.5	51.8	51.0	48.5	49.7
Pasir Ris	50.8	47.0	50.1	58.6	53.1	52.6
Tampines	67.0	60.3	54.0	56.6	55.6	58.7
North East Region	60.4	59.4	54.2	55.1	53.4	51.3
Ang Mo Kio	60.2	60.1	54.6	54.6	52.7	52.5
Hougang	64.5	64.4	68.4	67.4	62.7	52.1
Punggol	-	s	54.3	54.1	53.3	53.2
Sengkang	-	42.6	46.0	50.8	50.0	48.4
Serangoon	60.4	57.6	53.7	52.8	53.4	42.5
North Region	52.8	52.8	57.2	59.0	58.5	56.6
Sembawang	-	-	45.5	46.7	44.3	37.2
Woodlands	-	-	64.1	61.9	63.9	62.6
Yishun	52.8	52.8	53.2	58.8	55.7	55.8
West Region	65.0	63.2	55.1	57.9	56.4	55.6
Bukit Batok	-	-	47.2	54.8	54.7	54.3
Bukit Panjang	-	-	47.7	58.9	61.2	62.5
Choa Chu Kang	74.4	90.8	56.5	56.3	54.2	53.5
Clementi	63.2	59.5	53.4	55.4	52.4	49.7
Jurong East	65.4	59.0	57.1	52.0	48.7	48.3
Jurong West	65.3	63.5	57.1	61.7	58.6	56.8

TABLE 3.11: AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY PLANNING AREA AND DWELLING TYPE (ANNUAL) (CONTINUED)

	3-ROOM					
	2005	2010	2014	2015	2016	2017
Overall	79.5	73.2	68.1	66.3	64.7	62.6
Central Region	82.6	74.5	69.1	67.2	65.8	62.8
Bishan	69.2	64.0	59.3	56.5	54.1	51.7
Bukit Merah	88.1	77.4	70.7	67.5	66.8	63.2
Bukit Timah	73.1	59.9	58.4	56.3	57.6	53.3
Downtown	94.8	82.9	75.6	74.4	71.7	-
Geylang	88.9	81.4	73.7	71.7	69.4	66.8
Kallang	91.5	81.7	76.6	74.8	73.6	69.9
Marine Parade	59.7	59.4	55.2	54.4	54.7	53.4
Novena	84.9	79.9	75.9	75.5	74.6	70.9
Outram	90.5	77.9	69.6	67.9	65.6	60.8
Queenstown	75.0	67.5	62.1	60.5	59.0	56.8
Rochor	91.3	81.1	79.2	79.7	76.6	74.9
Tanglin	86.5	91.1	79.3	79.7	82.2	85.9
Toa Payoh	75.9	69.9	66.6	65.2	63.6	60.5
East Region	78.5	73.6	69.6	67.4	65.6	64.3
Bedok	78.9	74.0	70.1	68.2	66.3	64.4
Pasir Ris	-	-	s	53.9	62.2	65.9
Tampines	69.7	66.5	62.7	62.1	60.1	62.4
North East Region	75.4	70.6	65.7	63.9	62.7	61.9
Ang Mo Kio	74.8	70.5	66.7	65.3	63.7	63.5
Hougang	83.8	78.6	73.1	69.0	68.5	65.6
Punggol	-	s	56.6	56.4	57.4	57.0
Sengkang	-	54.0	59.5	58.7	59.3	58.3
Serangoon	80.2	73.7	65.4	63.7	61.9	59.0
North Region	63.6	63.6	59.8	62.2	59.8	59.7
Sembawang	-	-	56.3	56.1	55.3	51.8
Woodlands	76.6	72.7	57.3	60.6	59.8	58.6
Yishun	62.2	62.7	61.1	63.5	60.3	61.2
West Region	75.2	72.0	68.1	66.7	64.7	61.9
Bukit Batok	-	-	-	-	-	38.3
Bukit Panjang	69.7	69.1	64.8	62.9	60.6	59.8
Choa Chu Kang	80.8	79.8	72.9	67.8	60.8	59.3
Clementi	70.9	67.6	64.4	63.1	62.2	58.8
Jurong East	79.4	77.1	72.7	71.4	69.7	67.8
Jurong West	89.9	84.3	76.1	74.9	71.9	69.4

Unit: kWh

4-ROOM						
	2005	2010	2014	2015	2016	2017
Overall	91.5	86.4	81.8	80.1	77.9	75.6
Central Region	92.9	83.3	80.2	78.7	76.9	74.3
Bishan	83.9	78.4	77.2	75.7	74.0	72.0
Bukit Merah	96.0	82.2	79.1	77.8	76.6	73.4
Bukit Timah	90.7	87.8	84.4	82.4	80.7	77.2
Downtown	109.7	90.6	83.9	78.3	77.5	72.9
Geylang	101.8	91.9	87.0	84.4	81.3	79.3
Kallang	95.1	88.9	86.0	85.4	82.7	80.2
Marine Parade	81.0	76.2	71.5	69.6	71.3	68.8
Novena	89.9	82.3	79.3	77.4	75.8	69.2
Outram	95.7	63.6	69.9	69.5	67.5	66.8
Queenstown	90.2	80.9	77.0	75.2	72.6	70.7
Rochor	108.2	97.6	94.9	90.9	91.9	89.8
Tanglin	69.5	72.4	78.1	65.8	66.3	58.8
Toa Payoh	91.3	83.5	80.1	78.9	77.2	74.3
East Region	92.8	87.2	83.1	80.9	78.3	76.8
Bedok	99.2	91.4	86.3	84.8	81.5	79.4
Pasir Ris	87.1	82.2	80.2	77.6	75.9	73.8
Tampines	90.7	86.5	81.7	79.4	76.8	76.1
North East Region	89.4	83.3	76.9	75.3	73.5	71.8
Ang Mo Kio	99.1	90.4	87.2	85.7	84.1	83.6
Hougang	90.4	87.2	82.3	80.3	77.8	74.5
Punggol	68.7	71.5	66.2	66.1	65.2	64.7
Sengkang	87.3	81.1	75.7	73.8	72.5	70.4
Serangoon	93.0	86.7	82.2	81.1	80.2	81.4
North Region	88.2	89.1	84.3	83.5	81.1	79.0
Sembawang	86.0	86.4	83.2	82.6	81.6	78.4
Woodlands	88.3	91.0	87.1	85.9	84.2	80.8
Yishun	90.3	87.0	79.3	79.7	75.2	76.2
West Region	92.8	89.7	85.9	84.1	81.5	78.3
Bukit Batok	83.7	80.3	76.9	76.5	75.1	71.5
Bukit Panjang	90.1	87.4	81.9	78.7	76.8	75.3
Choa Chu Kang	92.3	88.9	86.1	84.5	79.4	76.1
Clementi	93.9	84.4	78.3	76.5	76.4	73.1
Jurong East	96.8	92.2	89.9	88.0	85.1	82.3
Jurong West	95.7	95.2	92.2	91.1	89.6	85.3

TABLE 3.11: AVERAGE MONTHLY HOUSEHOLD TOWN GAS CONSUMPTION BY PLANNING AREA AND DWELLING TYPE (ANNUAL) (CONTINUED)

Unit: kWh

5-ROOM / EXECUTIVE						
	2005	2010	2014	2015	2016	2017
Overall	89.1	86.6	85.5	84.6	82.7	80.5
Central Region	95.3	88.3	88.4	87.1	85.4	82.8
Bishan	91.8	84.2	84.9	84.6	83.5	81.1
Bukit Merah	95.2	88.1	84.9	83.4	81.9	79.2
Bukit Timah	100.8	96.2	91.3	87.6	85.5	83.2
Downtown	-	-	-	-	-	-
Geylang	101.5	94.5	92.0	89.3	86.1	82.4
Kallang	97.6	91.0	96.4	96.0	93.5	91.7
Marine Parade	91.4	89.9	84.8	83.3	81.5	79.2
Novena	100.6	93.3	91.7	90.3	89.9	84.5
Outram	149.0	69.9	83.0	80.1	80.7	79.3
Queenstown	91.2	87.1	85.2	83.7	81.9	79.2
Rochor	133.5	98.9	103.2	107.3	104.3	103.5
Tanglin	115.9	105.8	94.3	93.7	90.5	81.3
Toa Payoh	94.0	85.9	91.9	90.2	89.0	87.1
East Region	92.8	88.3	84.4	83.5	81.4	79.8
Bedok	95.9	92.1	86.9	87.1	84.1	82.4
Pasir Ris	91.7	87.4	84.3	82.5	80.8	78.4
Tampines	91.8	86.6	82.8	82.0	80.2	79.3
North East Region	79.7	81.1	81.6	80.6	79.2	77.9
Ang Mo Kio	91.6	85.1	88.0	85.6	83.6	84.4
Hougang	92.5	87.7	84.2	82.5	80.5	78.9
Punggol	59.2	70.0	75.5	75.3	74.6	73.6
Sengkang	79.7	82.1	82.2	81.1	79.9	78.0
Serangoon	94.3	89.2	84.7	84.7	83.0	84.5
North Region	89.0	89.6	88.2	87.8	85.7	83.5
Sembawang	83.3	84.1	85.1	85.2	83.7	81.0
Woodlands	89.1	91.9	89.6	88.9	87.1	84.2
Yishun	99.4	91.7	88.6	88.1	84.5	85.1
West Region	90.8	87.5	86.2	85.6	83.5	80.3
Bukit Batok	88.3	84.6	81.4	80.7	78.8	76.3
Bukit Panjang	87.8	83.8	83.0	81.7	79.9	78.1
Choa Chu Kang	92.8	88.6	86.5	84.6	81.3	78.7
Clementi	96.9	88.3	85.0	83.7	82.4	80.0
Jurong East	95.7	91.6	89.2	88.9	86.5	83.1
Jurong West	89.3	88.1	88.1	88.8	87.5	83.0

Source: Energy Market Authority (EMA)

Notes:

a. Planning Areas refer to areas demarcated in the Urban Redevelopment Authority's Master Plan 2008.

