



PIPED GAS DISTRIBUTION INDUSTRY STATISTICS 2016

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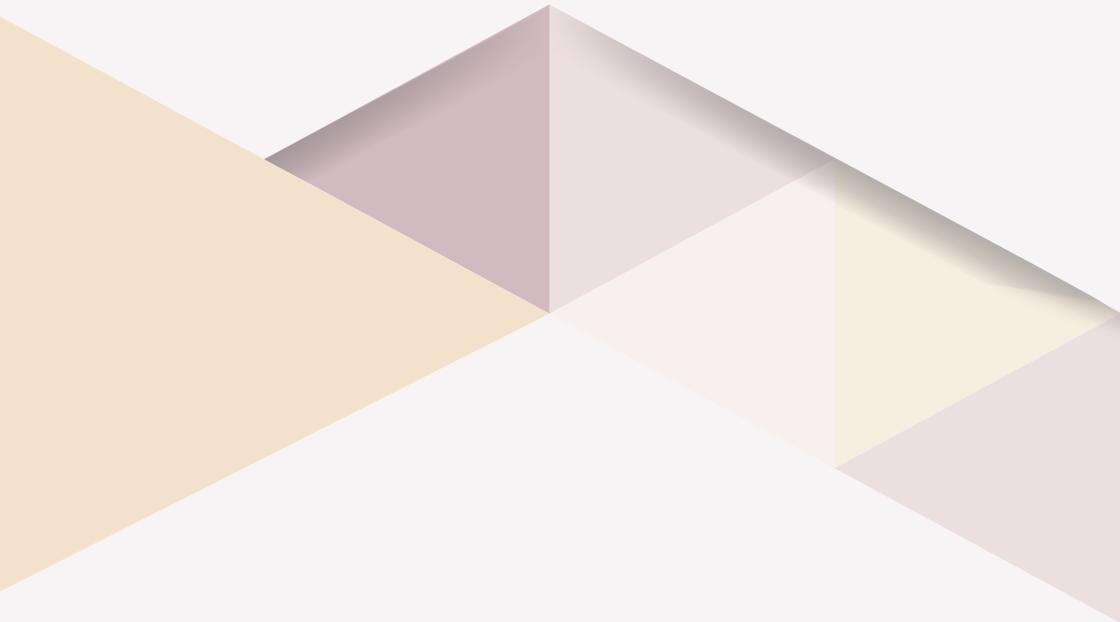
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1.0

BACKGROUND



GAS SUPPLY ACT 1993

The government introduced the Gas Supply Act 1993 (Act 501) and Gas Supply Regulations 1997 to regulate piped gas supply and utilisation activities. The main objective is to protect the interests of the consumers and the public who are affected by the supply activities whilst at the same time ensuring continued viability of the gas supply businesses. Act 501 prescribes the administrative and technical standards in the aspects of safety, reliability, economy, efficiency and quality.

In Act 501 gas is defined as methane, ethane, propane, butane or hydrocarbons which may consist of one or more of the above gases in the form of gas or liquid. Natural gas is mainly methane with a small percentage of other hydrocarbons and non-hydrocarbon gases whereas Liquefied Petroleum Gas (LPG) comprises of mainly propane and butane. Other types of gases, such as oxygen, nitrogen and acetylene used in the industrial sector are not covered by Act 501.

The act is not applicable throughout the gas supply chain. Its scope covers only the supply of natural gas through pipeline downstream of the last flange of the city gate station or the supply of LPG from the filling point of storage tanks or cylinders to gas appliances. Natural gas transmission and lateral pipeline systems (up to and including the city gate stations) are outside the scope of Act 501. Presently, Act 501 is only applicable in the Peninsula and Sabah.

FUNCTIONS OF THE ENERGY COMMISSION UNDER ACT 501

- a) To ensure a licensee satisfies all reasonable demands for gas through pipelines.
- b) To ensure a licensee could finance the provision of gas supply services.
- c) To protect the interests of consumers of gas supplied through pipelines in respect of
 - i. The prices charged and the other terms of supply.
 - ii. The continuity of supply.
 - iii. The quality of the gas supply services provided.
- d) To regulate the composition, pressure, purity and volume of gas supplied through pipelines.
- e) To promote efficiency and economy to supply gas through pipelines and the efficient use of gas supplied through pipelines.
- f) To protect the public from dangers arising from the distribution of gas through pipelines or from the use of gas supplied through pipelines.
- g) To enable persons to compete effectively in the supply of gas through pipelines.
- h) To investigate any accident or fire involving any gas pipeline or installation.



GAS SPECIFICATIONS

PENINSULAR MALAYSIA

Average composition of natural gas supplied by Gas Malaysia Berhad (GMB) to consumers in the Peninsula:

Gas Composition	MT-JDA Gas [Mole (%)]	Kerteh [Mole (%)]
CH ₄	84.04	94.90
C ₂ H ₆	4.95	2.24
C ₃ H ₈	1.62	0.24
iC ₄ H ₁₀	0.12	0.05
nC ₄ H ₁₀	0.07	0.04
iC ₅ H ₁₂ +	0.07	0.01
nC ₅ H ₁₂ +	0.03	0.04
C ₆ H ₁₄ +	0.03	0.03
CO ₂	7.48	1.51
N ₂	1.59	0.85

Table 1: Average Composition of Natural Gas Supplied by GMB

Natural Gas Property	MT-JDA	Kerteh
Specific Gravity	0.68	0.59
Gross Calorific Value, (kcal/Sm ³)	8,862	9,024
Burning Velocity, (m/s)	0.28	0.31
Upper Flammability Limit, (%)	15	15
Lower Flammability Limit, (%)	5	5
Auto-ignition Temperature, (°C)	537	537
Theoretical Air Requirement, (m ³ /m ³)	9.71	9.74

Table 2: Typical Characteristics of Natural Gas Supplied by GMB

Gas	Mole (%)
C_3H_8	40.0
iC_4H_{10}	30.0
nC_4H_{10}	30.0

Table 3: Average Liquefied Petroleum Gas (LPG) Composition in the Peninsula

Typical LPG Characteristics	
Specific Gravity	0.56 @ 15.56°C; water = 1
Gross Calorific Value, (kcal/Sm ³)	28,059
Burning Velocity, (m/s)	0.46
Upper Flammability Limit, (%)	8.5
Lower Flammability Limit, (%)	1.9
Auto-ignition Temperature, (°C)	510
Theoretical Air Requirement, (m ³ /m ³)	28.81

Table 4: Typical LPG Characteristics

SABAH AND LABUAN

Gas Composition	Mole (%) Kota Kinabalu, Sabah	Mole (%) Labuan
CH_4	92.61	91.66
C_2H_6	3.24	3.72
C_3H_8	1.50	1.37
iC_4H_{10}	0.30	0.26
nC_4H_{10}	0.35	0.29
$iC_5H_{12}+$	0.14	0.09
$nC_5H_{12}+$	0.01	0.06
$C_6H_{14}+$	0.16	0.04
CO_2	1.43	1.67
N_2	0.16	0.84

Table 5: Average Composition of Natural Gas Supplied by Sabah Energy Corporation (SEC)

Typical Natural Gas Characteristics	Kota Kinabalu, Sabah	Labuan
Specific Gravity	0.61	0.61
Gross Calorific Value, (kcal/Sm ³)	9,536.58	9,536.58
Burning Velocity, (m/s)	>0.39	>0.39
Upper Flammability Limit, (%)	14.0	14.0
Lower Flammability Limit, (%)	4.0	4.0
Auto-ignition Temperature, (°C)	>630	>630
Theoretical Air Requirement, (m ³ /m ³)	9.87	9.87

Table 6: Typical Characteristics of Natural Gas Supplied by SEC

GAS DISTRIBUTION SYSTEM



Figure 1: Regions with Natural Gas Distribution Pipeline Networks in the Peninsula

Type of Gas	Region			
	North	Central	South	East
Natural Gas	Kamunting, Kulim, Parit Buntar, NibongTebal, Prai, Kangar, Seri Manjung, Sungai Petani, Setiawan, Lumut, Tronoh, Padang Terap, Chuping	Kuala Lumpur, Petaling Jaya, Batu Caves, Selayang, Shah Alam, Klang, KLIA, Sepang, Salak Tinggi, Puchong, Banting, Nilai, Balakong, Sungai Buloh, Bangi, Dengkil, Kajang, Cheras, Teluk Panglima Garang, Beranang, Bestari Jaya, Jeram, North Port, Bandar Sultan Sulaiman, Pandamaran, Ijok, Seri Kembangan, Semenyih, Kundang, Rawang, West Port, Port Klang, Bangi, Meru, Subang Jaya, Kapar, Putrajaya, Cyberjaya, Damansara and Subang Jaya	Pasir Gudang, Tanjung Langsat, Tebrau, Tampoi, Larkin, Plentong, Senai, Kulai Air Hitam, Kluang, Senawang, Cheng, Seremban, Alor Gajah, Ayer Keroh, Lipat Cheng, TanggaBatu, Batu Berendam, Bukit Rambai, Seremban 2, Sendayan, Masai, Pegoh and Yong Peng	Gebeng, Teluk Kalong, Kemaman, Kerteh and Kuantan Port
LPG	Kangar, Sungai Dua, Bukit Mertajam, Tanjung Tokong, Prai, Ipoh, Setiawan, Teluk Intan, Taiping, Kampar, Alor Setar, Kulim, Jitra, Sungai Petani	Kuala Lumpur, Ampang, Selayang, Kepong, Cheras, Batu Caves, Mont Kiara, Setapak, Shah Alam, Klang, Puchong, Kajang, Semenyih, Kuala Selangor, Banting, Puncak Alam, Jenjarom, Seri Kembangan, Rawang, Bandar Baru Bangi, Subang Jaya, Sepang, Damansara, Petaling Jaya	Johor Bahru, Plentong, Tampoi, Masai, Skudai, Tebrau, Kulai, Nusa Bestari, Bukit Indah, Nusajaya, Iskandar Puteri, Bandaraya Melaka, Peringgit, Alor Gajah, Seremban, Senawang, Nilai, Bahau, Lukut, Kuala Pilah	Kuantan

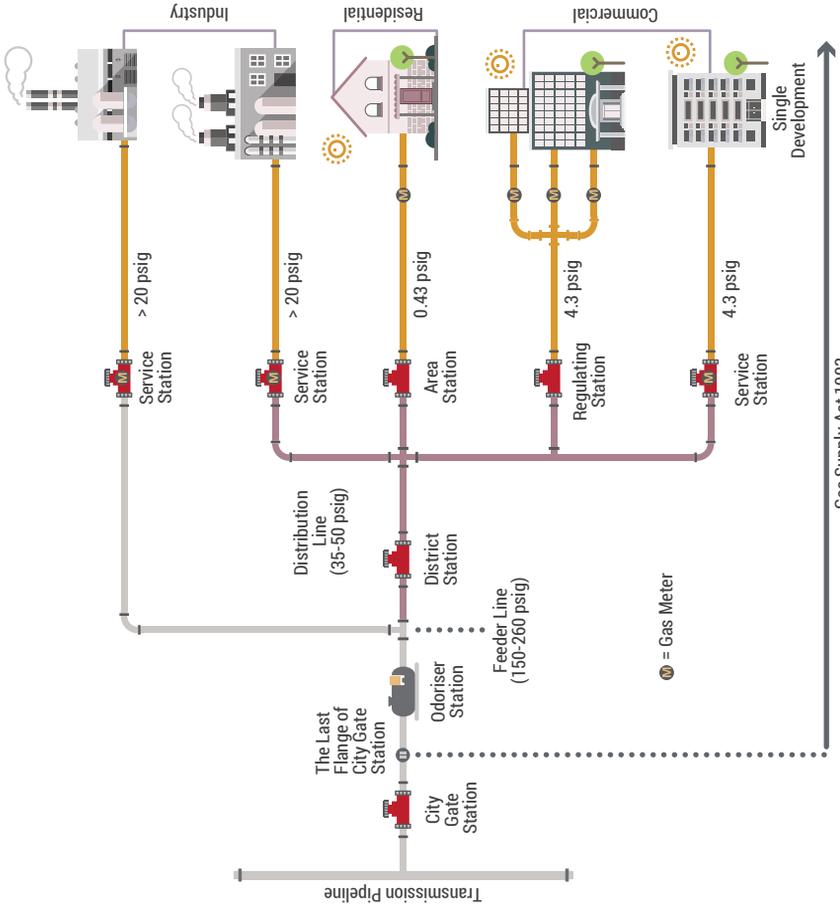
Table 7: Areas with Natural Gas and LPG Supply in the Peninsula by GMB



Figure 2: Areas with Natural Gas Supply in Sabah and Labuan

Areas with natural gas supply in Sabah and Labuan are limited to the Kota Kinabalu Industrial Park (KKIP) and Labuan as shown in Figure 2.

