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Statistik Industri Pengagihan Gas Berpaip
Statistics of Piped Gas Distribution Industry

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PENDAHULUAN | INTRODUCTION

TINJAUAN INDUSTRI

Pembekalan gas hidrokarbon berpaip merupakan industri yang agak baru di negara ini. Pertumbuhan yang berterusan bagi gas asli berpaip bermula dengan pentauliahan projek *Peninsula Gas Utilisation* (PGU) fasa satu pada tahun 1984. Kini, dengan beroperasinya projek PGU fasa 3 pada tahun 2001, sistem talian paip penghantaran PGU dan talian sisi telah melangkai 2,389 km.

Gas asli disalurkan daripada talian paip penghantaran untuk dibekalkan terus melalui talian sisi kepada pengguna di sektor tenaga dan bukan tenaga yang menggunakan gas melebihi 2 juta kaki padu sehari (mmscfd). Pengguna sektor bukan tenaga termasuk industri petrokimia, perkilangan, *central utility facilities* (CUF) dan *district cooling plants* turut mendapat bekalan gas melalui talian sisi.

Gas asli juga disalurkan daripada talian paip penghantaran PGU melalui stesen pintu kota yang terdapat di beberapa lokasi di semenanjung dan diagih melalui rangkaian talian paip Sistem Pengagihan Gas Asli (NGDS) kepada pengguna-pengguna di sektor industri kecil dan sederhana, sektor komersil dan sektor domestik. Sehingga tahun 2006, NGDS telah berkembang sehingga 1,403 km di 66 penempatan yang membekalkan gas kepada 645 pengguna industri, 335 pengguna komersil dan 6,679 pengguna perumahan. Di Malaysia Timur, lebih kurang 6 km talian paip telah beroperasi di Sabah dan Labuan bagi membekal gas kepada 8 pengguna industri. Sementara di Sarawak, lebih 450 km talian paip telah beroperasi bagi membekal gas kepada 2 pengguna industri, 775 pengguna komersil dan 12,898 pengguna perumahan.

Selain gas asli, pembekalan gas petroleum cecair (LPG) berpaip ke pengguna industri dan komersil telah wujud semenjak tahun 70-an, sementara pengagihan LPG bagi pengguna perumahan bermula pada tahun 80-an. Kini lebih 10,000 pengguna industri dan komersil, dan 25,000 pengguna perumahan mendapat bekalan LPG berpaip daripada kemudahan penstoran tangki pukal atau silinder.

INDUSTRY OVERVIEW

The supply of piped hydrocarbon gases to consumers is a relatively new industry in our country. The steady growth of piped natural gas started with the commissioning of the first phase of the Peninsula Gas Utilisation (PGU) project in 1984. Today, with the completion of phase 3 of the PGU project in 2001, the PGU transmission and lateral pipeline system now spans over 2,389 km.

Natural gas is tapped from the transmission pipeline to supply directly via lateral lines to users in the power and non-power sectors who consume more than 2 million standard cubic feet per day (mmscfd). The non-power users receiving natural gas via lateral lines include the petrochemical, manufacturing, central utility facilities (CUF) and district cooling plants.

Natural gas is also tapped from the PGU transmission pipeline via city gate stations located at various locations in the peninsula and reticulated via the network of Natural Gas Distribution System (NGDS) pipelines to small and medium-sized users in the industrial, commercial and domestic sectors. The NGDS spans over 1,403 km in 66 communities, 645 industrial, 335 commercial and 6,679 residential users receive gas via the NGDS as at 2006. In East Malaysia, about 6 km of pipelines is in operation in Sabah and Labuan serving 8 industrial customers and over 450 km of pipelines is in operation in Sarawak supplying natural gas to over 2 industrial, 775 commercial and 12,898 residential users.

Apart from natural gas, the supply of liquefied petroleum gas (LPG) via pipelines to industrial and commercial consumers has been in existence since the 70's whilst reticulated LPG for the residential users started in the 80's. Now over 10,000 industrial and commercial users and 25,000 residential users are receiving LPG piped from bulk tanks or manifolded cylinders storage facilities.

AKTA BEKALAN GAS 1993 (AKTA 501)

Kerajaan telah mewujudkan Akta Bekalan Gas 1993 (Akta 501) dan Peraturan-Peraturan Bekalan Gas 1997 secara berperingkat pada 17 Julai 1997, dan menguatkuasakan sepenuhnya satu tahun kemudian bagi mengawalselia aktiviti pembekalan dan penggunaan gas berpaip. Matlamat utama adalah untuk melindungi kepentingan pengguna gas berpaip dan keselamatan orang awam yang terlibat dengan aktiviti pembekalan, dan pada masa yang sama memastikan kegiatan pembekalan gas adalah berdaya maju. Akta 501 menggariskan *standard* pengurusan dan teknikal daripada aspek keselamatan, keboleharapan, ekonomi, kecekapan dan kualiti.