**TABLE 3.12: TOTAL OIL
CONSUMPTION BY SECTOR****Unit: ktoe**

	2010	2011	2012	2013	2014	2015	2016
Overall	7,790.2	7,614.0	7,946.8	8,475.0	8,970.4	9,657.2	9,006.4
Industrial-related	5,465.2	5,153.4	5,562.0	6,225.3	6,667.6	7,256.6	6,554.3
Commerce & Services-related	84.2	68.9	68.3	86.4	78.9	80.0	77.3
Transport-related	2,219.1	2,366.9	2,292.7	2,133.3	2,199.8	2,293.9	2,349.0
Households	21.7	24.8	23.7	30.0	24.1	26.7	25.8
Others	-	-	-	-	-	-	-

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

TABLE 3.13: TOTAL FINAL ENERGY CONSUMPTION

Unit: ktoe

2010	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	7.8	-	7,790.2	1,128.4	3,633.0	-	12,559.4
Industry-related	7.8	-	5,465.2	974.5	1,518.7	-	7,966.3
Commerce and Services-related	-	-	84.2	78.3	1,330.2	-	1,492.6
Transport-related	-	-	2,219.1	20.8	180.5	-	2,420.4
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	6.4	-	7,614.0	1,183.9	3,697.9	-	12,502.3
Industry-related	6.4	-	5,153.4	1,019.7	1,554.4	-	7,733.9
Commerce and Services-related	-	-	68.9	82.4	1,365.1	-	1,516.4
Transport-related	-	-	2,366.9	25.9	191.2	-	2,584.1
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	23.0	-	7,946.8	1,126.2	3,800.6	-	12,896.5
Industry-related	23.0	-	5,562.0	966.0	1,597.0	-	8,148.0
Commerce and Services-related	-	-	68.3	82.5	1,407.2	-	1,558.0
Transport-related	-	-	2,292.7	20.0	200.2	-	2,512.9
Households	-	-	23.7	56.9	570.0	-	650.7
Others	-	-	-	0.8	26.1	-	26.9

2013	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	129.0	-	8,475.0	1,311.7	3,864.9	-	13,780.5
Industry-related	129.0	-	6,225.3	1,145.9	1,620.2	-	9,120.4
Commerce and Services-related	-	-	86.4	89.3	1,437.5	-	1,613.3
Transport-related	-	-	2,133.3	18.1	203.7	-	2,355.1
Households	-	-	30.0	57.5	580.8	-	668.4
Others	-	-	-	0.8	22.6	-	23.4

TABLE 3.13: TOTAL FINAL ENERGY CONSUMPTION (CONTINUED)

Unit: ktoe

2014	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	162.2	-	8,970.4	1,355.1	3,989.9	-	14,477.5
Industry-related	162.2	-	6,667.6	1,192.7	1,698.5	-	9,721.0
Commerce and Services-related	-	-	78.9	85.3	1,465.7	-	1,629.8
Transport-related	-	-	2,199.8	17.4	209.9	-	2,427.1
Households	-	-	24.1	58.9	595.4	-	678.4
Others	-	-	-	0.8	20.4	-	21.3

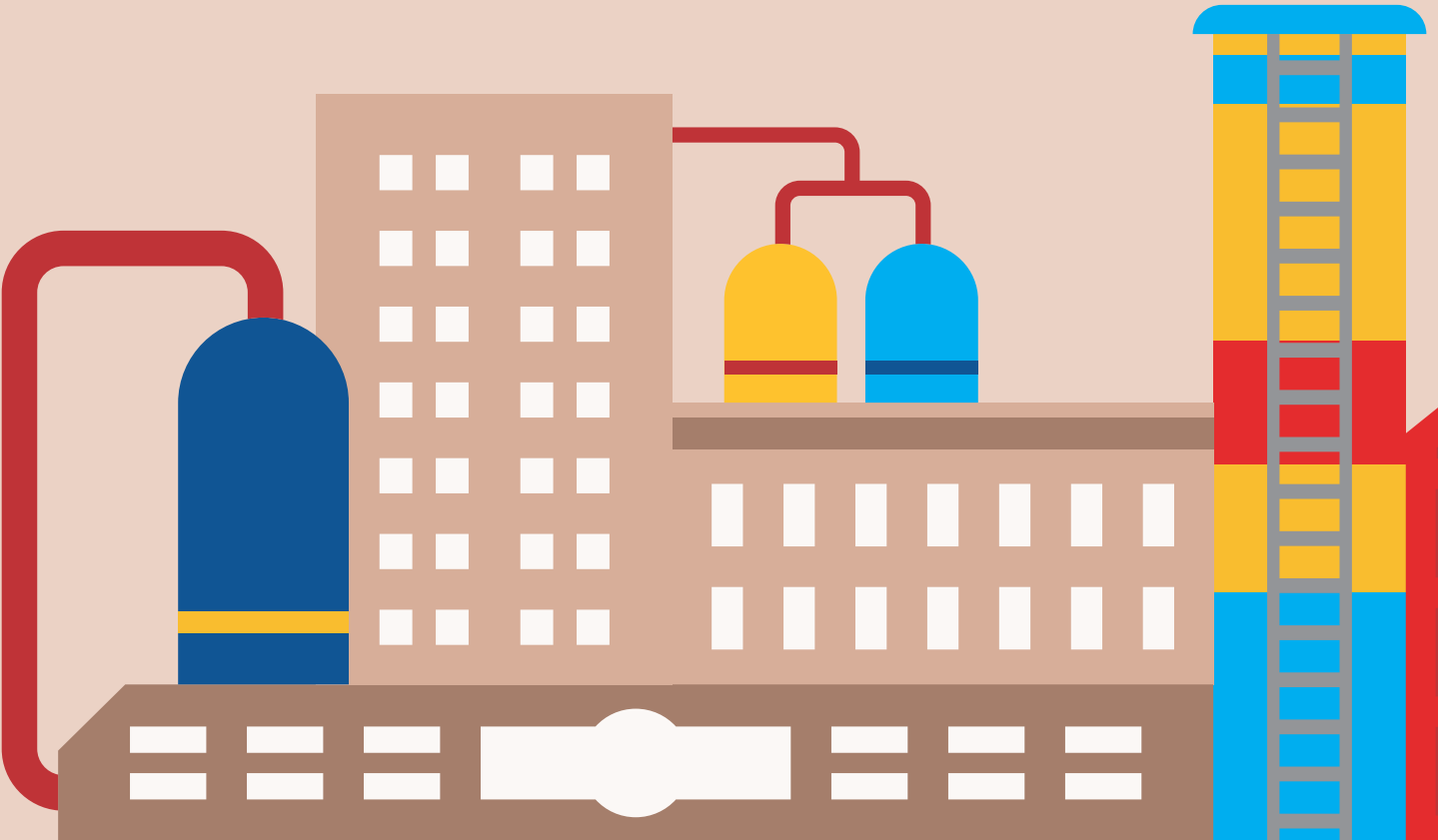
2015	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	163.3	-	9,657.2	1,340.4	4,085.5	-	15,246.4
Industry-related	163.3	-	7,256.6	1,176.1	1,727.3	-	10,323.2
Commerce and Services-related	-	-	80.0	88.2	1,503.1	-	1,671.3
Transport-related	-	-	2,293.9	14.3	210.2	-	2,518.5
Households	-	-	26.7	59.9	620.9	-	707.5
Others	-	-	-	2.0	24.0	-	26.0

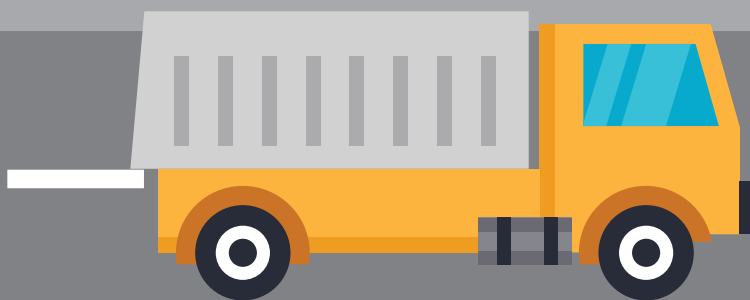
2016	Coal & Peat	Crude Oil	Petroleum Products	Natural Gas	Electricity	Others	Total
Total Final Energy Consumption	166.8	-	9,006.4	1,360.2	4,181.1	-	14,714.6
Industry-related	166.8	-	6,554.3	1,193.5	1,755.7	-	9,670.3
Commerce and Services-related	-	-	77.3	92.1	1,521.9	-	1,691.3
Transport-related	-	-	2,349.0	11.2	226.9	-	2,587.1
Households	-	-	25.8	60.9	652.6	-	739.2
Others	-	-	-	2.6	24.1	-	26.7