Figure 3: Typical Natural Gas Distribution System



Note: Industrial installations are not covered by Gas Supply Act 1993

Figure 4: Typical LPG Distribution System

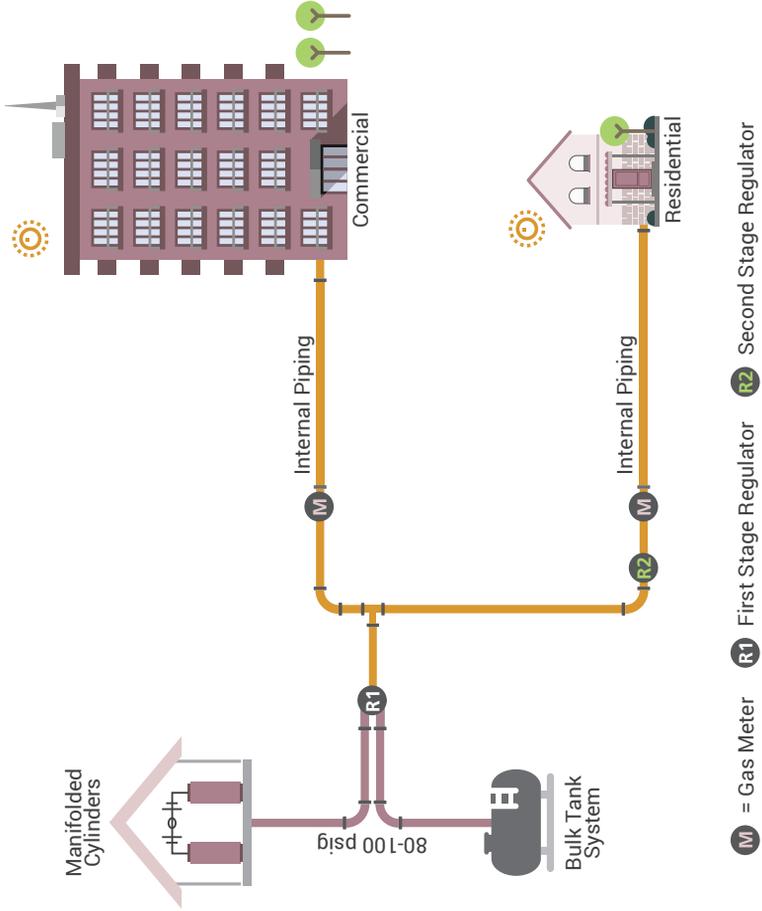
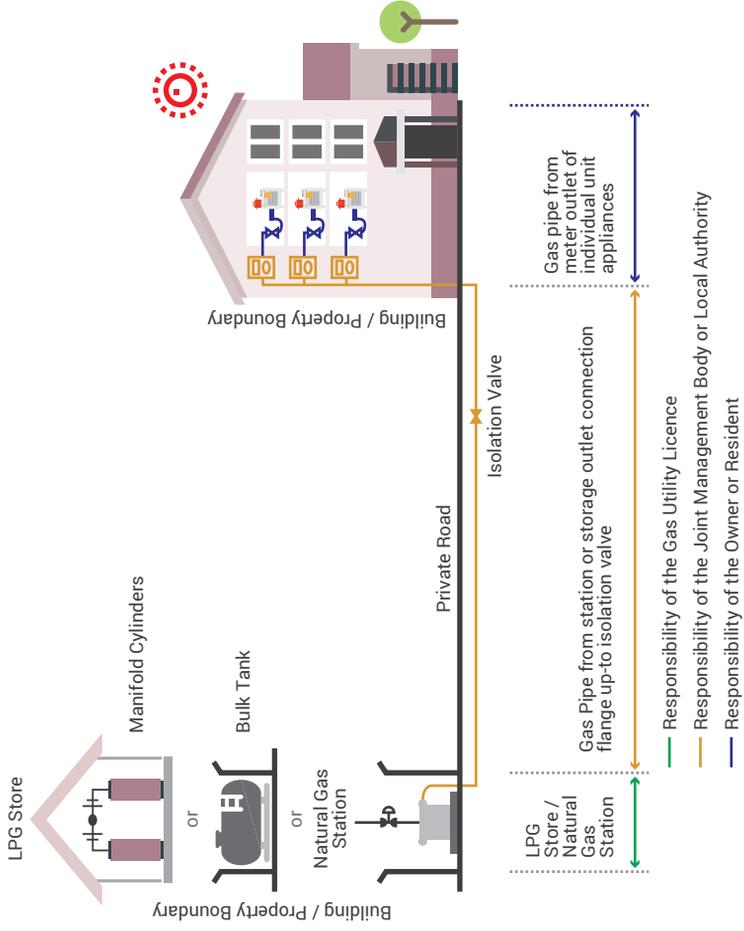


Figure 5: Natural Gas Piping System for Supply to Residential Users





2.0

PIPED GAS SUPPLY AND CONSUMPTION

NATURAL GAS SUPPLY IN THE PENINSULA AND SABAH

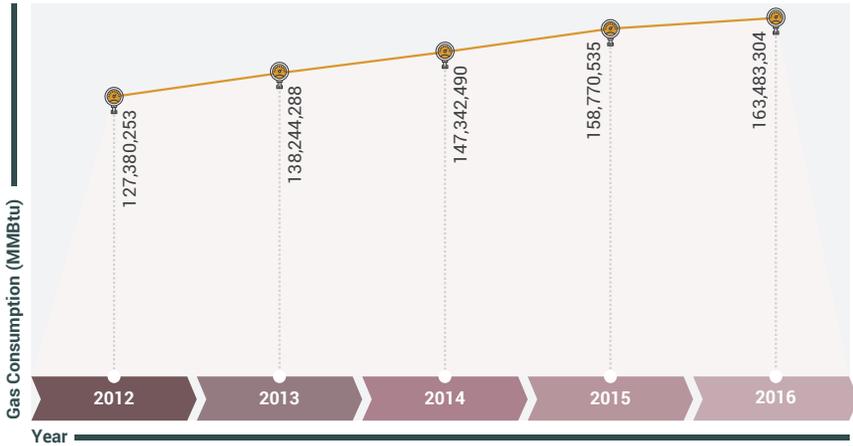


Figure 6: Total Natural Gas Consumption in the Peninsula

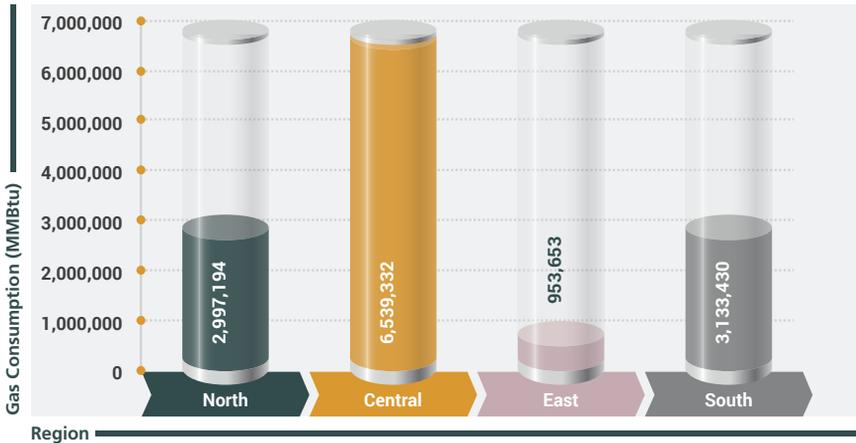


Figure 7: Average Monthly Natural Gas Consumption According to Region in the Peninsula

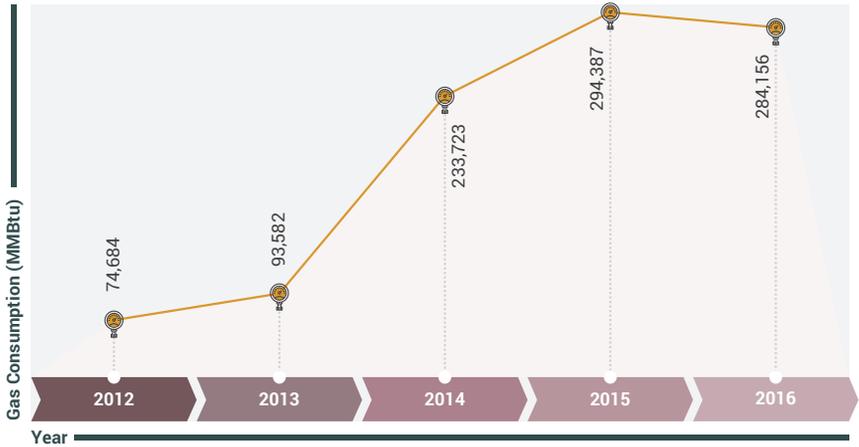


Figure 8: Natural Gas Consumption in Sabah and Labuan

	Region			
	North	Central	East	South
Average Monthly NG Usage Rate (MMBtu/month)	2,997,194	6,539,332	953,653	3,133,430
Number of City Gate Stations	11	10	5	11
Number of Industrial Customers	142	416	43	218
Number of Commercial Customers	0	933	1	1
Number of Residential Customers	0	12,339	0	0

Table 8: Natural Gas Stations in the Peninsula

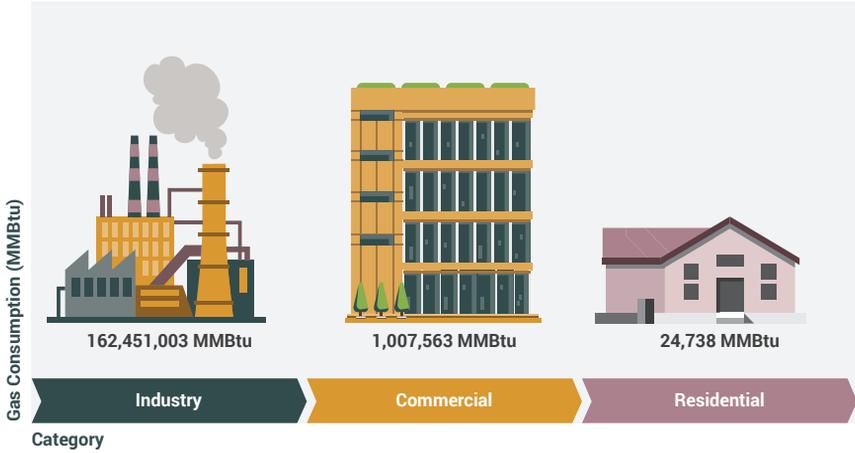


Figure 9: Natural Gas Consumption by User Category in the Peninsula in 2016

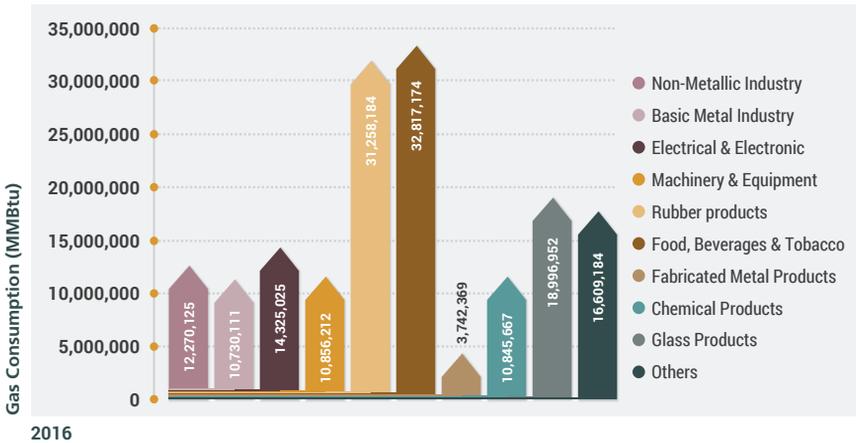


Figure 10: Natural Gas Consumption by Industry Sub-sectors in the Peninsula in 2016