Perkataan 'gas' didefinisikan di dalam Akta 501 sebagai 'metana, etana, propana, butana atau hidrokarbon yang mengandungi satu atau lebih gas yang di atas sama ada dalam bentuk gas atau cecair'. Kandungan gas asli terdiri daripada metana dengan peratusan kecil etana, dan kandungan LPG terdiri daripada propana dan butana. Oleh itu, gas jenis lain seperti oksigen, nitrogen dan asetilena, yang digunakan oleh industri tidak terpakai di bawah Akta 501. Akta ini juga tidak terpakai ke atas keseluruhan rangkaian pembekalan gas. Skop akta hanya meliputi pembekalan gas asli melalui talian paip ke hilir dari bebibir penghujung stesen pintu kota; atau pembekalan LPG dari sambungan pengisian tangki atau silinder penstoran ke peralatan gas. Oleh itu, sistem talian paip penghantaran dan talian sisi (sebelum dan termasuk stesen pintu kota) adalah di luar skop Akta 501. Buat masa ini, Akta 501 hanya terpakai di Semenanjung dan Sabah.

GAS SUPPLY ACT 1993 (ACT 501)

The government has introduced the Gas Supply Act 1993 (Act 501) and Gas Supply Regulations 1997, which came into force partially on 17th July 1997, and fully; one year later, to regulate piped gas supply and utilisation activities. The main objective is to protect the interests of piped gas consumers and the public safety who are affected by the supply activities, whilst at the same time ensuring continued viability of the gas supply business. Act 501 prescribes administrative and technical standards in aspects of safety, reliability, economy, efficiency and quality.

The word 'gas' is defined in Act 501 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 ethane, and LPG is comprised of propane and butane. Hence, other types of gases, such as oxygen, nitrogen and acetylene, used by the industry are not covered by Act 501. The Act also does not apply throughout the gas supply chain. Its scope covers only the supply of natural gas through pipelines 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. Hence, natural gas transmission and lateral pipeline systems (before and including the city gate stations) are outside the scope of Act 501. Presently, Act 501 is applicable only in the Peninsular and Sabah.



FUNGSI SURUHANJAYA TENAGA DI BAWAH AKTA 501

- ◆ Memastikan bahawa pemegang lesen dapat memenuhi permintaan yang munasabah bagi gas yang dibekalkan melalui talian paip;
- ◆ Memastikan pemegang lesen dapat membiayai perkhidmatan pembekalan gas;
- ◆ Melindungi kepentingan pengguna gas yang dibekalkan melalui talian paip dari aspek :
 - harga yang dikenakan dan terma-terma pembekalan,
 - keberterusan bekalan,
 - kualiti perkhidmatan pembekalan gas;
- ◆ Mengawalselia komposisi, tekanan, ketulenan dan isipadu gas yang dibekalkan;
- ◆ Meningkatkan kecekapan dan ekonomi dalam pembekalan gas melalui talian paip dan penggunaan gas yang cekap melalui talian paip;
- ◆ Melindungi pengguna dan orang awam daripada bahaya yang berbangkit daripada aktiviti pengagihan dan penggunaan gas melalui talian paip;
- ◆ Membolehkan persaingan secara berkesan dalam pembekalan gas melalui talian paip; dan
- ◆ Menyiasat kemalangan atau kebakaran yang melibatkan talian paip atau pemasangan gas.

FUNCTION OF ENERGY COMMISSION UNDER ACT 501

- ◆ *To ensure a licensee satisfies all reasonable demands for gas through pipelines;*
- ◆ *To ensure a licensee could finance the provision of gas supply services;*
- ◆ *To protect the interests of consumers of gas supplied through pipelines in respect of:*
 - *the prices charged and the other terms of supply,*
 - *the continuity of supply,*
 - *the quality of the gas supply services provided;*
- ◆ *To regulate the composition, pressure, purity and volume of gas supplied through pipelines;*
- ◆ *To promote efficiency and economy to supply gas through pipelines and the efficient use of gas supplied through pipelines;*
- ◆ *To protect the public from dangers arising from the distribution of gas through pipelines or from the use of gas supplied through pipelines;*
- ◆ *To enable persons to compete effectively in the supply of gas through pipelines; and*
- ◆ *To investigate any accident or fire involving any gas pipelines or installation*