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

ENERGY BALANCES

04





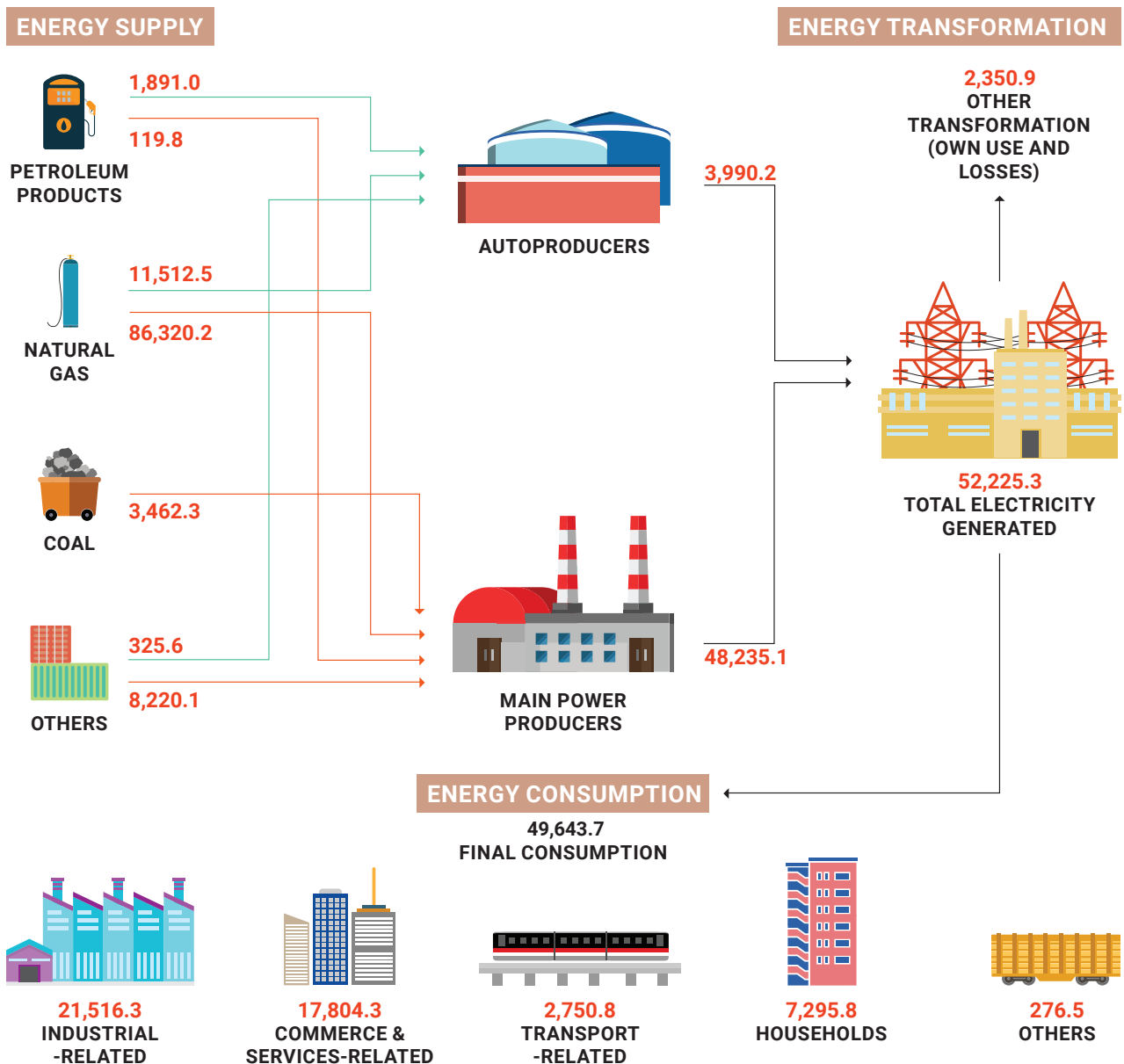
ELECTRICITY BALANCES

Singapore generated 52.2 TWh of electricity in 2017, 1.2% higher than the 51.6 TWh recorded in 2016. Of these, 92.4% (or 48.2 TWh) was accounted for by MPPs while the remaining 7.6% (or 4.0 TWh) was contributed by Autoproducers. Own use and losses in the Transformation sector amounted to 2.4 TWh.

The Industrial-related sector and Commerce & Services-related sector accounted for 43.3% (or 21.5 TWh) and 35.9% (or 17.8 TWh) of Singapore's total electricity consumption of 49.6 TWh in 2017 respectively. Households and the Transport-related sector contributed to 14.7% (or 7.3 TWh) and 5.5% (or 2.8 TWh) of total electricity consumption respectively.

ELECTRICITY FLOW, 2017

Unit: GWh



NATURAL GAS BALANCES

NG imports into Singapore rose by 2.0% to 413,313.6 TJ in 2017. This was supplemented by a stock build of 3,598.3 TJ to inventory. Total NG supply in Singapore reached 409,715.2 TJ in 2017.

About 352,197.8 TJ of NG was used for power generation in 2017, representing 86.0% of total NG consumption by end-users. This was a 0.6% increase from the 350,193.5 TJ used for the same purpose in 2016. Another

60,226.6 TJ of NG, which included town gas, was consumed directly by end-consumers.

The Industrial-related sector accounted for 88.9% (or 53,525.0 TJ) of total NG consumption by end-users. The remainder was consumed primarily by the Commerce & Services-related sector (6.2% or 3,706.9 TJ) and by Households (4.3% or 2,604.3 TJ).

NATURAL GAS FLOW, 2017

Unit: TJ

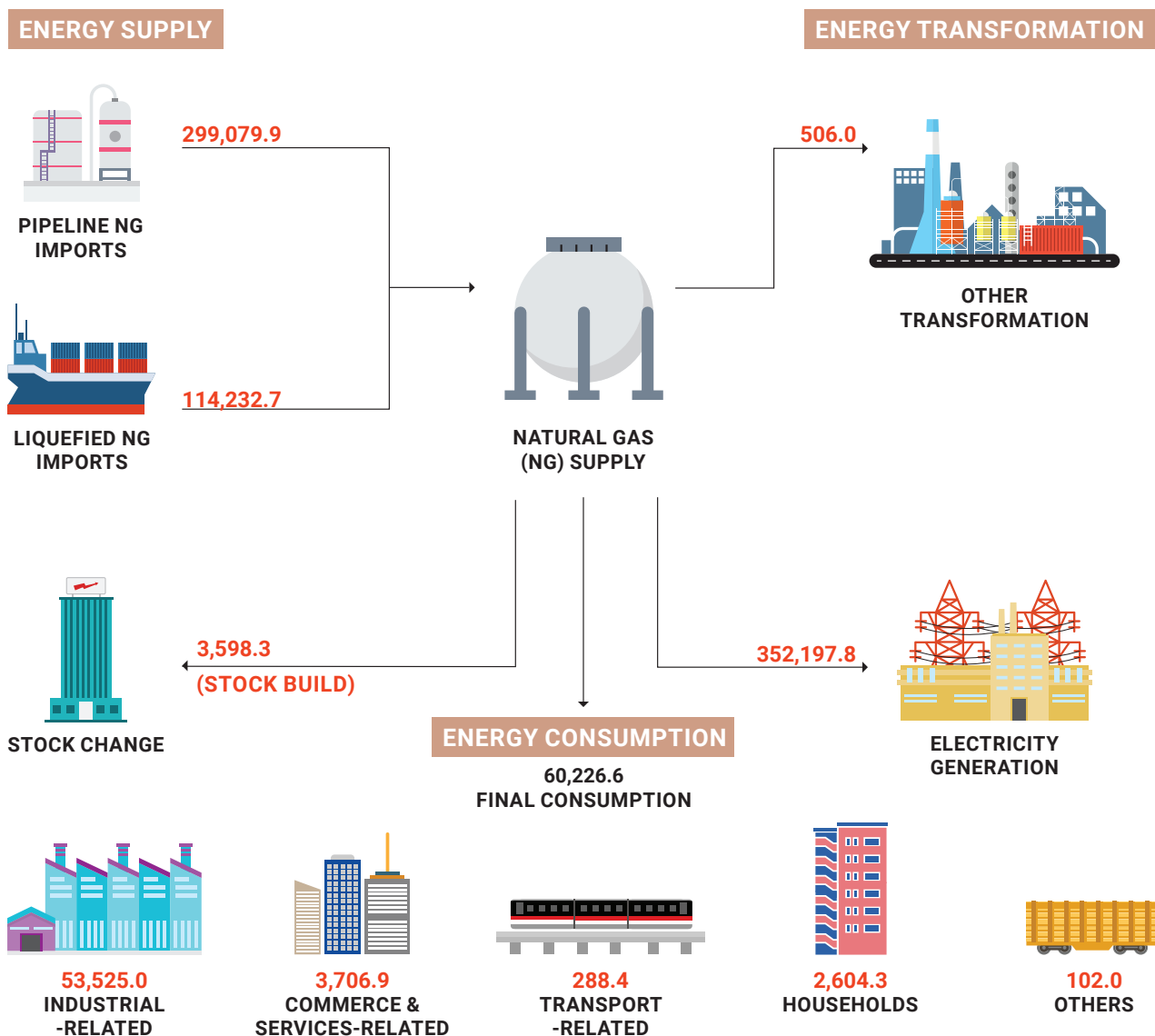


TABLE 4.1: ELECTRICITY BALANCE TABLE

Unit: GWh

	2005	2010	2014	2015	2016	2017
Indigenous Production	-	-	-	-	-	-
Imports	-	-	-	-	-	-
Exports	-	-	-	-	-	-
International Bunkers	-	-	-	-	-	-
Stock Changes	-	-	-	-	-	-
Total Primary Energy Supply	-	-	-	-	-	-
Total Transformation Sector	36,881.1	42,793.9	46,761.9	47,843.9	49,156.0	49,874.4
Electricity Generation	38,212.7	45,366.5	49,309.7	50,271.6	51,586.6	52,225.3
Main Power Producers	38,212.7	44,098.0	46,336.0	47,031.1	48,066.2	48,235.1
Autoproducers	-	1,268.1	2,973.8	3,240.4	3,520.4	3,990.2
Other Transformation	-1,331.6	-2,572.6	-2,547.8	-2,427.7	-2,430.6	-2,350.9
Statistical Differences (SD)	-1,391.8	-542.2	-358.9	-330.0	-529.3	-230.8
Total Final Energy Consumption	35,489.3	42,251.7	46,403.0	47,513.9	48,626.6	49,643.7
Industrial-related	14,509.0	17,662.6	19,753.2	20,088.0	20,418.4	21,516.3
Commerce & Services-related	13,075.6	15,469.7	17,046.6	17,481.0	17,699.3	17,804.3
Transport-related	1,200.0	2,098.7	2,441.0	2,444.8	2,639.4	2,750.8
Households	6,092.5	6,636.0	6,924.4	7,220.9	7,589.4	7,295.8
Others	612.1	384.8	237.7	279.1	280.1	276.5

Source: Energy Market Authority (EMA)

Notes:

a. Other Transformation includes losses and own use.

TABLE 4.2: NATURAL GAS BALANCE TABLE

Unit: TJ

	2010	2014	2015	2016	2017
Indigenous Production	-	-	-	-	-
Imports	302,057.5	394,303.4	395,797.9	405,303.5	413,313.6
Exports	-	-	-	-	-
International Bunkers	-	-	-	-	-
Stock Changes	-	-3,692.1	1,731.8	2,159.3	-3,598.3
Total Primary Energy Supply	302,057.5	390,611.2	397,529.7	407,462.8	409,715.2
Total Transformation Sector	-250,255.9	-338,287.8	-342,058.6	-350,697.6	-352,703.8
Electricity Generation	-249,762.3	-337,803.1	-341,572.5	-350,193.5	-352,197.8
Main Power Producers	-240,021.7	-303,916.1	-304,332.2	-308,923.1	-310,752.7
Autoproducers	-9,740.6	-33,887.0	-37,240.3	-41,270.4	-41,445.1
Oil Refining	-	-	-	-	-
Other Transformation	-493.7	-484.7	-486.1	-504.1	-506.0
Statistical Differences (SD)	-4,557.2	4,412.3	650.0	184.0	3,215.2
Total Final Energy Consumption	47,244.3	56,735.7	56,121.0	56,949.2	60,226.6
Industrial-related	40,801.6	49,937.5	49,239.8	49,968.5	53,525.0
Commerce & Services-related	3,278.5	3,571.2	3,691.2	3,855.4	3,706.9
Transport-related	872.9	727.4	599.6	468.6	288.4
Households	2,257.2	2,464.6	2,508.0	2,547.8	2,604.3
Others	34.1	35.0	82.5	108.9	102.0

Source: Energy Market Authority (EMA)

ENERGY PRICES

05





ELECTRICITY TARIFFS

Electricity tariffs for non-contestable consumers 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, and is calculated using the average of daily NG prices in the first two-and-a-half month period in the preceding quarter.