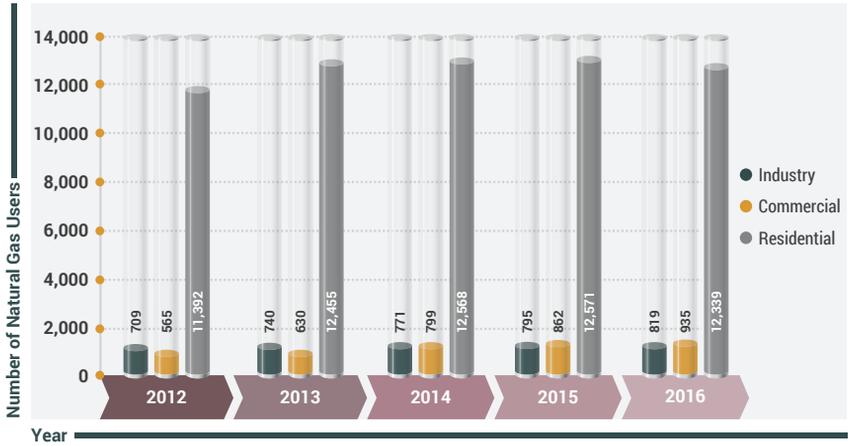


Figure 11: Number of Natural Gas Users in the Peninsula

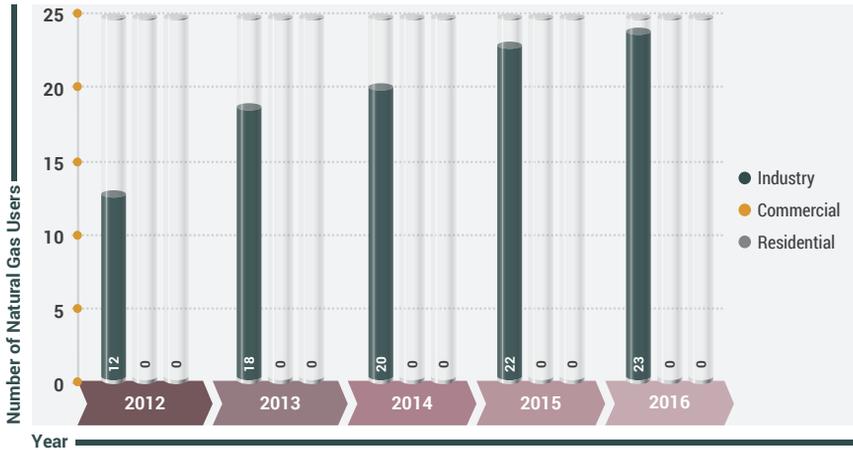


Figure 12: Number of Natural Gas Users in Sabah and Labuan



Figure 13: Length of Natural Gas Pipelines in Operation in the Peninsula

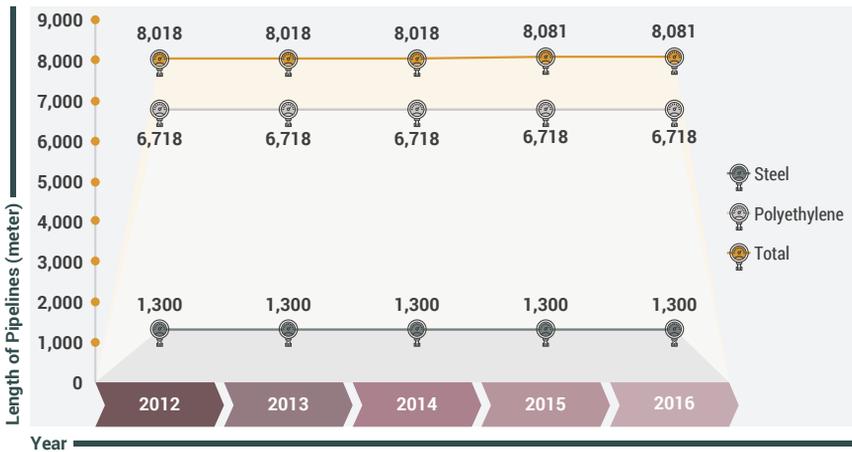


Figure 14: Length of Natural Gas Pipelines in Operation in Sabah

LIQUEFIED PETROLEUM GAS (LPG) SUPPLY IN THE PENINSULA

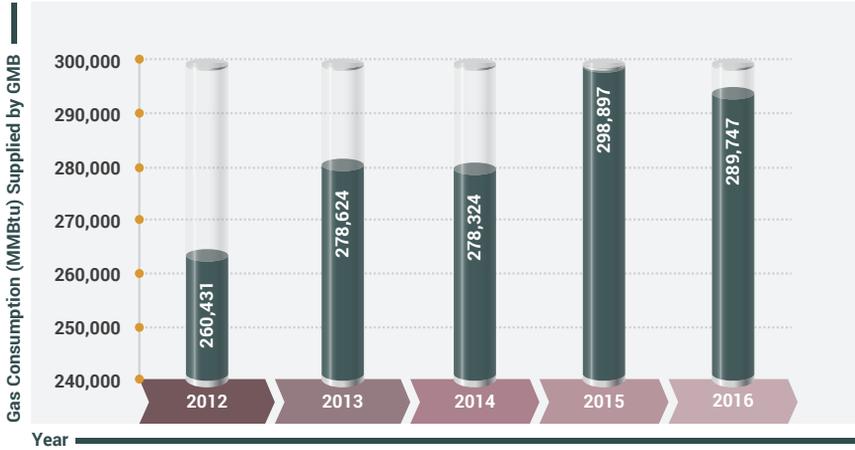


Figure 15: LPG Consumption in the Peninsula

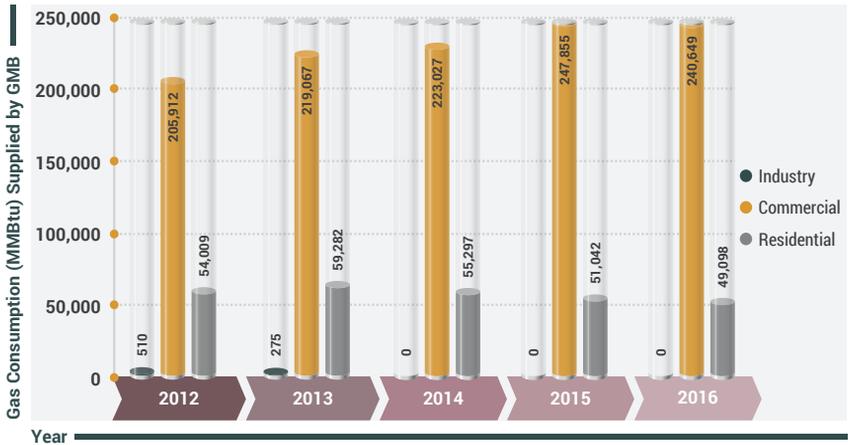


Figure 16: LPG Consumption in the Peninsula by Sector

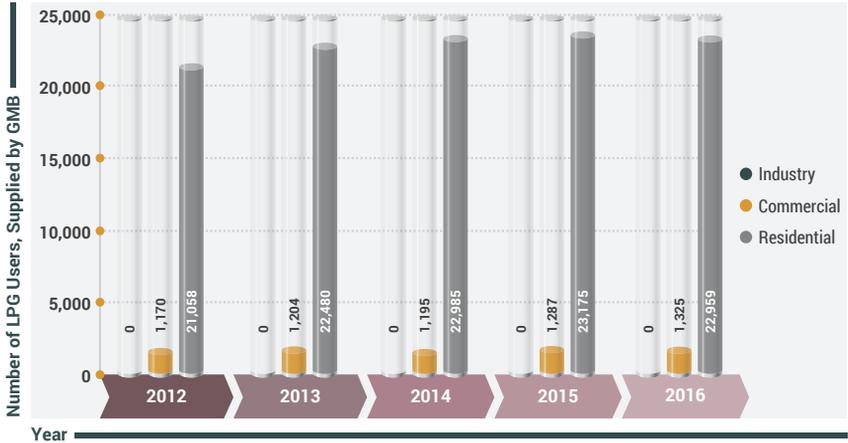


Figure 17: Number of LPG Users in the Peninsula

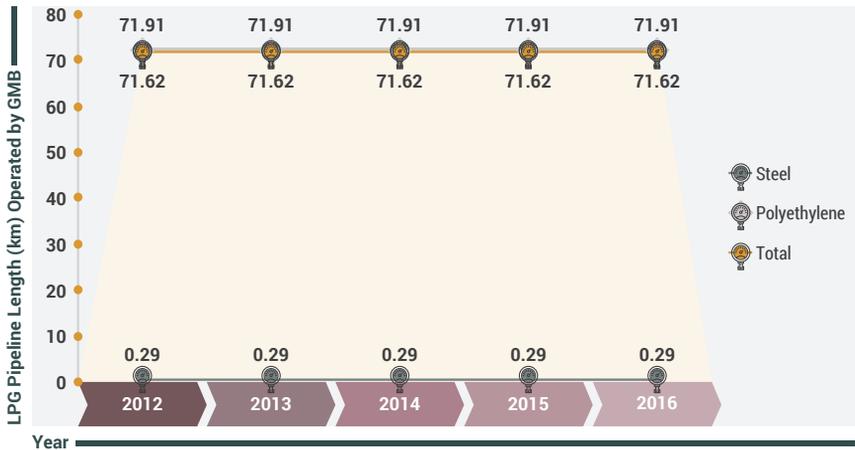


Figure 18: Length of LPG Piping System in the Peninsula



3.0

SUPPLY RELIABILITY AND SERVICE QUALITY

GAS MALAYSIA BERHAD (GMB) PERFORMANCE INDICATORS

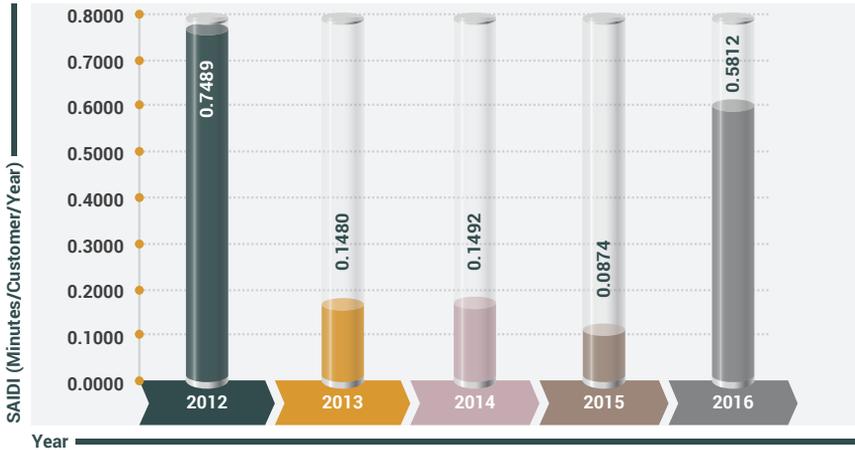


Figure 19: GMB'S System Average Interruption Duration Index (SAIDI)

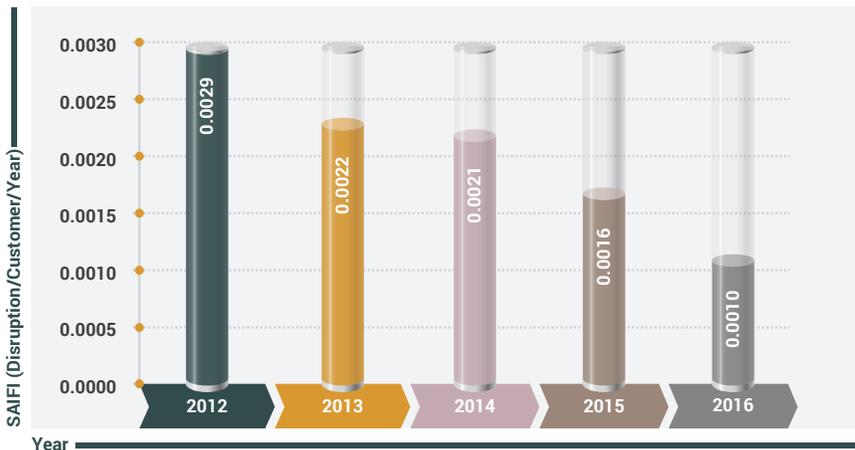


Figure 20: GMB'S System Average Interruption Frequency Index (SAIFI)

Note

SAIDI and SAIFI lower readings indicate better performance.

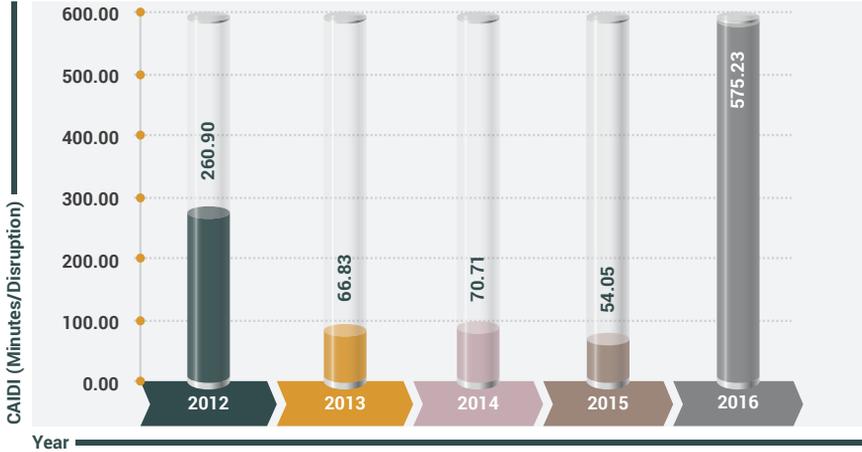


Figure 21: GMB'S Customer Average Interruption Duration Index (CAIDI)

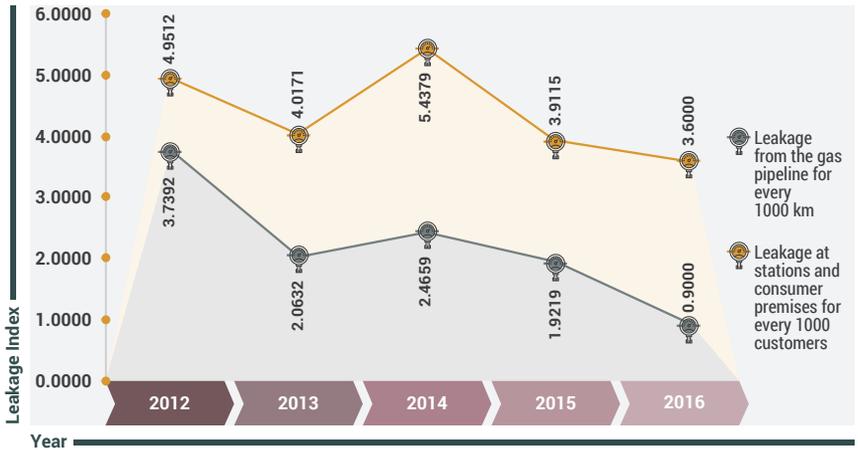


Figure 22: GMB's Pipeline Leakage Index

Note

CAIDI and Pipeline Leakage Index lower readings indicate better performance.