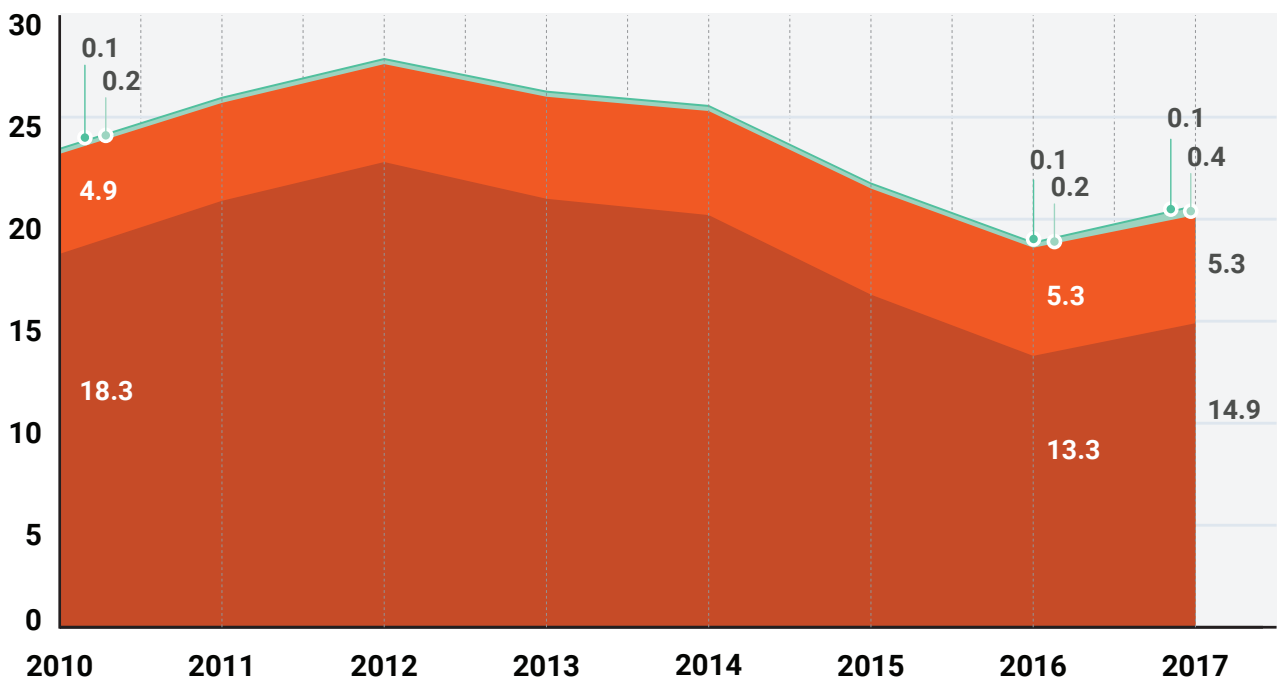
The four main components of electricity tariffs in Singapore are (i) Energy Costs (paid to the generation companies), (ii) Grid Charges (paid to

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 2017, the annual electricity tariffs increased by 9.5%, from 18.9 cents per kWh in 2016 to 20.7 cents per kWh in 2017. This was mainly due to higher energy costs, which increased by about 1.6 cents per kWh in 2017, as a result of higher gas prices.

ANNUAL ELECTRICITY TARIFFS BY COMPONENTS (LOW TENSION TARIFFS)

Unit: Cents/kWh



- Power System Operation & Market Administration Fees
- Market Support Service Fees
- Grid Charges
- Energy Costs

Each component in the chart above is ordered according to the legend.

UNIFORM SINGAPORE ENERGY PRICES (USEP)

The Uniform Singapore Energy Price (USEP) is the half-hourly energy price in the Singapore Wholesale Electricity Market. Energy withdrawal from the national grid is settled at the USEP.

Overall, the USEP trended upwards between 2005 and 2012. There was a significant dip in the USEP in the second half of 2008 corresponding to the global economic slowdown. In 2011, the USEP reached a historical high. During this period, there were multiple planned and unplanned gas curtailments by upstream gas suppliers, which resulted in increased utilisation of more expensive fuel oil-fired steam plants and with CCGT units running on diesel.

The availability of Liquefied Natural Gas (LNG) imports from 2013 facilitated additional generating capacity coming on-stream. This exerted downward pressure on the USEP. There was a notable spike in USEP in July 2015 due to multiple planned and unplanned maintenance of generation facilities and overlapping transmission constraints. The USEP reached an all-time low in 2016 due to excess generation capacity in the market and declining oil prices. In 2017, the increase in USEP corresponded with recovering oil prices.

MONTHLY AVERAGE USEP

Unit: Dollar/MWh

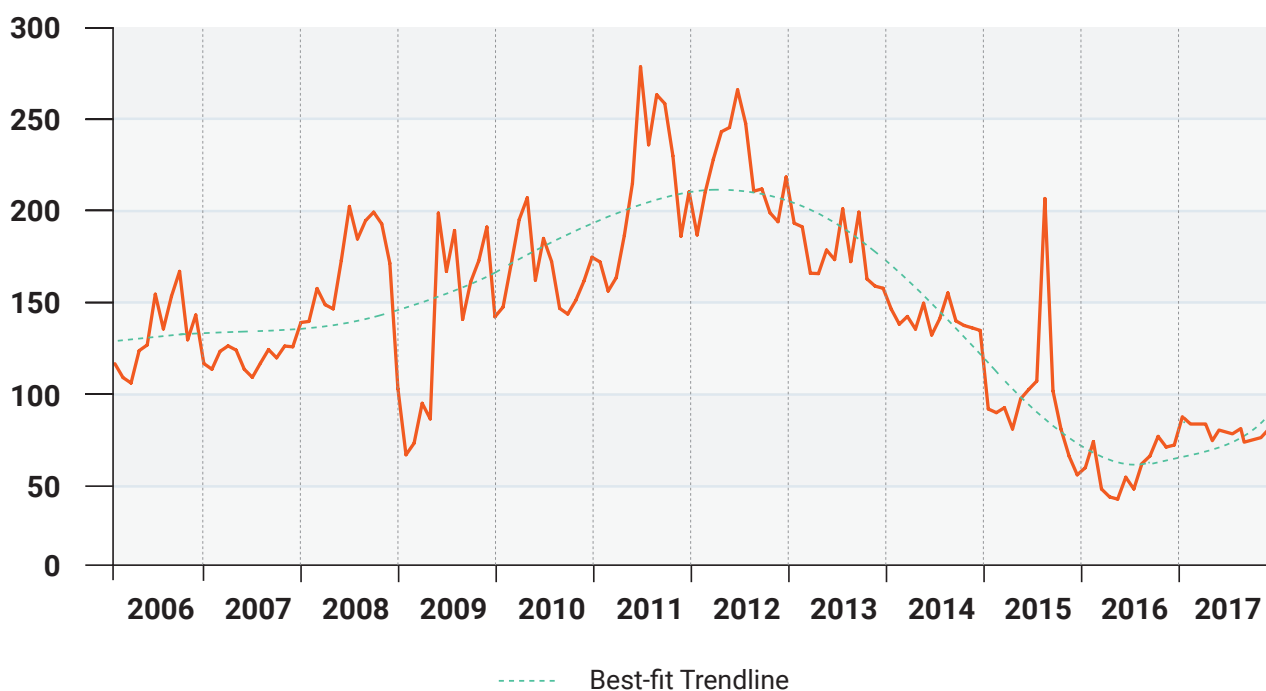


TABLE 5.1: ELECTRICITY AND TOWN GAS TARIFFS

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	21.4	19.3	69.0	75.9	83.6	91.9
2010	25.5	20.3	91.8	89.1	99.7	96.8
2015	21.6	18.3	84.9	87.4	84.5	86.9
2016	18.6	16.4	73.9	79.1	72.8	78.0
2017	20.1	17.2	80.7	84.1	78.5	81.8
2018 ¹	20.7	17.5	84.3	86.4	81.1	83.1

Source: Energy Market Authority (EMA)

¹ Data for 2018 is as of 1Q 2018.

Notes:

- Electricity tariffs refer to the low tension tariffs applicable for Households and non-Contestable Consumers.
- 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.
- Following MAS' advice, the Inflation Adjusted Electricity and Town Gas tariffs are re-compiled using the Core Inflation Index (Base Year of 2014).
- Rates are not inclusive of GST.

TABLE 5.2: MONTHLY ELECTRICITY TARIFFS (LOW TENSION TARIFFS)

Unit: Cents/kWh

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2005	16.7	16.7	16.7	16.1	16.1	16.1	18.3	18.3	18.3	19.6	19.6	19.6
2010	22.9	22.9	22.9	23.6	23.6	23.6	24.1	24.1	24.1	23.3	23.3	23.3
2015	23.3	23.3	23.3	20.9	20.9	20.9	22.4	22.4	22.4	20.4	20.4	20.4
2016	19.5	19.5	19.5	17.7	17.7	17.7	19.3	19.3	19.3	19.1	19.1	19.1
2017	20.2	20.2	20.2	21.4	21.4	21.4	20.7	20.7	20.7	20.3	20.3	20.3
2018	21.6	21.6	21.6	22.2	22.2	22.2						

Source: SP Group

Notes:

- Low tension tariffs refer to electricity tariffs applicable for Households and non-Contestable Consumers.
- Rates are not inclusive of GST.

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

	2005	2010	2014	2015	2016	2017
Total	17.7	23.5	25.6	21.7	18.9	20.7
Energy Costs	11.8	18.3	20.2	16.3	13.3	14.9
Grid Charges	5.5	4.9	5.1	5.2	5.3	5.3
Market Support Service Fees	0.3	0.2	0.2	0.2	0.2	0.4
Power System Operation and Market Administration Fees	0.1	0.1	0.1	0.1	0.1	0.1

Source: SP Group

Notes:

- a. Electricity tariffs refer to the low tension tariffs applicable for Households and non-Contestable Consumers.
 b. Rates are not inclusive of GST.