GAS SUPPLY INTERRUPTIONS AND GAS LEAKAGES AT GMB'S FACILITIES

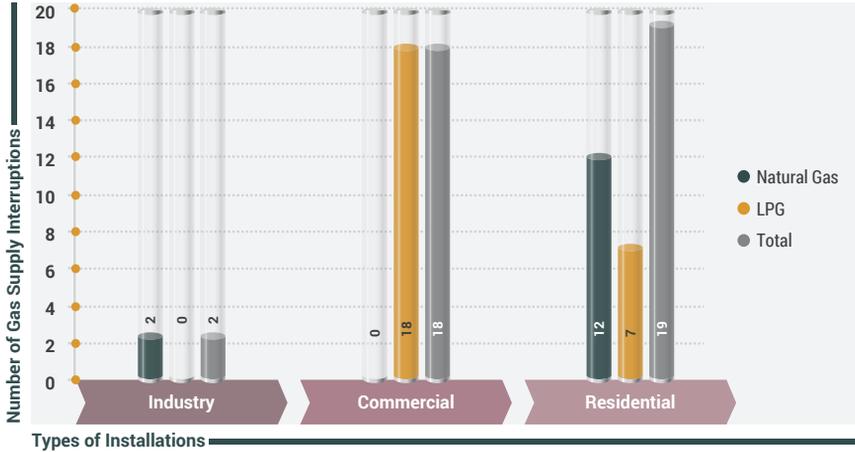


Figure 23: Number of Gas Supply Interruptions in 2016

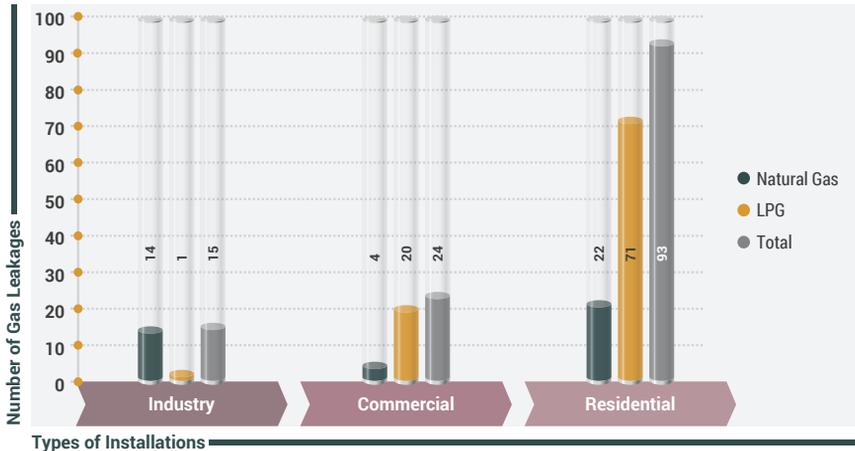


Figure 24: Number of Gas Leakages in 2016

GAS MALAYSIA BERHAD (GMB) CLIENT'S CHARTER PERFORMANCE

ITEM	CLIENT'S CHARTER	COMPLAINTS RECEIVED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
WRITTEN COMPLAINT	5 working days after the complaint is received	5	3	60
COMPLAINT & INQUIRY VIA THE TELEPHONE	24 hours after the call is made	3	3	100

Table 9: Complaints

ITEM	CLIENT'S CHARTER	COMPLAINTS RECEIVED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
BILL ACCURACY	5 working days	0	NA	NA

Table 10: Bill Payment

a) DEPOSIT

REFUND TYPE	CUSTOMER	CLIENT'S CHARTER	NO. OF SERVICE TERMINATION	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
DEPOSIT	Industry	Returned within 1 month after service termination	12	3	25
	Commercial	Returned within 1 month after service termination	323	49	15
	Residential	Returned within 2 months after service termination	1,109	1,048	95

Table 11: Refund

b) BANK GUARANTEE

REFUND TYPE	CLIENT'S CHARTER	NO. OF BANK GUARANTEE	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
BANK GUARANTEE	To be released within 1 month after service termination	8	3	38

Table 11: Refund (cont'd)

ITEM	CLIENT'S CHARTER	NO. OF CALLS RECEIVED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
EMERGENCY RESPONSE	To send an emergency response team within 90 minutes after a call is received	522	522	100

Table 12: Emergency Response

ITEM	CLIENT'S CHARTER	NO. OF PERMITS ISSUED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
THIRD PARTY SUPERVISION	Written notice at least 3 days before commencement of work	10,976	10,976	100

Table 13: Third Party Supervision



ITEM	CLIENT'S CHARTER	NO. OF REQUESTS FOR PIPELINE LOCATION INFORMATION	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
IDENTIFICATION OF GAS PIPELINE LOCATION	4 days after application is received	760	760	100

Table 14: Identification of Gas Pipeline Location

ITEM	CLIENT'S CHARTER	NO. OF PLANNED DISRUPTIONS	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
PLANNED DISRUPTIONS	Customer will be notified at least 48 hours before disruption begins	2	2	100

Table 15: Planned Disruptions

ITEM	CLIENT'S CHARTER	NO. OF GAS METERS CHANGED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
REPLACEMENT OF GAS METERS	Gas meter will be replaced 3 days after completion of the investigation	64	64	100

Table 16: Replacement of Gas Meters

SABAH ENERGY CORPORATION (SEC) CLIENT'S CHARTER PERFORMANCE

ITEM	CLIENT'S CHARTER	COMPLAINTS RECEIVED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
WRITTEN COMPLAINT	5 working days after the complaint is received	0	NA	NA
COMPLAINT & INQUIRY VIA THE TELEPHONE	24 hours after the call is made	23	9	39

Table 17: Complaints

ITEM	CLIENT'S CHARTER	COMPLAINTS RECEIVED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
BILL ACCURACY	5 working days	0	NA	NA

Table 18: Bill Payment

REFUND TYPE	CUSTOMER	CLIENT'S CHARTER	NO. OF SERVICE TERMINATIONS	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
DEPOSIT	Industry	Returned within 1 month after service termination	0	NA	NA

Table 19: Deposit Refund

ITEM	CLIENT'S CHARTER	NO. OF CALLS RECEIVED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
EMERGENCY RESPONSE	To send an emergency response team within 45 minutes after a call is received	0	NA	NA

Table 20: Emergency Response

ITEM	CLIENT'S CHARTER	NO. OF PERMITS ISSUED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
THIRD PARTY SUPERVISION	Written notice at least 4 days before commencement of work	0	NA	NA

Table 21: Third Party Supervision

ITEM	CLIENT'S CHARTER	NO. OF REQUESTS FOR PIPELINE LOCATION INFORMATION	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
IDENTIFICATION OF GAS PIPELINE LOCATION	4 days after application is received	0	NA	NA

Table 22: Identification of Gas Pipeline Location

ITEM	CLIENT'S CHARTER	NO. OF PLANNED DISRUPTIONS	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
PLANNED DISRUPTIONS	Customer will be notified at least 48 hours before disruption begins	2	2	100

Table 23: Planned Disruptions

ITEM	CLIENT'S CHARTER	NO. OF GAS METERS CHANGED	COMPLIED TO CLIENT'S CHARTER	PERCENTAGE OF COMPLIANCE (%)
REPLACEMENT OF GAS METERS	Gas meter will be replaced three (3) days after completion of the investigation	1	1	100

Table 24: Replacement of Gas Meter



4.0

NATURAL GAS TARIFF AND LPG PRICES

NATURAL GAS PRICES TO GAS UTILITY LICENSEE IN THE PENINSULA



Figure 25: Natural Gas Prices to Gas Utility Licensee in the Peninsula for the Year 2016

NATURAL GAS TARIFF BY CATEGORY IN THE PENINSULA

Tariff Category	User Category	Range of Gas Consumption (MMBtu)	Tariff (RM/MMBtu)	
			Jan 2016 – Jun 2016	Jul 2016 – Dec 2016
A	Domestic User	0	19.52	19.52
B	Commercial	0-600	23.78	25.20
C	Commercial	601-5,000	23.90	25.33
D	Industrial	5,001-50,000	24.14	25.58
E	Industrial	50,001-200,000	25.19	26.69
F	Industrial	200,001-750,000	25.19	26.69
L	Industrial	750,000 & above	26.03	27.58
Average (RM/MMBtu)			25.53	27.05

Table 25: Natural Gas Tariff in the Peninsula for the Year 2016

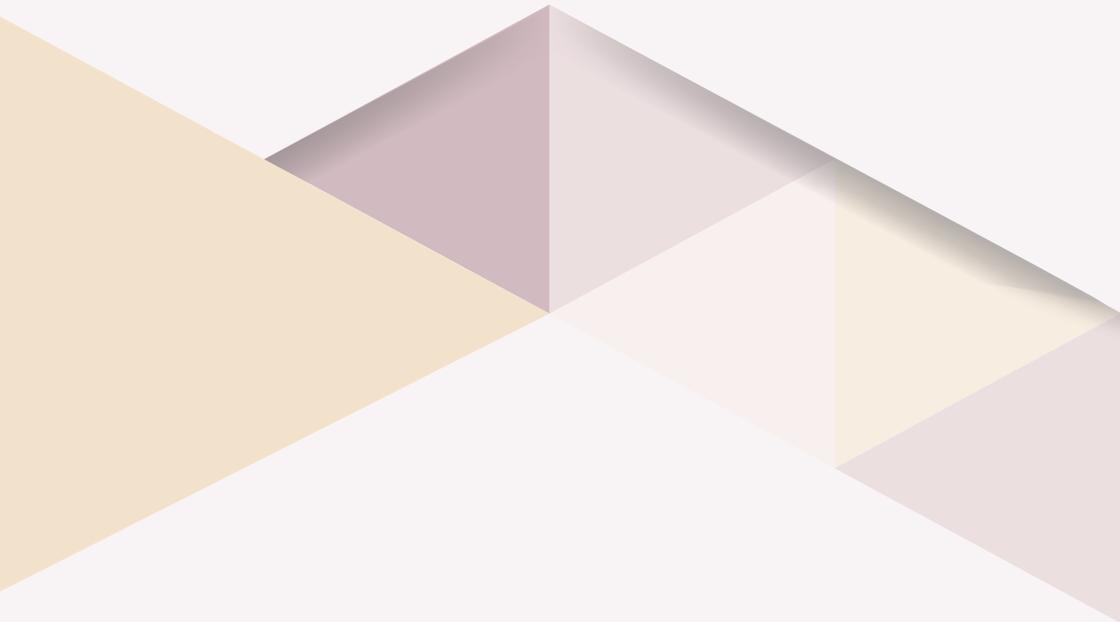
LIQUEFIED PETROLEUM GAS (LPG) PRICES IN THE PENINSULA



Figure 26: LPG Prices in the Peninsula for the Year 2016

NATURAL GAS PRICES IN SABAH AND LABUAN

Prices of natural gas supplied in Sabah and Labuan are based on the Gas Sales and Purchase Agreement signed by the licensee (SEC) and the users according to Section 18 of the Gas Supply Act 1993.





5.0

FINANCIAL PERFORMANCE OF GAS
UTILITY LICENSEE IN THE PENINSULA

Return on Sales	2.94%
Return on Fixed Asset	10.49%
Return on Equity	11.74%

Table 26: Key Financial Ratios* (%) for the year 2016

Note

SAIDI and SAIFI lower readings indicate better performance.



6.0

GAS LICENSEES

GAS UTILITY LICENCE (GUL)

Type of Gas	Licensee	Effective Date	Validity
Natural Gas	GMB	1 September 1998	30 Years
LPG	GMB	15 December 2000	20 Years
Natural Gas	SEC	1 September 1998	30 Years

Table 27: List of Licensees

PRIVATE GAS LICENCE (PGL)

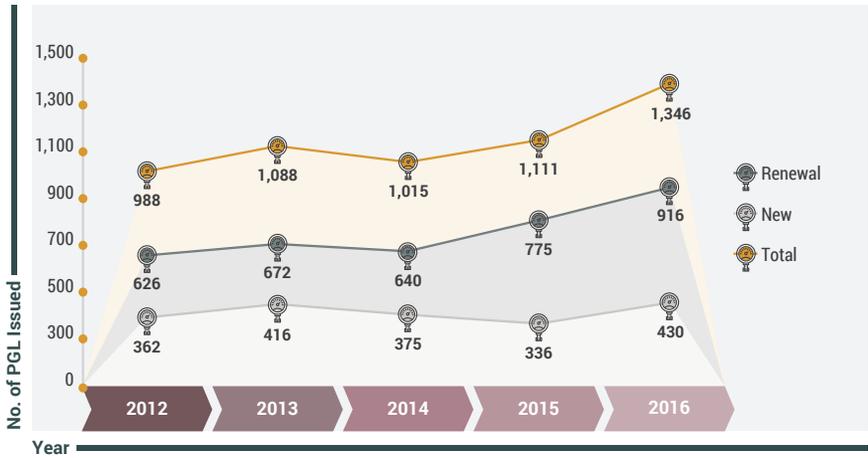


Figure 27: Number of Private Gas Licenses from 2012-2016

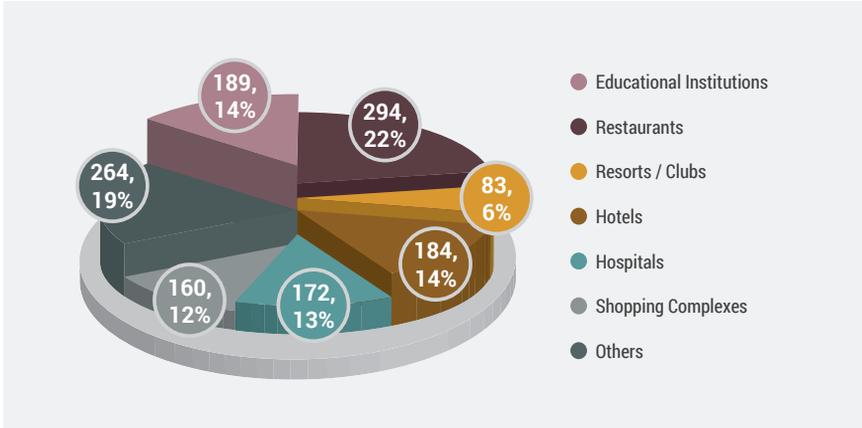
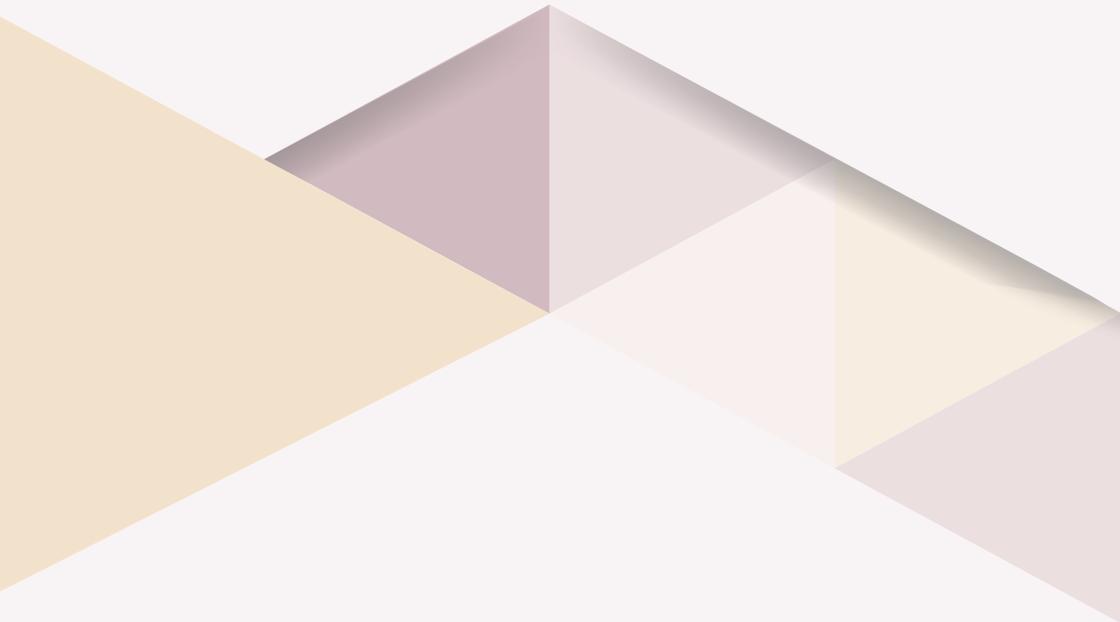


Figure 28: Number of Private Gas Licenses by User Category in 2016





7.0

GAS RETICULATION SYSTEM APPROVALS

APPROVAL TO INSTALL (ATI)

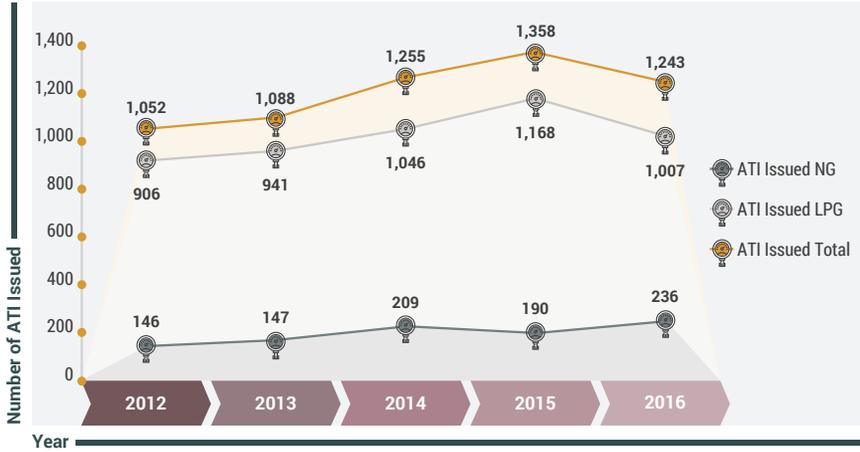


Figure 29: Approval to Install (ATI) Issued from 2012 – 2016

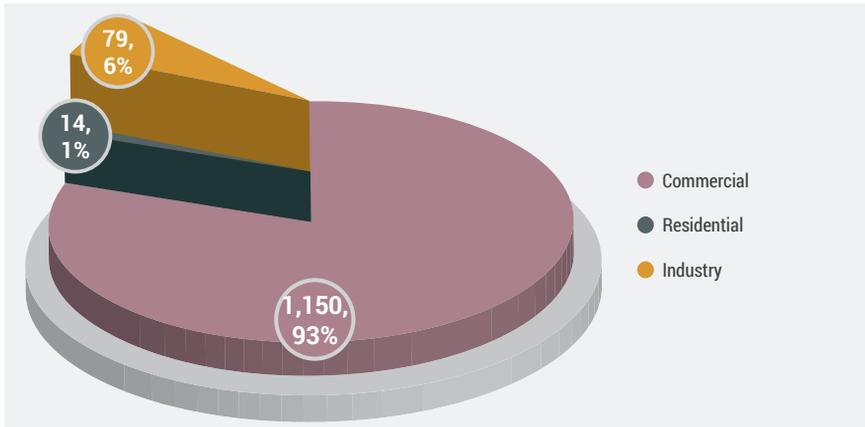


Figure 30: Approval to Install (ATI) Issued based on Locations of Installation in 2016

APPROVAL TO OPERATE (ATO)

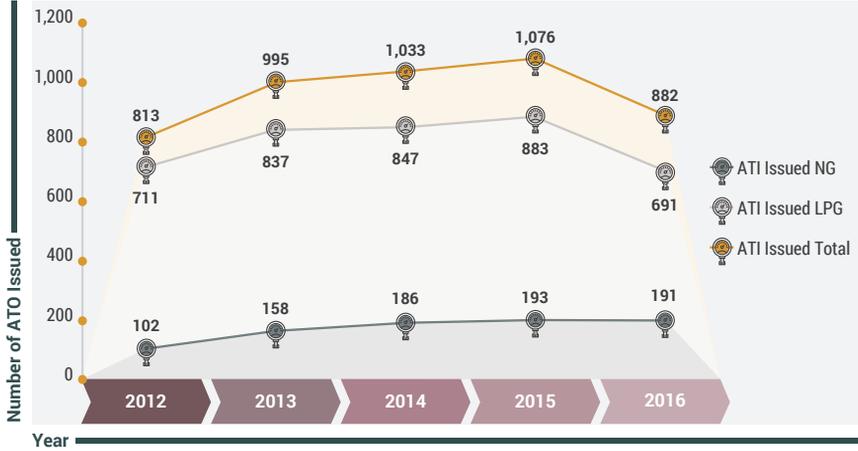


Figure 31: Approval to Operate (ATO) Issued from 2012 – 2016

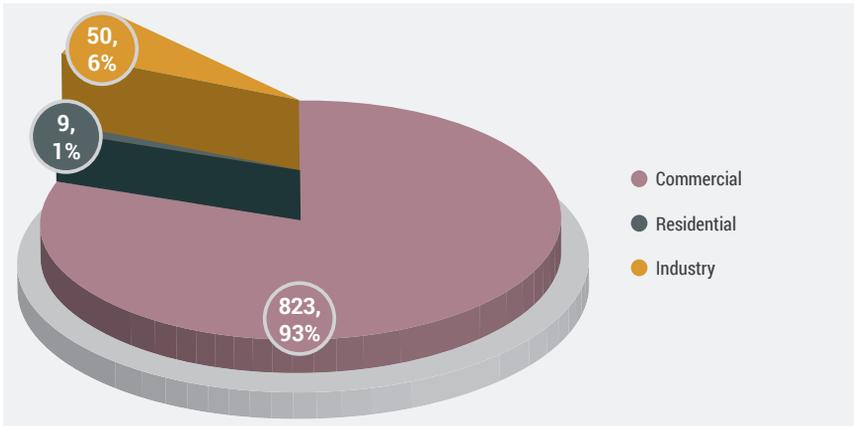
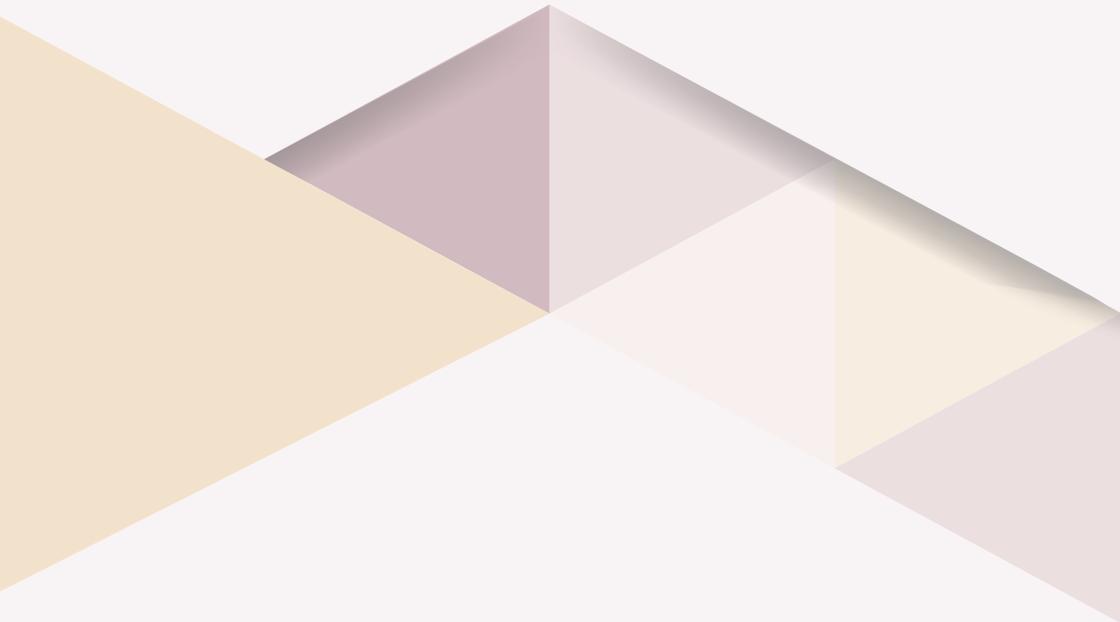


Figure 32: Approval to Operate (ATO) Issued based on Locations of Installation in 2016





8.0

GAS FITTING, GAS APPLIANCE AND GAS
EQUIPMENT APPROVALS



Figure 41: Approvals to Assemble, Manufacture or Import Gas Fittings, Gas Appliances and Gas Equipment from 2012-2016

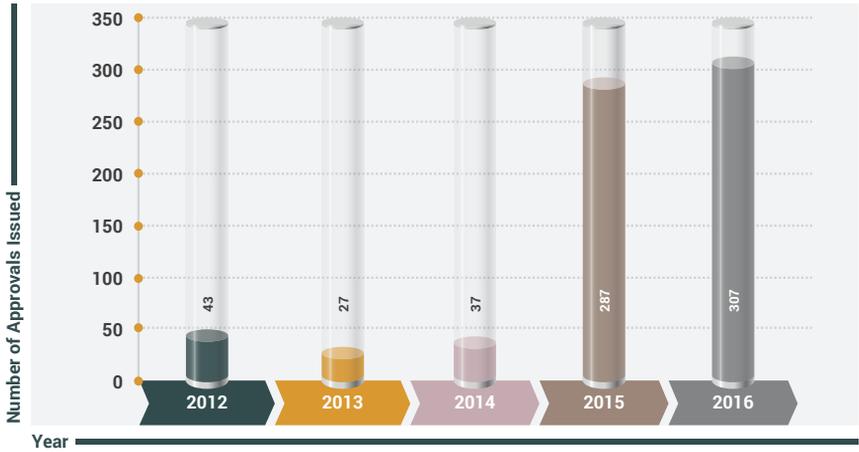


Figure 42: Approvals Issued for Gas Fittings, Gas Appliances and Gas Equipment from 2012 – 2016

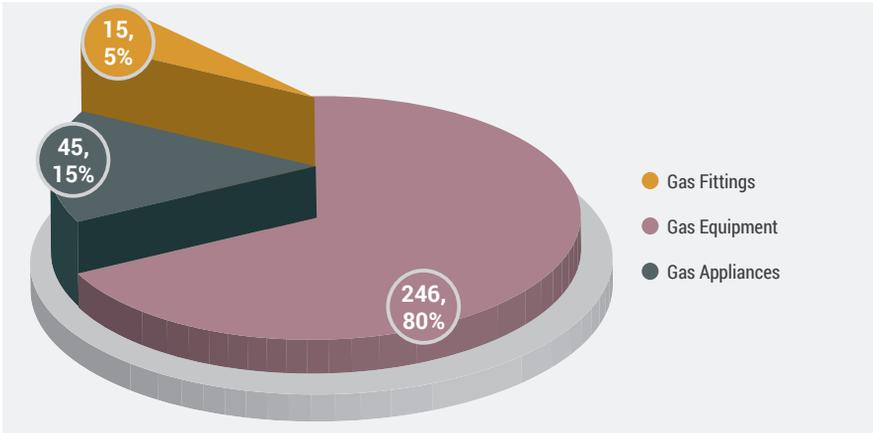


Figure 43: Approvals Issued According to Gas Equipment, Gas Appliances and Fittings in 2016