TABLE 5.4: AVERAGE MONTHLY UNIFORM SINGAPORE ENERGY PRICE (USEP)**Unit: Dollars/MWh**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2005	78.6	83.6	97.7	99.8	113.5	113.8	102.8	103.4	147.3	141.6	118.4	117.2
2010	171.3	195.6	207.4	162.6	185.3	172.8	147.3	144.2	151.7	162.1	175.1	172.5
2015	90.6	93.3	81.7	98.1	103.2	107.8	207.0	102.4	81.5	66.9	56.8	60.7
2016	74.9	49.1	44.8	43.6	55.5	49.1	62.9	67.1	77.7	71.9	73.0	88.4
2017	84.6	84.7	76.4	82.7	82.5	84.1	79.2	73.4	74.8	77.6	83.8	87.4
2018	86.1	98.6	104.3									

Source: Energy Market Company (EMC)

TABLE 5.5: MONTHLY TOWN GAS TARIFFS

Unit: Cents/kWh

GENERAL TARIFFS													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2007	16.8	16.8	16.8	16.8	16.8	16.8	16.8	17.6	17.6	17.6	18.0	18.0	
2010	18.5	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.0	18.0	
2015	20.8	19.0	19.0	19.0	17.6	17.6	17.6	18.3	18.3	18.3	17.5	17.5	
2016	17.5	16.8	16.8	16.8	16.0	16.0	16.0	16.6	16.6	16.6	16.9	16.9	
2017	16.9	17.6	17.6	17.6	18.0	18.0	18.0	17.7	17.7	17.7	17.7	17.7	
2018	17.7	18.4	18.4	18.4	18.5	18.5	18.5						

BULK TARIFFS A													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2007	15.8	15.8	15.8	15.8	15.8	15.8	15.8	16.6	16.6	16.6	17.0	17.0	
2010	17.5	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.9	17.0	17.0	
2015	19.8	18.0	18.0	18.0	16.6	16.6	16.6	17.2	17.2	17.2	16.5	16.5	
2016	16.5	15.8	15.8	15.8	15.0	15.0	15.0	15.6	15.6	15.6	15.8	15.8	
2017	15.8	16.6	16.6	16.6	17.0	17.0	17.0	16.7	16.7	16.7	16.7	16.7	
2018	16.7	17.4	17.4	17.4	17.5	17.5	17.5						

BULK TARIFFS B													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2007	15.3	15.3	15.3	15.3	15.3	15.3	15.3	16.1	16.1	16.1	16.5	16.5	
2010	17.0	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	17.4	16.5	16.5	
2015	19.3	17.5	17.5	17.5	16.1	16.1	16.1	16.7	16.7	16.7	16.0	16.0	
2016	16.0	15.3	15.3	15.3	14.5	14.5	14.5	15.1	15.1	15.1	15.3	15.3	
2017	15.3	16.1	16.1	16.1	16.5	16.5	16.5	16.2	16.2	16.2	16.2	16.2	
2018	16.2	16.9	16.9	16.9	17.0	17.0	17.0						

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.

TABLE 5.6: 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
2014	100.0	100.0
2015	91.1	95.3
2016	92.2	91.5
2017	100.4	99.9

Source: Singapore Department of Statistics (DOS)

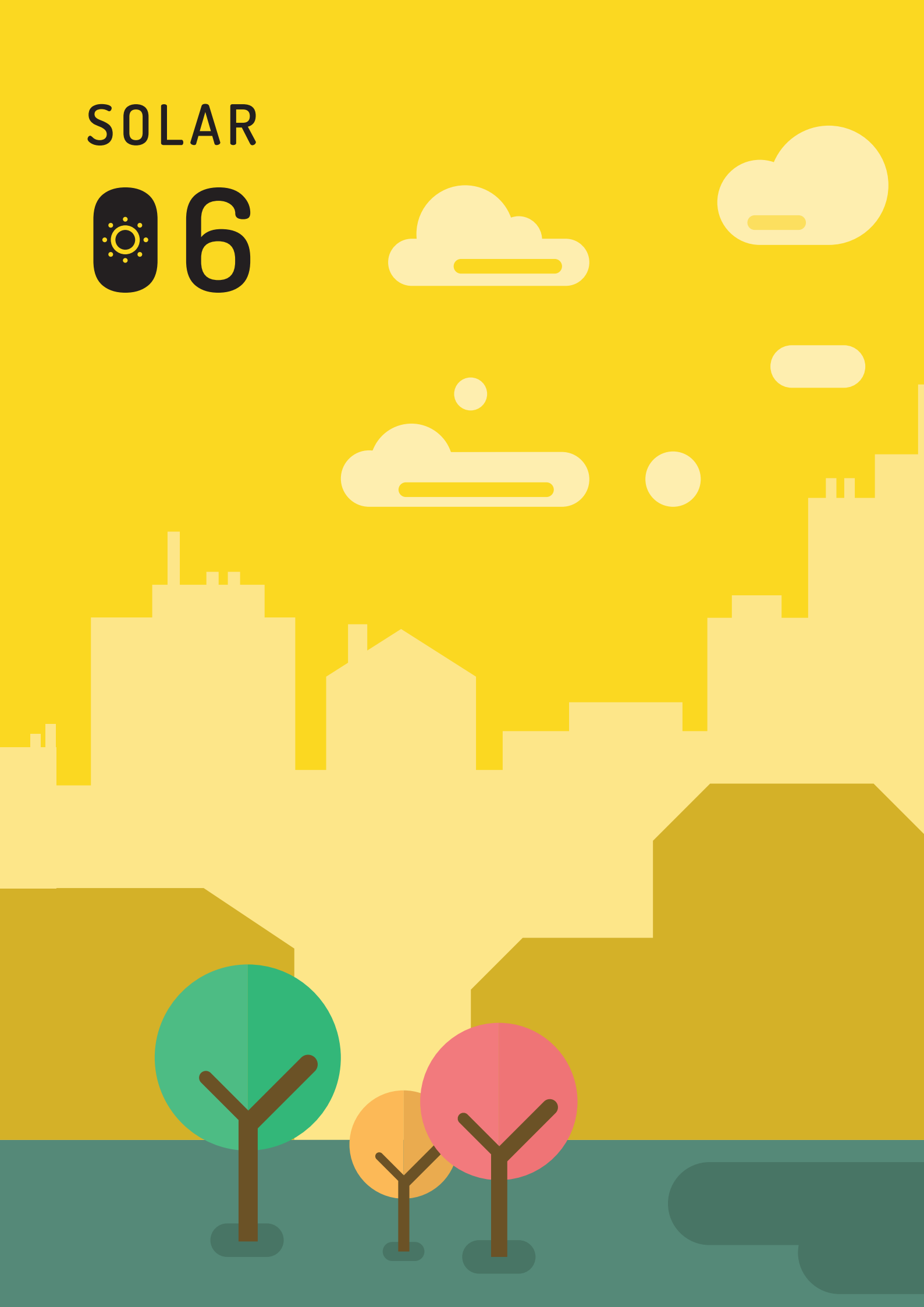
TABLE 5.7: PRODUCER AND INTERNATIONAL TRADE PRICE INDICES OF MINERAL FUELS, LUBRICANTS AND RELATED MATERIALS (BASE INDEX OF 100 AT 2012)

YEAR	IMPORT PRICE INDEX (IPI)	EXPORT PRICE INDEX (EPI)	DOMESTIC SUPPLY PRICE INDEX (DSPI)	SINGAPORE MANUFACTURED PRODUCTS PRICE INDEX (SMPPPI)
2005	61.3	58.7	62.3	66.1
2010	76.2	76.3	76.2	78.5
2014	88.5	88.6	88.4	89.6
2015	51.5	56.3	51.7	58.4
2016	42.2	45.6	42.1	47.2
2017	54.6	57.3	54.5	58.9

Source: Singapore Department of Statistics (DOS)

SOLAR

6





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

While grid-connected installed capacity grew sharply from 7.7 MWac in 2012 to 96.7 MWac in 2016, its growth had moderated recently and total installed capacity stood at 114.8 MWac in 1Q 2018. This is a reflection of current market conditions and commercial decisions by solar adopters. Nonetheless in the longer term, solar growth is likely to increase. The Housing & Development Board (HDB) and the Economic Development Board (EDB) are jointly spearheading the acceleration of the deployment of solar PV systems in Singapore through the SolarNova project, which was launched in 2014. As part of this effort, three solar leasing tenders have been called to-date. Singapore is expected to reach the committed solar PV capacity of 350 MWp via this project by 2020.

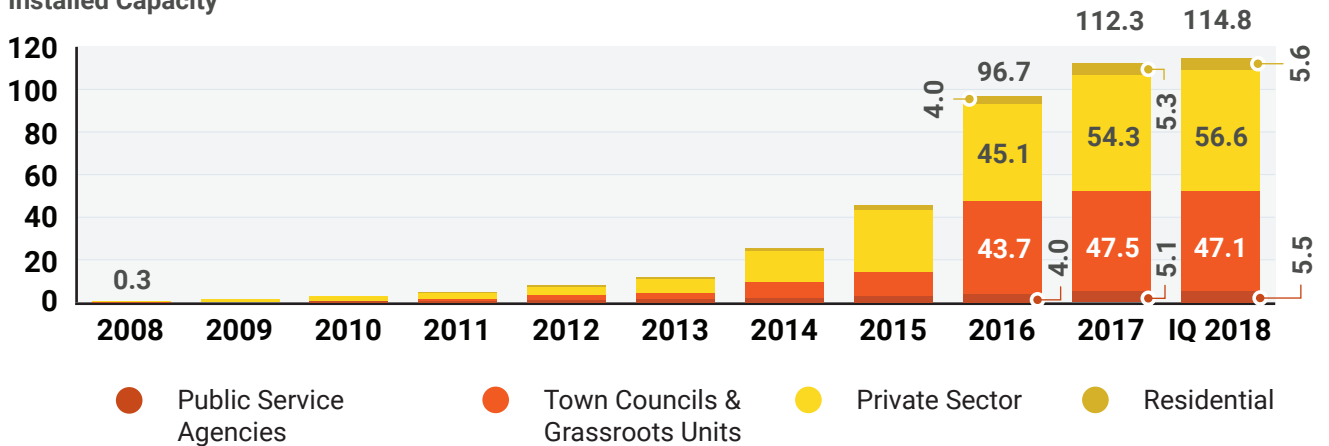
The majority of solar PV capacity as at end 1Q 2018 were accounted for by non-residential private sector installations (49.3% of total installed capacity or 56.6 MWac) and town councils & grassroots units (41.0% or 47.1 MWac). Residential installations (5.6 MWac) and installations by public service agencies (5.5 MWac) contributed to the remaining solar PV capacity.

There were 2,155 solar PV installations as at end 1Q 2018. Town councils & grassroots units accounted for 46.4% (or 999 installations) of total installations, followed by the residential (34.1% or 734 installations) and private sectors (14.6% or 315 installations). Public service agencies constituted the remaining 5.0% (or 107 installations) of total installations.