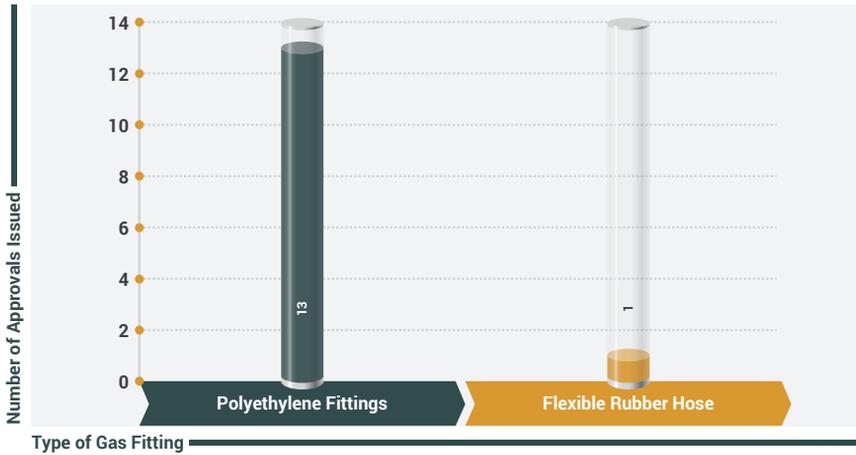


Figure 44: Approvals Issued in the Gas Fitting Category in 2016

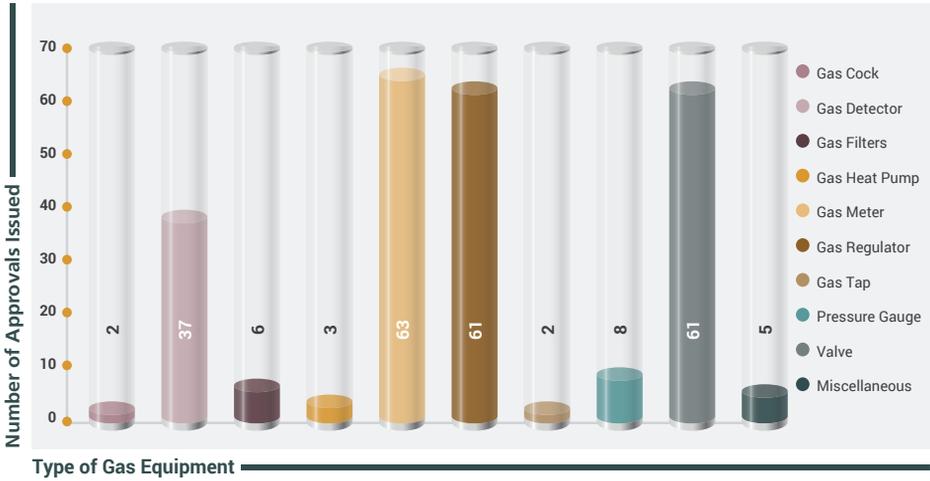


Figure 45: Approvals Issued in the Gas Equipment Category in 2016

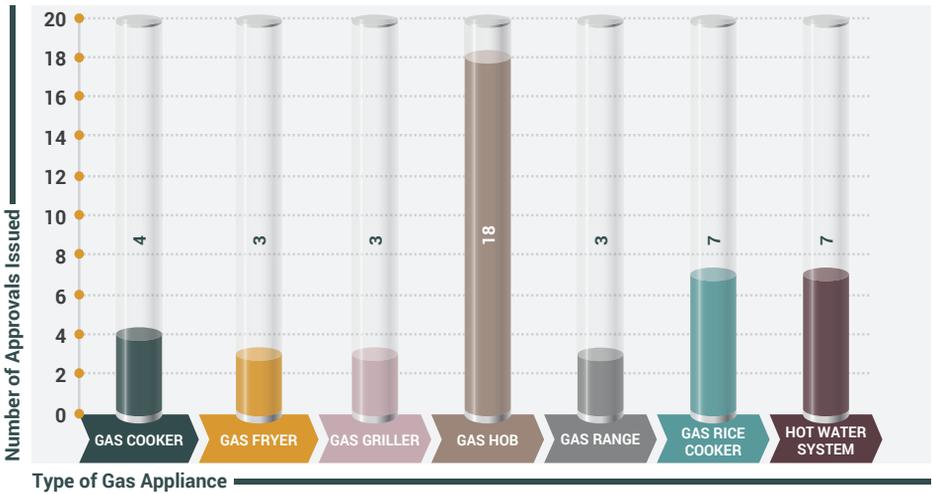


Figure 46: Approvals Issued in the Gas Appliances Category in 2016



9.0

GAS COMPETENCY

GAS CONTRACTORS



Figure 47: Gas Contractor Registrations in 2016

No.	Gas Contractors	Audit Date
1.	Astaraya Sdn. Bhd.	15 April 2016
2.	Globegas Engineering Sdn. Bhd.	10 May 2016
3.	Ezra Engineering & Trading	20 July 2016
4.	Far East Gas Engineering	22 July 2016
5.	Madrid Engineering Sdn. Bhd	23 August 2016
6.	AIE Engineering (M) Sdn. Bhd.	9 September 2016
7.	Ilham Warisan Jaya Enterprise Sdn. Bhd.	4 October 2016
8.	Langsutra Sdn. Bhd.	10 October 2016
9.	Alpha Flowtech Sdn. Bhd.	21 October 2016
10.	I Drill Pipelines Constructions Sdn. Bhd.	4 November 2016

Table 28: Gas Contractor Facility Audits in 2016

GAS COMPETENT PERSONS

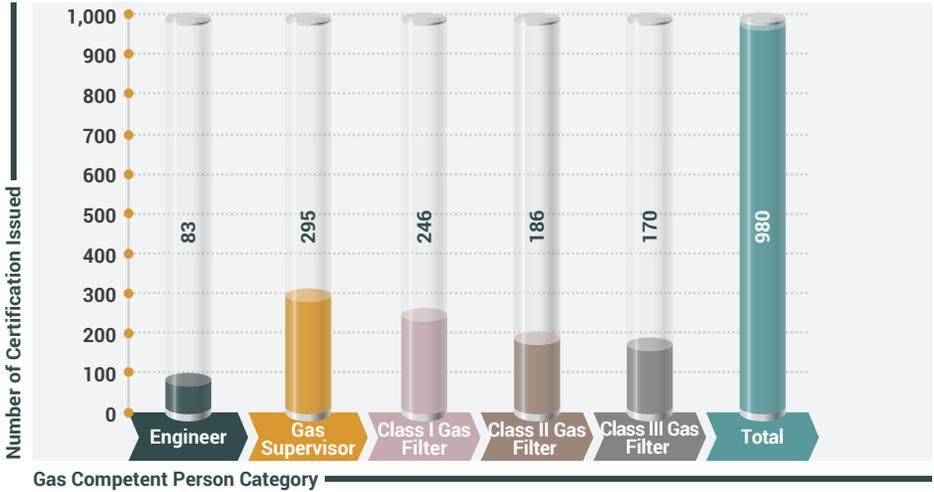


Figure 48: Gas Competent Person Certifications Issued from 1998-2016

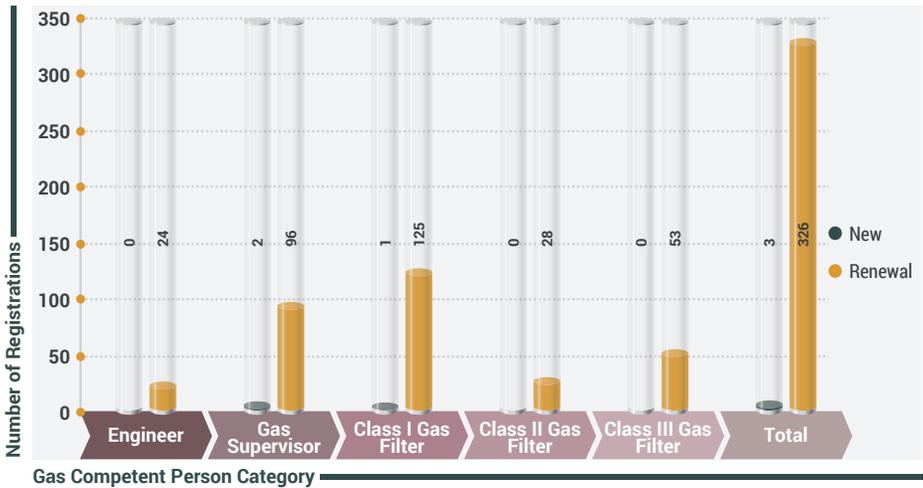


Figure 49: Gas Competent Person Registrations in 2016

Session	2012	2013	2014	2015	2016
Written exam	4	1	0	0	1
Interview	24	19	32	17	39

Table 29: Gas Competency Examination & Interview Sessions

Candidates	2012	2013	2014	2015	2016
Written exam	3	5	0	0	17
Interview	68	54	81	34	128

Table 30: Gas Competency Examination & Interview Candidates

No.	Name	Gas Competency Registration No.	Non-Compliance	Actions by the Energy Commission	Effective Suspension date
1.	Muhammad Anas Bin Marjunit	JBE (PKG) 06	Subregulation 86(6) Gas Supply Regulations 1997.	Suspension of certificate of competency for 2 years under Subregulation 86(3) Gas Supply Regulations 1997.	25 th August 2016
2.	Muhammad Arif Bin Ismail	PKG-T-1-B-04-2013	Subregulation 86(6) Gas Supply Regulations 1997.	Suspension of certificate of competency for 2 years under Subregulation 86(3) Gas Supply Regulations 1997.	25 th August 2016
3.	Ahmad Bakri Bin Othman	JBE(JGGI) 145	Subregulation 86(6) Gas Supply Regulations 1997.	Suspension of certificate of competency for 2 years under Subregulation 86(3) Gas Supply Regulations 1997.	25 th August 2016
4.	Samsuddin Bin Md Taib	JGG-T-2-C-04-2012	Subregulation 86(6) Gas Supply Regulations 1997.	Suspension of certificate of competency for 9 months under Subregulation 86(3) Gas Supply Regulations 1997.	25 th August 2016
5.	Mohd Mahazam Bin Mohd Zain	JGG-T-3-C-25-2012	Subregulation 86(6) Gas Supply Regulations 1997.	Suspension of certificate of competency for 9 months under Subregulation 86(3) Gas Supply Regulations 1997.	25 th August 2016

Table 31: List of Gas Competent Persons Suspended by the Energy Commission in 2016



10.0

GAS TRAINING INSTITUTIONS

Name & Address of Institution	Contact Information	Course Offered	Study Mode
INSTITUT KEMAHIRAN MARA (IKM) Jalan Teroka Off Jalan Datin Halimah, Karung Berkunci 848, 80990 Johor Bharu, Johor.	Tel : 07-2370001 / 07-2361129 Fax: 07-2364289 Website: www.ikm.edu.my/jb	i. Gas Fitter Class I	Full Time
UTM MPRC INSTITUTE FOR OIL & GAS Block N29A, Lengkuu Suria, Faculty of Petroleum and Renewable Energy Engineering, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor.	Tel : 07-5535653 Fax: 07-5545667 Website: http://www.utm.my/mprc/	i. Gas Engineer/ Supervisor ii. Gas Fitter Class I iii. Gas Fitter Class II iv. Gas Fitter Class III	Part Time
KOLEJ ANTARABANGSA TEKNOLOGI & PROFESIONAL (KATPM) PERLIS Peti Surat 40,Km 5, Jalan Padang Besar, 01000 Kangar, Perlis	Tel: 04-9779177 Fax: 04-9771200 Website: www.katp.edu.my	i. Class III Gas Fitter	Full Time

Table 32: Accredited Gas Institutions

No.	Gas Institution	Audit Date
1.	Institut Kemahiran MARA (IKM)	24 September 2016
2.	UTM-MPRC Institute for Oil & Gas	25 September 2016

Table 33: Gas Institution Facility Audits in 2016



11.0

GAS SAFETY AUDITS

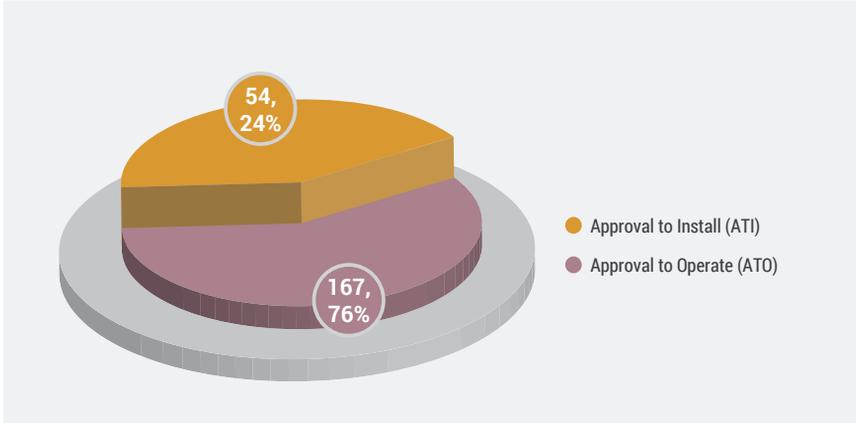


Figure 50: Inspections conducted for the issuance of Approval to Install (ATI) & Approval to Operate (ATO)

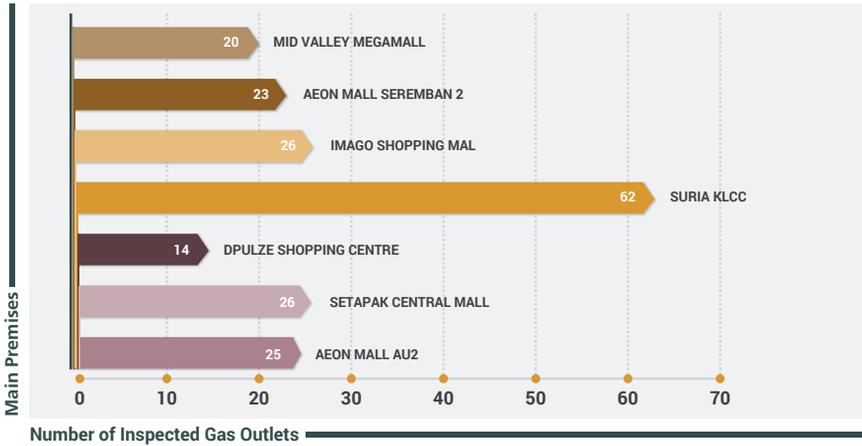


Figure 51: Gas Safety Taskforce Inspections Conducted at Shopping Malls Throughout the Peninsular and Sabah

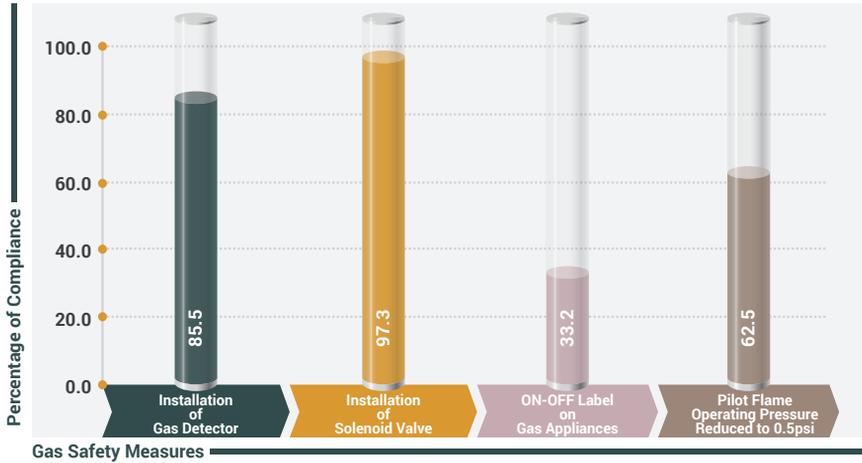


Figure 54: Percentage of Compliance to the Gas Safety Measures in 2016

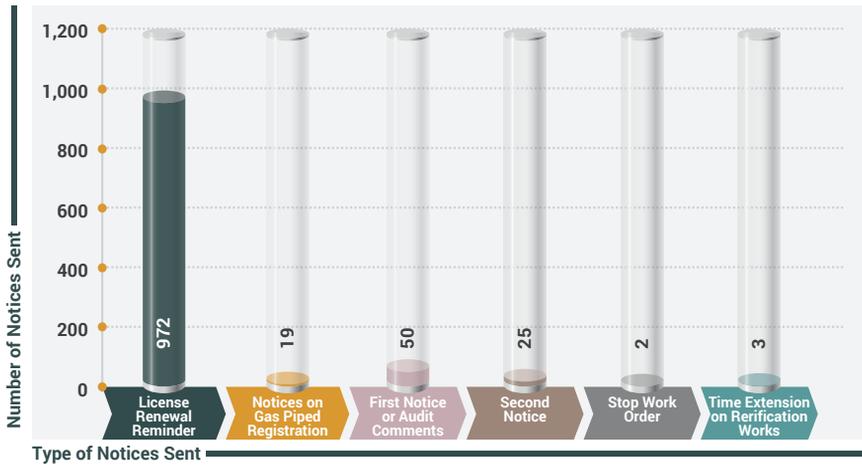
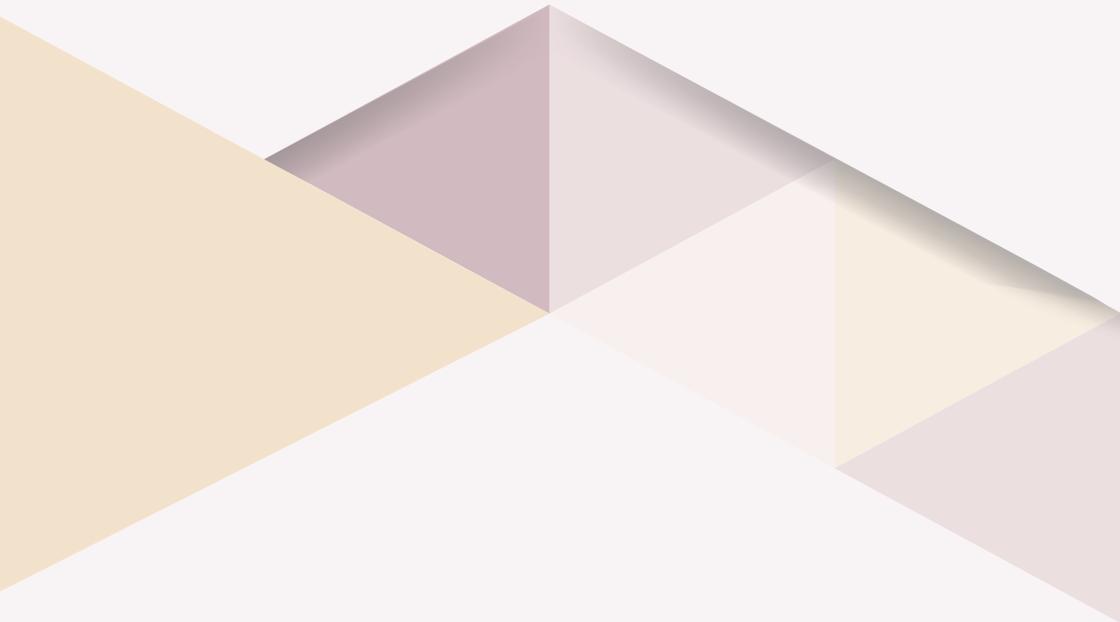


Figure 55: Notices, Reminders or Stop Work Order Sent to Existing Gas Installations





12.0

NEW GUIDELINES OR CIRCULARS ISSUED IN 2016

No.	Reference Number	Title	Objective
1	ST(IP/JG/P)16/2/3(52)	Non destructive test (NDT) requirement for welding works on gas piping sized 4 inch and above.	To ensure that welding works on gas piping are done according to approved standards and do not pose any danger to the public.
2	NA	Guidelines on the Implementation of Periodic Inspections and Leak Tests for Gas Piping System	To assist gas contractors and gas competent persons when conducting periodic inspections on existing gas piping system.

Table 34: New Guidelines or Circulars Issued in 2016



13.0

GAS ACCIDENTS

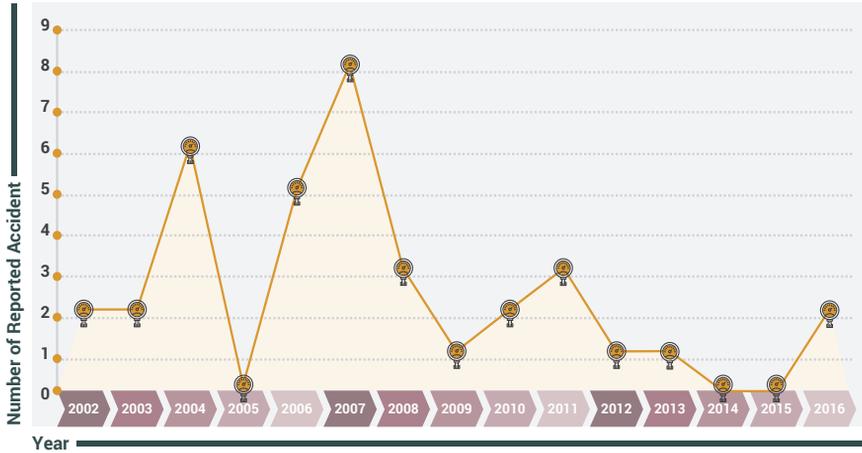


Figure 57: Number of Gas Accidents that were Reported to the Energy Commission from 2002 to 2016

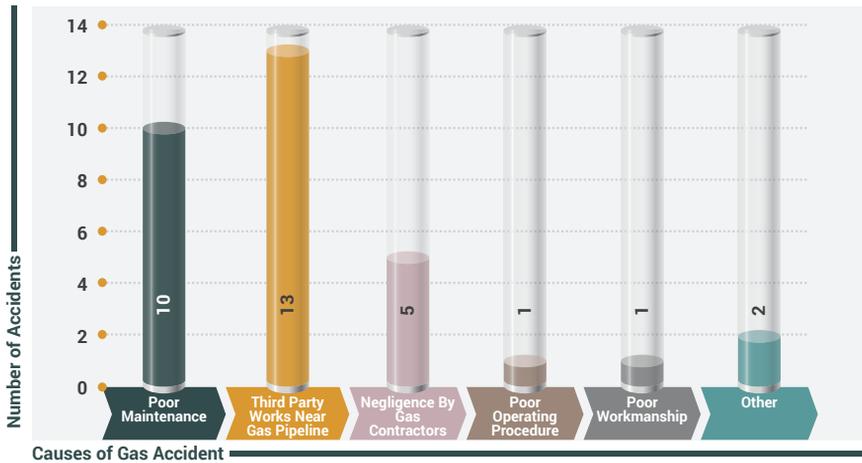


Figure 58: Causes of Gas Accidents From 2002 to 2016

No.	Location	Date	Approximate Time
1	Shopping mall in Kuala Lumpur • Grill & bar restaurant • Fast food outlet	5 th April 2016	9.45 AM
2	Apartment in Kuala Lumpur	8 th December 2016	4.15 PM

Table 35: List of Gas Accidents Reported to the Energy Commission in 2016

SUMMARY OF GAS ACCIDENTS IN 2016

Gas Accidents at a Shopping Mall in Kuala Lumpur

Date & Time	5 th April 2016 at approximately 9.45 am
Number of Victim	9
Gender	5 Males and 4 Females
Victim's Occupation	i. 5 food & beverages outlet crews ii. 1 fast food outlet crew iii. 2 maintenance crews of the shopping mall iv. 1 gas competent person
Locations of Accidents	i. Food & beverages outlet restaurant ii. Fast food outlet
Type of gas installation	Gas piping droppers before the gas meters.
Summary of the Accident	Shopping mall maintenance crews were carrying out recommissioning works on the after-gas meter piping due to the installation of main bypass valves on the main piping system. Unfortunately, during the recommissioning process, two separate explosions occurred at two outlets injuring 9 people.
Cause of Accident	i. Failure to effectively implement permit-to-work system. ii. Unsafe practices during recommissioning
Action taken by the Commission under the Gas Supply Act 1993 & Gas Supply Regulations 1997	Suspension and Cancellation of Certificates of Competency under Subregulation 86(6) Gas Supply Regulations 1997.

Table 36: Case Summary

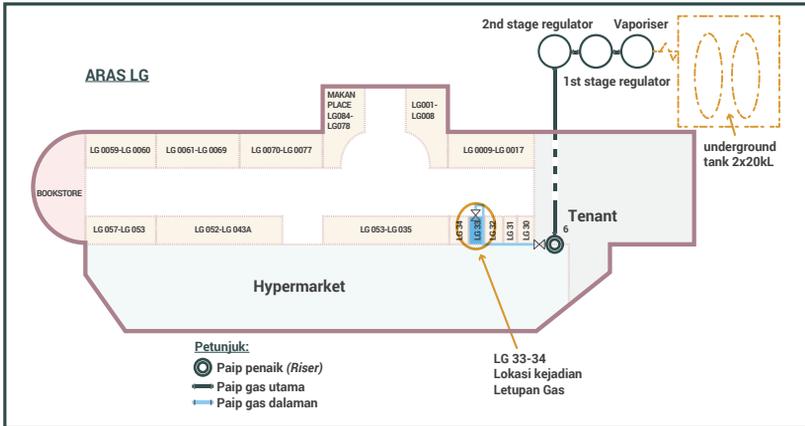


Figure 59: Gas Piping Layout for Fast Food Outlet

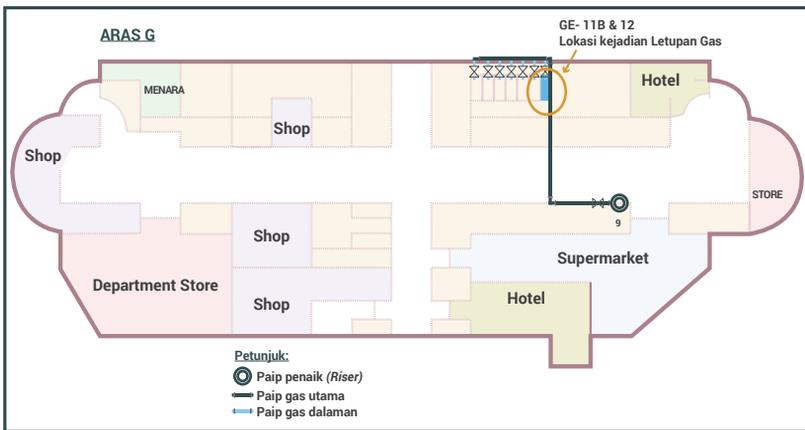


Figure 60: Gas Piping Layout for Food and Beverage Outlet Restaurant

Gas Accident at an Apartment Complex in Kuala Lumpur

Date & Time	8 th December 2016 at approximately 4.15 pm
Number of Victim	1
Gender	Male
Victim's Occupation	Maintenance technician
Locations of Accidents	Gas meter riser room located at 5th floor of an apartment complex in Kuala Lumpur
Type of gas installation	After gas meter piping.
Summary of the Accident	Maintenance technicians were carrying out nitrogen purging work due to blockage in the piping. Unfortunately, during the purging process, an explosion occurred in the riser room where the gas meter is located injuring one technician who was manning the valve.
Cause of Accident	Still under investigation
Action taken by the Commission under the Gas Supply Act 1993 & Gas Supply Regulations 1997	Still under investigation