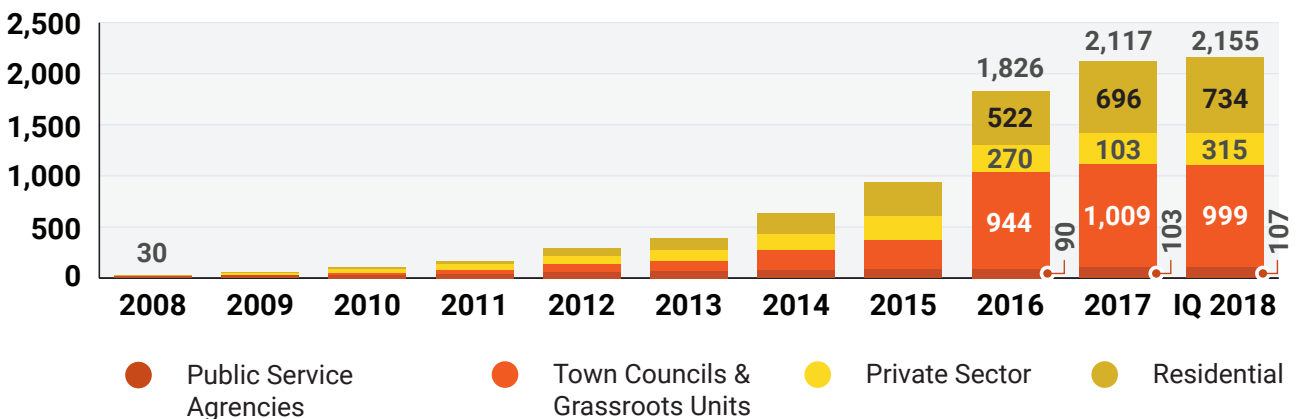
SOLAR CAPACITY (AS AT END PERIOD)

Unit: MWac

Installed Capacity



NUMBER OF GRID-CONNECTED SOLAR PV INSTALLATIONS



SOLAR PV INSTALLATIONS BY PLANNING REGION

As at end 1Q 2018, the west region of Singapore had the highest solar PV capacity totalling 46.0 MWac from 456 installations. This was 40.1% of the total installed capacity of 114.8 MWac as at end of the same period. However, most solar PV systems were located in the north-east region (546 installations).

Close to half (52.7%) of PV systems in the north-east region were residential installations, which were significantly smaller in capacity. Hence, the installed capacity from this region (17.5 MWac or 15.2% of total capacity) was disproportionately smaller compared to its corresponding share of installed system (25.3%).

DISTRIBUTION OF SOLAR INSTALLATIONS IN SINGAPORE, 1Q 2018

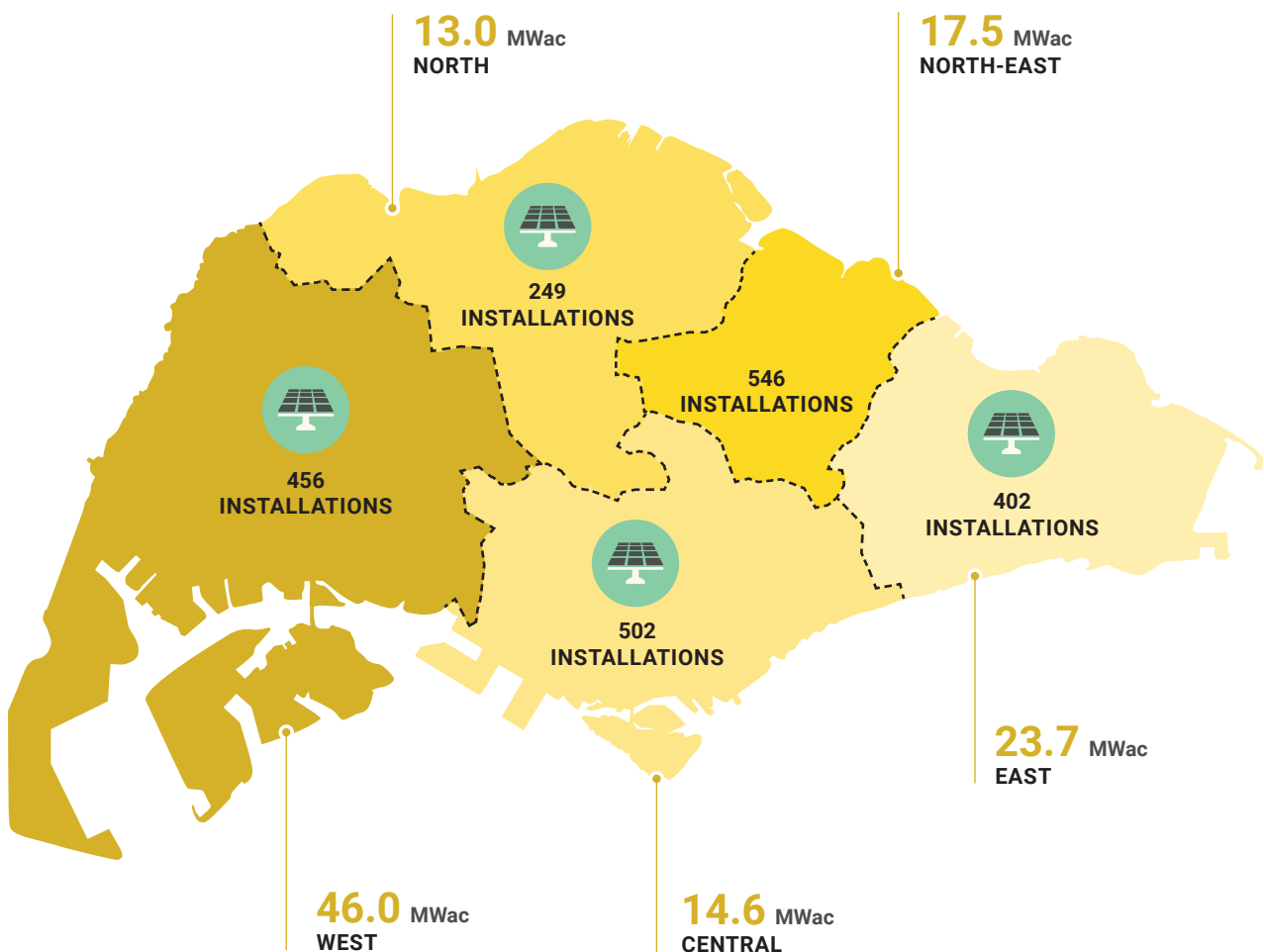


TABLE 6.1: INSTALLED CAPACITY OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) SYSTEMS BY USER TYPE**Unit: MWp**

	2010	2014	2015	2016	2017	1Q 2018
Total	3.8	33.1	59.5	125.6	145.8	149.1
Residential	0.1	2.0	3.6	5.2	6.9	7.3
Non-Residential	3.7	31.1	55.9	120.4	138.9	141.8
Public Service Agencies	0.7	2.9	3.8	5.2	6.6	7.1
Town Councils & Grassroots Units	0.5	9.3	14.9	56.7	61.7	61.1
Private Sector	2.6	18.9	37.2	58.5	70.6	73.5

Source: SP PowerGrid Ltd (SPPG)

Unit: MWac

	2010	2014	2015	2016	2017	1Q 2018
Total	2.9	25.5	45.8	96.7	112.3	114.8
Residential	0.1	1.5	2.8	4.0	5.3	5.6
Non-Residential	2.9	23.9	43.0	92.7	107.0	109.2
Public Service Agencies	0.5	2.2	2.9	4.0	5.1	5.5
Town Councils & Grassroots Units	0.4	7.2	11.5	43.7	47.5	47.1
Private Sector	2.0	14.5	28.7	45.1	54.3	56.6

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

Notes:

- a. 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 under Standard Test Conditions (STC).
- b. MWac refers to the Alternating Current (ac) capacity of the inverters used in solar PV installations.

TABLE 6.2: INSTALLED CAPACITY OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) SYSTEMS BY CONTESTABILITY**Unit: MWp**

	2010	2014	2015	2016	2017	1Q 2018
Total	3.8	33.1	59.5	125.6	145.8	149.1
Residential	0.1	2.0	3.6	5.2	6.9	7.3
Non-Residential	3.7	31.1	55.9	120.4	138.9	141.8
Contestable	1.8	16.6	31.3	42.9	51.5	54.3
Non-Contestable	1.9	14.5	24.6	77.5	87.4	87.5

Source: SP PowerGrid Ltd (SPPG)

Unit: MWac

	2010	2014	2015	2016	2017	1Q 2018
Total	2.9	25.5	45.8	96.7	112.3	114.8
Residential	0.1	1.5	2.8	4.0	5.3	5.6
Non-Residential	2.9	23.9	43.0	92.7	107.0	109.2
Contestable	1.4	12.8	24.1	33.0	39.7	41.8
Non-Contestable	1.4	11.2	18.9	59.7	67.3	67.3

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

Notes:

a. 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 under Standard Test Conditions (STC).

b. MWac refers to the Alternating Current (ac) capacity of the inverters used in solar PV installations.

TABLE 6.3: NUMBER OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) INSTALLATIONS BY USER TYPE**Unit: MWp**

	2010	2014	2015	2016	2017	1Q 2018
Total	106	635	941	1,826	2,117	2,155
Residential	16	203	337	522	696	734
Non-Residential	90	432	604	1,304	1,421	1,421
Public Service Agencies	31	77	85	90	103	107
Town Councils & Grassroots Units	14	193	286	944	1009	999
Private Sector	45	162	233	270	309	315

Source: SP PowerGrid Ltd (SPPG)

TABLE 6.4: NUMBER OF GRID-CONNECTED SOLAR PHOTOVOLTAIC (PV) INSTALLATIONS BY CONTESTABILITY

	2010	2014	2015	2016	2017	1Q 2018
Total	106	635	941	1,826	2,117	2,155
Residential	16	203	337	522	696	734
Non-Residential	90	432	604	1,304	1,421	1,421
Contestable	32	121	172	205	239	245
Non-Contestable	58	311	432	1,099	1,182	1,176

Source: SP PowerGrid Ltd (SPPG)

TABLE 6.5: SOLAR PHOTOVOLTAIC (PV) INSTALLATIONS BY PLANNING REGION

Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
2010				
Overall	Non-Residential	90	2,862.2	97.8%
	Residential	16	63.0	2.2%
	Total	106	2,925.2	100.0%
Central	Non-Residential	30	994.3	34.0%
	Residential	9	35.4	1.2%
	Sub-Total	39	1,029.7	35.2%
East	Non-Residential	14	835.7	28.6%
	Residential	2	9.7	0.3%
	Total	16	845.4	28.9%
North-East	Non-Residential	15	140.8	4.8%
	Residential	3	14.2	0.5%
	Sub-Total	18	155.0	5.3%
North	Non-Residential	12	210.6	7.2%
	Residential	2	3.7	0.1%
	Total	14	214.3	7.3%
West	Non-Residential	19	680.8	23.3%
	Residential	-	-	0.0%
	Sub-Total	19	680.8	23.3%

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

Notes:

a. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

TABLE 6.5: SOLAR PHOTOVOLTAIC (PV) INSTALLATIONS BY PLANNING REGION (CONTINUED)

Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
2014				
Overall	Non-Residential	432	23,936.3	93.9%
	Residential	203	1,546.7	6.1%
	Total	635	25,483.0	100.0%
Central	Non-Residential	113	3,907.6	15.3%
	Residential	83	765.2	3.0%
	Sub-Total	196	4,672.8	18.3%
East	Non-Residential	47	3,006.3	11.8%
	Residential	49	335.7	1.3%
	Total	96	3,342.0	13.1%
North-East	Non-Residential	148	6,111.0	24.0%
	Residential	51	323.9	1.3%
	Sub-Total	199	6,434.9	25.3%
North	Non-Residential	28	2,484.0	9.7%
	Residential	8	38.8	0.2%
	Total	36	2,522.8	9.9%
West	Non-Residential	96	8,427.4	33.1%
	Residential	12	83.1	0.3%
	Sub-Total	108	8,510.5	33.4%
2015				
Overall	Non-Residential	604	43,048.1	93.9%
	Residential	337	2,782.1	6.1%
	Total	941	45,830.2	100.0%
Central	Non-Residential	165	7,120.6	15.5%
	Residential	131	1,234.3	2.7%
	Sub-Total	296	8,354.9	18.2%
East	Non-Residential	72	8,022.6	17.5%
	Residential	74	542.5	1.2%
	Total	146	8,565.1	18.7%
North-East	Non-Residential	158	7,471.1	16.3%
	Residential	90	676.3	1.5%
	Sub-Total	248	8,147.4	17.8%
North	Non-Residential	47	4,083.2	8.9%
	Residential	20	147.0	0.3%
	Total	67	4,230.2	9.2%
West	Non-Residential	162	16,350.6	35.7%
	Residential	22	182.0	0.4%
	Sub-Total	184	16,532.6	36.1%

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

Notes:

a. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

TABLE 6.5: SOLAR PHOTOVOLTAIC (PV) INSTALLATIONS BY PLANNING REGION (CONTINUED)

Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
2016				
Overall	Non-Residential	1,304	92,695.4	95.9%
	Residential	522	3,979.9	4.1%
	Total	1,826	96,675.3	100.0%
Central	Non-Residential	232	10,028.7	10.4%
	Residential	173	1,721.0	1.8%
	Sub-Total	405	11,749.7	12.2%
East	Non-Residential	253	19,984.9	20.7%
	Residential	105	822.1	0.9%
	Total	358	20,807.0	21.5%
North-East	Non-Residential	267	14,168.5	14.7%
	Residential	188	961.4	1.0%
	Sub-Total	455	15,129.9	15.7%
North	Non-Residential	206	12,014.7	12.4%
	Residential	25	202.5	0.2%
	Total	231	12,217.2	12.6%
West	Non-Residential	346	36,498.6	37.8%
	Residential	31	272.9	0.3%
	Sub-Total	377	36,771.5	38.0%
2017				
Overall	Non-Residential	1,421	106,966.7	95.3%
	Residential	696	5,292.7	4.7%
	Total	2,117	112,259.4	100.0%
Central	Non-Residential	252	11,699.7	10.4%
	Residential	231	2,411.8	2.1%
	Sub-Total	483	14,111.5	12.6%
East	Non-Residential	268	21,948.8	19.6%
	Residential	126	995.3	0.9%
	Total	394	22,944.1	20.4%
North-East	Non-Residential	284	15,778.3	14.1%
	Residential	273	1,325.5	1.2%
	Sub-Total	557	17,103.8	15.2%
North	Non-Residential	220	12,746.3	11.4%
	Residential	28	232.7	0.2%
	Total	248	12,979.0	11.6%
West	Non-Residential	397	44,793.6	39.9%
	Residential	38	327.4	0.3%
	Sub-Total	435	45,121.0	40.2%

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

Notes:

a. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

**TABLE 6.5: SOLAR PHOTOVOLTAIC (PV)
INSTALLATIONS BY PLANNING REGION (CONTINUED)**

Planning Region	Residential Status	Number of Solar PV Installations	Installed Capacity (kWac)	Percentage Share (of Total Installed Capacity)
1Q 2018				
Overall	Non-Residential	1,421	109,186.0	95.1%
	Residential	734	5,630.8	4.9%
	Total	2,155	114,816.8	100.0%
Central	Non-Residential	258	12,000.4	10.5%
	Residential	244	2,587.0	2.3%
	Sub-Total	502	14,587.4	12.7%
East	Non-Residential	271	22,672.7	19.7%
	Residential	131	1,042.7	0.9%
	Total	402	23,715.4	20.7%
North-East	Non-Residential	258	16,076.5	14.0%
	Residential	288	1,406.1	1.2%
	Sub-Total	546	17,482.6	15.2%
North	Non-Residential	221	12,749.6	11.1%
	Residential	28	232.7	0.2%
	Total	249	12,982.3	11.3%
West	Non-Residential	413	45,686.8	39.8%
	Residential	43	362.3	0.3%
	Sub-Total	456	40,409.1	40.1%

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

Notes:

a. MWac refers to the Alternating Current (AC) capacity of the inverters used in solar PV installations.

OTHER ENERGY-RELATED STATISTICS

07





GRID EMISSION FACTOR

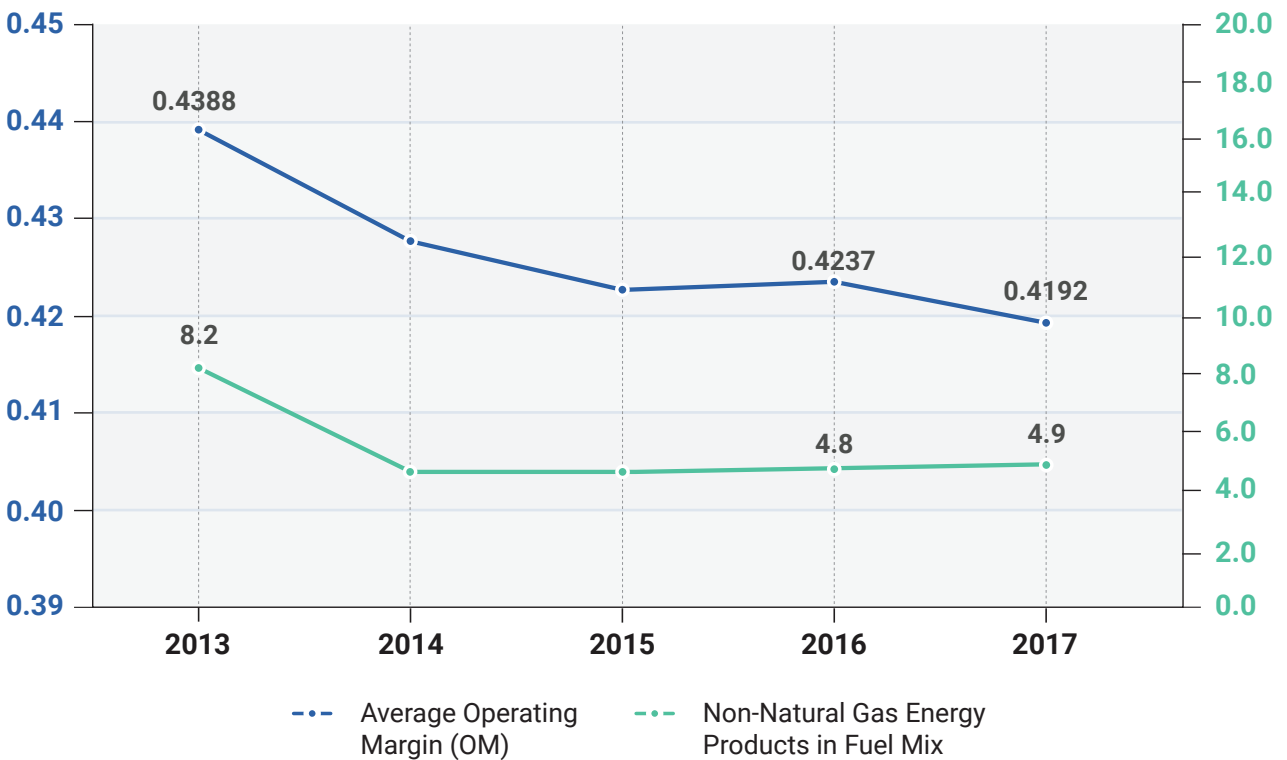
Singapore’s Average Operating Margin (OM) Grid Emission Factor (GEF) and Build Margin (BM) Emission Factor remained relatively constant at 0.4192 kg CO₂/kWh and 0.4018 kg CO₂/kWh respectively in 2017. In general, Singapore’s BM emission factor trends lower than the OM emission

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

Unit: kg CO₂/kWh
 Grid Emission Factor
 (Average Operating Margin)

Unit: Percent (%)
 Percentage of Non-Natural Gas
 Energy Products in Fuel Mix

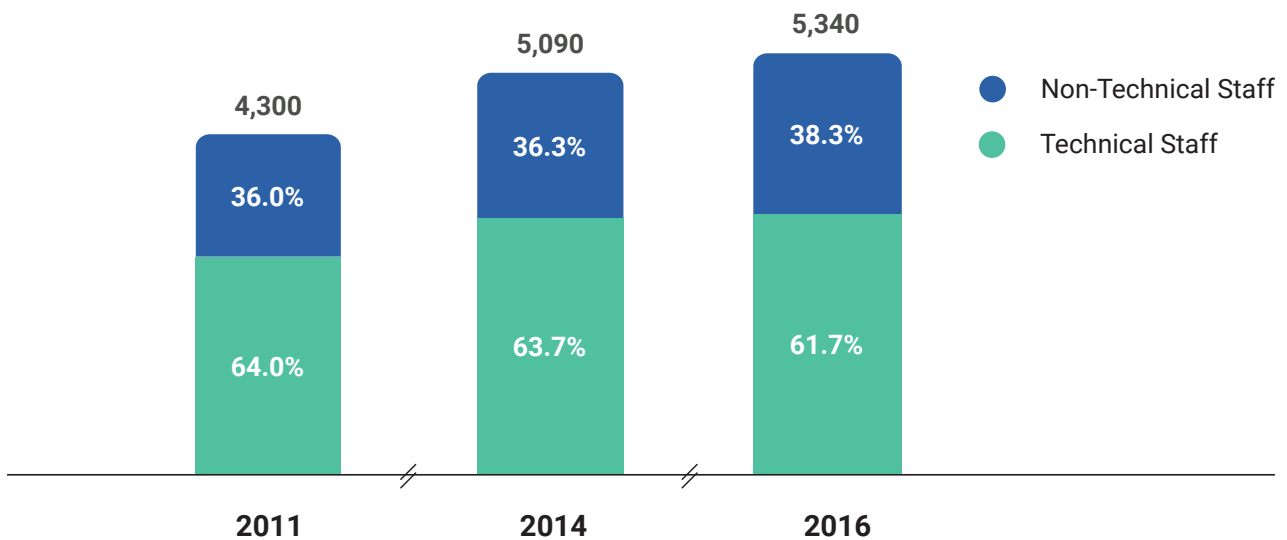


POWER SECTOR EMPLOYEES

Employment in the Power sector has increased gradually over the years. The number of workers employed increased by 5.8% per annum between 2011 and 2014, and by 2.4% per annum between

2014 to 2016. There were 5,340 employees in the Power sector in 2016, of which 3,300 (or 61.7%) were hired for positions of a technical nature.