Table 37: Case Summary

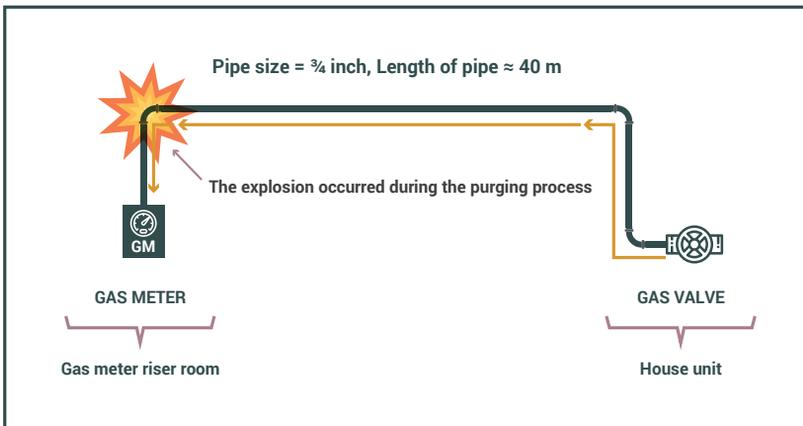
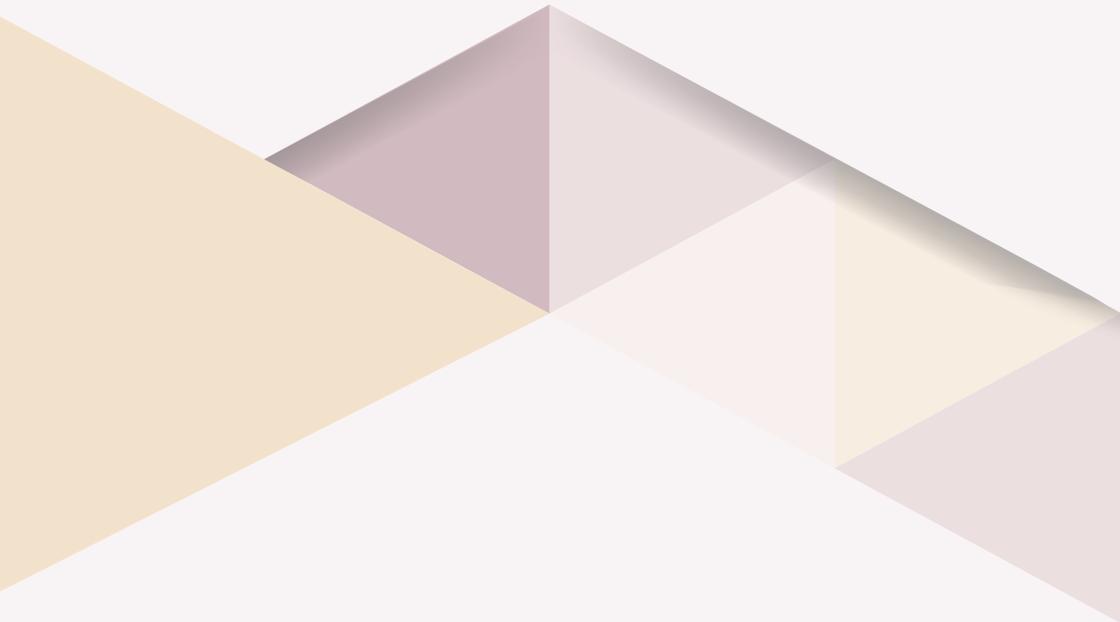


Figure 65: Schematic diagram of the piping at an apartment complex in Kuala Lumpur





14.0

GAS UTILITY LICENSEES CONTACT INFORMATION

GAS MALAYSIA BERHAD

HEADQUARTERS

Address:

No. 5, Jalan Serendah 26/17,
Seksyen 26, Peti Surat 7901,
40732 Shah Alam, Selangor.

Tel : 03 5192 3000

Fax : 03 5192 6766

Website : www.gasmalaysia.com

OCC Hotline : 1-800-88-9119 or 1-800-5656

OCC Email : orc@gasmalaysia.com

OCC = Operations Control Centre

REGIONAL OFFICE

SOUTH

PLO 343, Jalan EmasTiga,
Kawasan Perindustrian Pasir Gudang,
81700 Pasir Gudang,
Johor.

Tel : 07 252 2314

Fax : 07 252 2561

EAST

Lot 104,
Gebeng Industrial Area,
26080 Kuantan,
Pahang.

Tel : 09 583 6340

Fax : 09 583 6339

NORTH

No. 27, Jalan Todak 4, Pusat Bandar
Seberang Jaya,
13700 Seberang Jaya,
Pulau Pinang.

Tel : 04 398 1727 / 1757

Fax : 04 398 2636

DISTRICT OFFICE

SELANGOR, Bangi

No. 30, Jalan 4/12B,
43650 Bandar Baru Bangi,
Selangor.

Tel : 03 8922 1191/ 1192

Fax : 03 8922 1190

SELANGOR, Shah Alam

No. 1, Jalan 13/15,
Seksyen 13, 40000
Shah Alam, Selangor.

Tel : 03 5511 9914

Fax : 03 5511 9912

PERAK, Seri Manjung

9 PSN PM7,
Pusat Bandar Seri Manjung,
32040 Seri Manjung, Perak.

Tel : 04 976 8400

Fax : 04 976 0625

KUALA LUMPUR, Jalan Gurney

No. 20, Jalan Gurney,
54100 Kuala Lumpur.

Tel : 03 9206 7800

Fax : 03 9287 4282

WP PUTRAJAYA, Putrajaya

No. 1, Jalan P9 B/1,
Precinct 9,
62250 Putrajaya.

Tel : 03 8888 5264 /5224

Fax : 03 8888 3990

NEGERI SEMBILAN, Senawang

No. 34, Jalan Bunga Raya 9,
Pusat Perniagaan Senawang,
Taman Tasik Jaya,
70400 Seremban,
Negeri Sembilan.

Tel : 06 678 1995/5348

Fax : 06 678 6937

JOHOR, Kluang

No. 9, Jalan 53B, Taman Kluang Barat
86000 Kluang, Johor.

Tel : 07 771 2105

Fax : 07 777 2108

**SABAH ENERGY CORPORATION SDN. BHD.****HEADQUARTERS****Address:**

1st, 2nd & 3rd Floors,
Wisma Bandaraya, Jalan Mesjid Lama,
Locked Bag No. 2,
88990 Kota Kinabalu, Sabah.

Tel : 088 311290 / 299

Fax : 088 311361

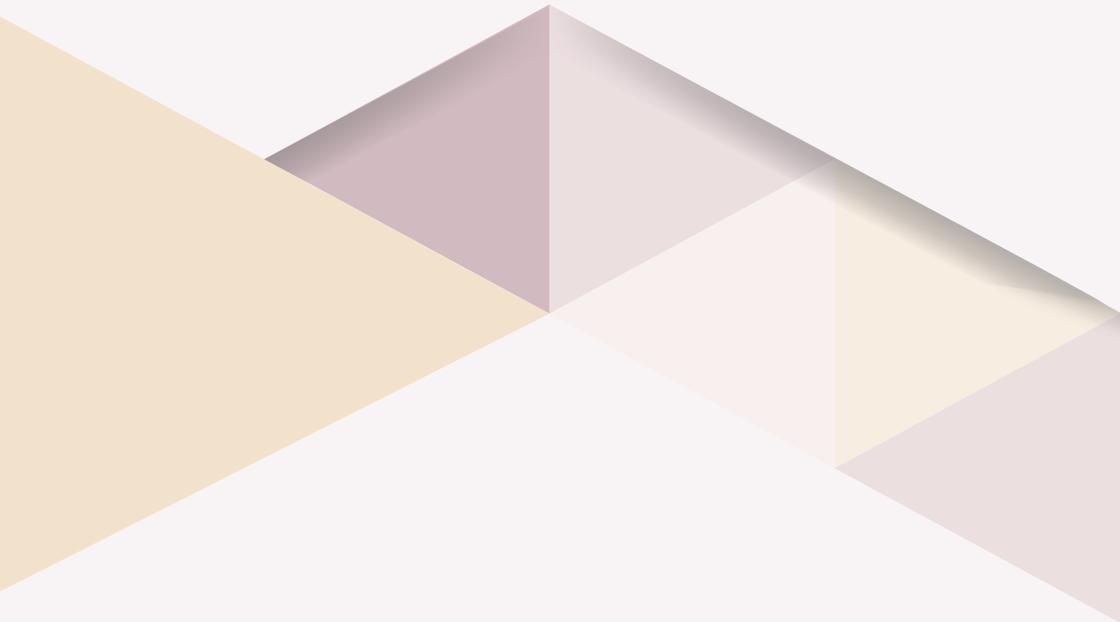
Website : www.sabahenergycorp.com

REGIONAL OFFICE**LABUAN UNIT**

Saguking Warehouse D8,
P. O. Box 80244,
87012 Labuan,
Wilayah Persekutuan.

Tel : 087 418 060 / 417 162

Fax : 087 413 877





15.0

ENERGY COMMISSION CONTACT INFORMATION

HEADQUARTERS

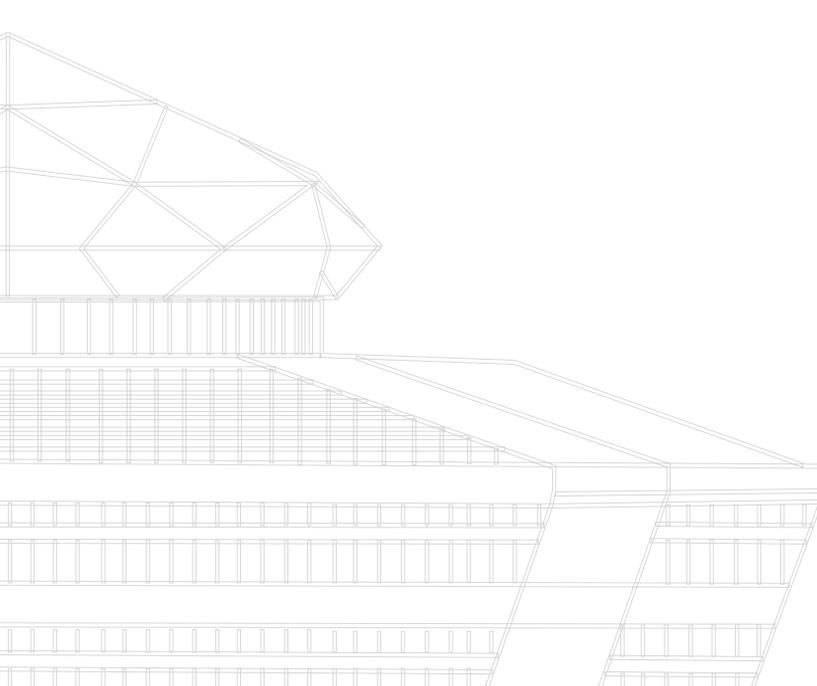
SURUHANJAYA TENAGA

No. 12,
Jalan Tun Hussein,
Precinct 2,
62100, Putrajaya.

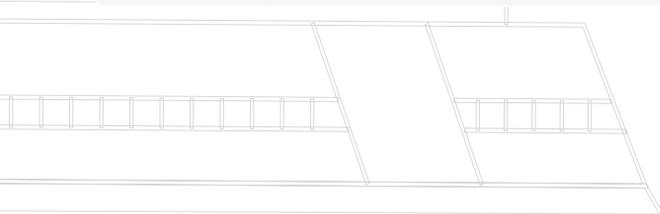
-  GPS Coordinate : **2.919175, 101.688459**
 Toll Free No : **1-800-2222-78 (ST)**
 Phone : **(603) 8870 8500**
 Fax : **(603) 8888 8637**
 Web : **www.st.gov.my**

REGIONAL OFFICES

Address	Phone No. & Fax
SELANGOR, KUALA LUMPUR & PUTRAJAYA Tingkat 10, Menara PKNS No. 17, Jalan Yong Shook Lin 46050 Petaling Jaya, Selangor	 Tel : 03 - 7955 8930  Fax : 03 - 7955 8939
NEGERI SEMBILAN & MELAKA Tingkat 4, Wisma Perkeso, Jalan Persekutuan, MITC, 75450 Ayer Keroh, Melaka.	 Tel : 06 - 231 9594  Fax : 06 - 231 9620
JOHOR Suite 18A, Aras 18 Menara ANSAR 65 Jalan Trus 80000 Johor Bharu, Johor	 Tel : 07 - 224 8861  Fax : 07 - 224 9410
PULAU PINANG, KEDAH & PERLIS Tingkat 10, Bangunan KWSP, 13700 Seberang Jaya, Butterworth, Pulau Pinang.	 Tel : 04 - 398 8255  Fax : 04 - 390 0255



Address	Phone No. & Fax
PERAK Tingkat 1, Bangunan KWSP, Jalan Greentown, 30450 Ipoh, Perak.	 Tel : 05 - 253 5413  Fax : 05 - 255 3525
KELANTAN & TERENGGANU Tingkat 6, Bangunan KWSP, Jalan Padang Garong, 15000 Kota Bharu, Kelantan.	 Tel : 09 - 748 7390  Fax : 09 - 744 5498
PAHANG Tingkat 7, Kompleks Teruntum, Jalan Mahkota, 25000 Kuantan, Pahang.	 Tel : 09 - 514 2803  Fax : 09 - 514 2804
PANTAI BARAT NEGERI SABAH Tingkat 7, Bangunan BSN, Jalan Kemajuan, 88000 Kota Kinabalu, Sabah.	 Tel : 088 - 232 447  Fax : 088 - 232 444
PANTAI TIMUR NEGERI SABAH Tingkat 3, Wisma Sabah KM12, W.D.T. No. 25, 90500 Sandakan, Sabah.	 Tel : 089 - 666 695  Fax : 089 - 660 279



NOTES

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No. 12, Jalan Tun Hussein, Precinct 2,
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