POWER SECTOR EMPLOYEES BY NATURE OF WORK



POWER SECTOR EMPLOYEES BY RESIDENCY STATUS

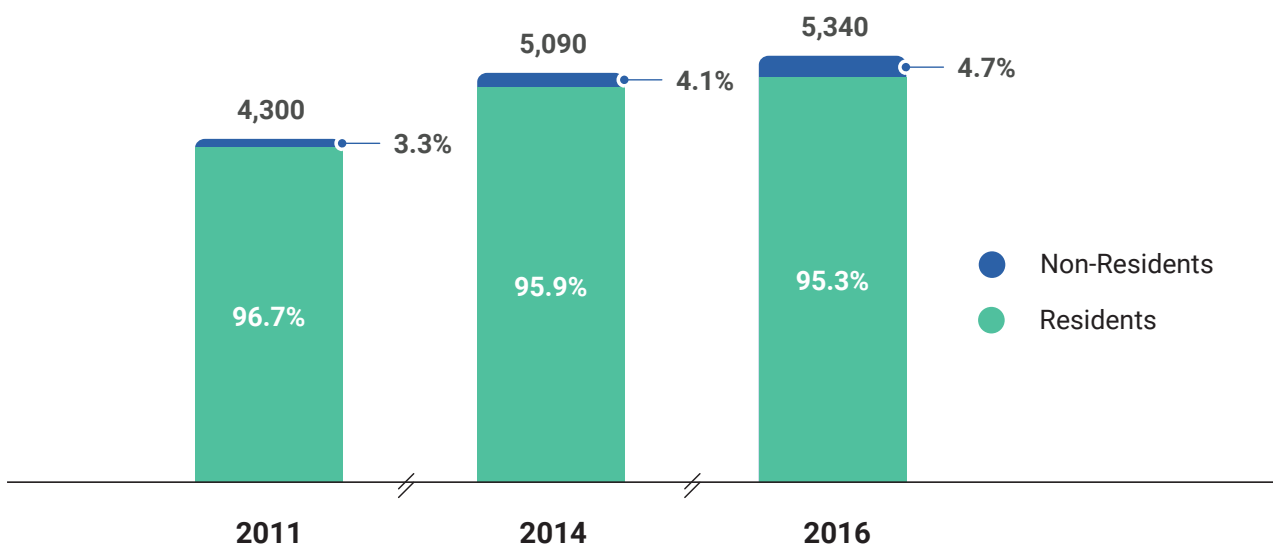


TABLE 7.1: ELECTRICITY GRID EMISSION FACTOR AND UPSTREAM FUGITIVE METHANE EMISSION FACTOR

	2005	2010	2014	2015	2016	2017
Electricity Grid Emission Factors						
Average Operating Margin (OM) (kg CO ₂ / kWh)	0.5255	0.5083	0.4277	0.4224	0.4237	0.4192
Build Margin (BM) (kg CO ₂ / kWh)	0.4205	0.4319	0.4086	0.3941	0.3977	0.4018
Upstream Fugitive Methane Emission Factor (kg CH ₄ / kWh)	0.00216	0.00222	0.00220	0.00217	0.00216	0.00198

Source: Energy Market Authority (EMA)

¹The 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 emission factor, while the BM measures the emission factor of newer facilities. More details on the GEF can be found in the "Technical Notes" section of the Singapore Energy Statistics (SES) publication.

TABLE 7.2: PEAK SYSTEM DEMAND

Unit: MW

	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
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	7,081	7,099	6,961	7,045	7,149	7,092	7,054	6,897	6,983
2017	6,978	6,851	6,856	6,859	7,105	7,188	7,184	7,170	7,049	7,030	6,930	6,981
2018	6,915	6,966	7,082									

Source: Energy Market Authority (EMA)

TABLE 7.3: NUMBER OF POWER SECTOR EMPLOYEES BY OCCUPATION

	Employment Numbers			Share (%)		
	2011	2014	2016	2011	2014	2016
Overall	4,300	5,090	5,340	100.0	100.0	100.0
Technical Staff	2,750	3,250	3,300	64.0	63.7	61.7
Engineers	520	690	770	12.1	13.5	14.4
Technical Officers	970	1,180	1,290	22.5	23.2	24.1
Technicians	1,260	1,370	1,240	29.4	27.0	23.2
Non-Technical Staff	1,550	1,850	2,040	36.0	36.3	38.3
Management	270	330	400	6.4	6.5	7.5
Corporate Service Staff	960	1,040	1,030	22.4	20.4	19.3
Commercial Staff	180	410	450	4.2	8.0	8.4
Trading Staff	40	40	50	0.8	0.8	0.9
Others	100	30	110	2.2	0.5	2.1

Source: Energy Market Authority (EMA)

TABLE 7.4: NUMBER OF POWER SECTOR EMPLOYEES BY RESIDENCY STATUS

	Employment Numbers			Share (%)		
	2011	2014	2016	2011	2014	2016
Overall	4,300	5,090	5,340	100.0	100.0	100.0
Residents	4,160	4,880	5,090	96.7	95.9	95.3
Non-Residents	140	210	250	3.3	4.1	4.7

Source: Energy Market Authority (EMA)

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

	2005	2010	2014	2015	2016	2017
Total	6,672	5,761	5,219	5,251	5,254	5,264
Electricians	4,101	3,341	2,900	2,902	2,869	2,836
Technicians	1,299	1,163	1,073	1,080	1,100	1,117
Engineers	343	308	296	296	300	307
Gas Service Workers	401	359	347	359	362	367
Gas Service Workers (Restricted)	-	146	213	233	247	259
Cable Detection Workers	528	444	390	381	376	378

Source: Energy Market Authority (EMA)

TECHNICAL NOTES

 8





OBJECTIVES

Singapore Energy Statistics 2018 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 Enterprise 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 (NCV) to convert all fuels from their original units to tonnes of oil equivalent (toe), unless otherwise stated. This change seeks to standardise the conversion practice for all fuel types, as natural gas, notably in the derivation of import values and electricity generated, was previously derived using the Gross Calorific Values (GCV).

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 and 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 periods 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 FACTOR & METHANE EMISSION FACTOR

The methodologies for the compilation of Grid Emission Factor (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 CO₂ emissions emitted per unit net electricity generated. It is calculated using the Average Operating Margin (OM) method. This is the generation-weighted average CO₂ emission per unit of

net electricity generation of all generating power plants serving the electricity grid. GEF by Build Margin (BM) method refers to the generation-weighted average CO₂ emission per unit of 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 CH₄ emission per unit of 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 2014.

GLOSSARY

09





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, 27109100, 27109900
Additives/Oxygenates	29091100, 29091900, 29092000, 29093000, 29094100, 29094300, 29094400, 29094900, 29095000, 29096000, 38112110, 38112190, 38112900, 38119090, 22072011, 22072019, 22072090, 29051100

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
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.

REGISTERED GENERATION CAPACITY

The registered generation capacity of a generation facility is the maximum generation capacity approved by Power System Operator (PSO), and registered with Energy Market Company (EMC) to provide one or more of the following products in the Singapore Wholesale Electricity Market (SWEM):

1. Energy;
 2. Reserve (Primary, Secondary or Contingency); and/or
 3. Regulation.
-

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 the eligibility of the consumers to choose their electricity provider. Currently, business consumers with an average monthly consumption of 2,000 kWh or more (equivalent to a monthly electricity bill of at least \$400) are eligible to choose their electricity provider. Business consumers can add up their electricity usage across different locations in Singapore to meet the prevailing threshold. They can choose to buy electricity from a retailer of their choice at a price plan that best meets their needs, buy from the wholesale electricity market at half-hourly spot prices or remain with SP Services to buy electricity at regulated tariff rate.

Starting 1 April 2018, EMA commenced the soft launch of Open Electricity Market, where households and businesses in Jurong can choose to buy electricity from a retailer with a price plan that best meets their needs. This will provide consumers with choice and flexibility in their electricity purchases. Consumers who wish to continue buying electricity from SP Group at the regulated tariff can choose to do so. In the second half of 2018, Open Electricity Market will be extended to the rest of Singapore.

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 Industrial, 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.

SECTORIAL 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

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

HOUSEHOLDS

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

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 CO₂ emission emitted per MWh of electricity. It is calculated using the Average Operating Margin (OM) method. This is the generation-weighted average CO₂ 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 CO₂ 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 CH₄ 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.

ENGINEER

Engineer refers 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 refers to System Balance Trader, Position Trader and Quantitative Analyst.

OTHERS

"Others" include Assistant Technician, Semi-skilled Staff and other occupations not classified elsewhere.

RESIDENCY STATUS

Employees under Resident category refers to Singapore Citizens and Permanent Residents. Employees under Non-Resident category refers to foreigners.

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 1,000 volts"
 - ii. in operation : "up to 22,000 volts"
 - iii. in operation : "up to 66,000 volts"
 - iv. in operation : "up to 230,000 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 1,000 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 1,000 volts and the approved load of such installation does not exceed 150 kVA. The limitation of 1,000 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 1,000 volts and the approved load of such installation does not exceed 45 kVA. The limitation of 1,000 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 1,000 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 licensee.

GAS SERVICE WORK (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 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.

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