PEMBEKALAN GAS | GAS SUPPLY

SPESIFIKASI GAS | GAS SPECIFICATION

Semenanjung Malaysia | Peninsular Malaysia

Sifat-sifat Tipikal Gas Asli

Typical Natural Gas Characteristics

Graviti Tentu <i>Specific Gravity</i>	0.61
Nilai Kalori Kasar <i>Gross Calorific Value</i> (kcal/Sm ³)	9530
Halaju Pembakaran <i>Burning velocity</i> (m/s)	0.3
Had Atas Kemudahbakaran <i>Upper Flammability Limit</i> (%)	15.4
Had Bawah Kemudahbakaran <i>Lower Flammability Limit</i> (%)	4.5
Suhu Pengautocucuhan <i>Autoignition Temperature</i> (°C)	640
Teori Keperluan Udara <i>Theoretical Air Requirement</i> (m ³ /m ³)	9.74

Jadual 2.1: Komposisi Gas Asli di Semenanjung Malaysia
Table 2.1: Natural Gas Composition in Peninsular Malaysia

Gas	Mol (%)
CH ₄	92.73
C ₂ H ₆	4.07
C ₃ H ₈	0.77
iC ₄ H ₁₀	0.08
nC ₄ H ₁₀	0.06
C ₅ H ₁₂ +	0.01
CO ₂	1.83
N ₂	0.45

Jadual 2.2: Komposisi Gas Petroleum Cecair di Semenanjung Malaysia
Table 2.2: Liquefied Petroleum Gas Composition in Peninsular Malaysia

Gas	Mol (%)
C ₃ H ₈	40.0
iC ₄ H ₁₀	30.0
nC ₄ H ₁₀	30.0

Jadual 2.3: Komposisi Gas Asli di Sabah
Table 2.3: Natural Gas Composition in Sabah

Gas	Mol (%)
CH ₄	92.43
C ₂ H ₆	4.04
C ₃ H ₈	1.64
iC ₄ H ₁₀	0.30
nC ₄ H ₁₀	0.29
iC ₅ H ₁₂	0.13
nC ₅ H ₁₂	0.06
C ₆ H ₁₄ +	0.24
CO ₂	0.76
N ₂	0.11

Jadual 2.4: Komposisi Gas Asli di Labuan
Table 2.4: Natural Gas Composition in Labuan

Gas	Mol (%)
CH ₄	89.10
C ₂ H ₆	4.74
C ₃ H ₈	2.88
iC ₄ H ₁₀	0.59
nC ₄ H ₁₀	0.78
iC ₅ H ₁₂	0.28
nC ₅ H ₁₂	0.23
C ₆ H ₁₄	0.30
CO ₂	1.06
N ₂	0.04

Sifat-sifat Tipikal Gas Asli

Typical Natural Gas Characteristics

Graviti Tentu <i>Specific Gravity</i>	0.62
Nilai Kalori Kasar <i>Gross Calorific Value</i> (kcal/Sm ³)	10156.03
Halaju Pembakaran <i>Burning velocity</i> (m/s)	> 0.39
Had Atas Kemudahbakaran <i>Upper Flammability Limit</i> (%)	14.0
Had Bawah Kemudahbakaran <i>Lower Flammability Limit</i> (%)	4.0
Suhu Pengautocucuhan <i>Auto Ignition Temperature</i> (°C)	> 630
Teori Keperluan Udara <i>Theoretical Air Requirement</i> (m ³ /m ³)	9.87

Sarawak

Jadual 2.5: Komposisi Gas Asli di Sarawak
Table 2.5: Natural Gas Composition in Sarawak

Gas	Mol (%)
CH ₄	85.09
C ₂ H ₆	5.66
C ₃ H ₈	3.97
iC ₄ H ₁₀	0.86
nC ₄ H ₁₀	1.10
iC ₅ H ₁₂	0.37
nC ₆ H ₁₄	0.27
C ₈ H ₁₆ +	0.48
CO ₂	1.78
N ₂	0.42

Sifat-sifat Tipikal Gas Petroleum Cecair

Typical Liquefied Petroleum Gas Characteristics

Graviti Tentu <i>Specific Gravity</i>	1.65
Nilai Kalori Kasar <i>Gross Calorific Value</i> (kcal/Sm ³)	28059
Halaju Pembakaran <i>Burning velocity</i> (m/s)	0.46
Had Atas Kemudahbakaran <i>Upper Flammability Limit</i> (%)	8.5
Had Bawah Kemudahbakaran <i>Lower Flammability Limit</i> (%)	1.9
Suhu Pengautocucuhan <i>Autoignition Temperature</i> (°C)	510
Teori Keperluan Udara <i>Theoretical Air Requirement</i> (m ³ /m ³)	28.81

Sabah dan Labuan

Sifat-sifat Tipikal Gas Asli

Typical Natural Gas Characteristics

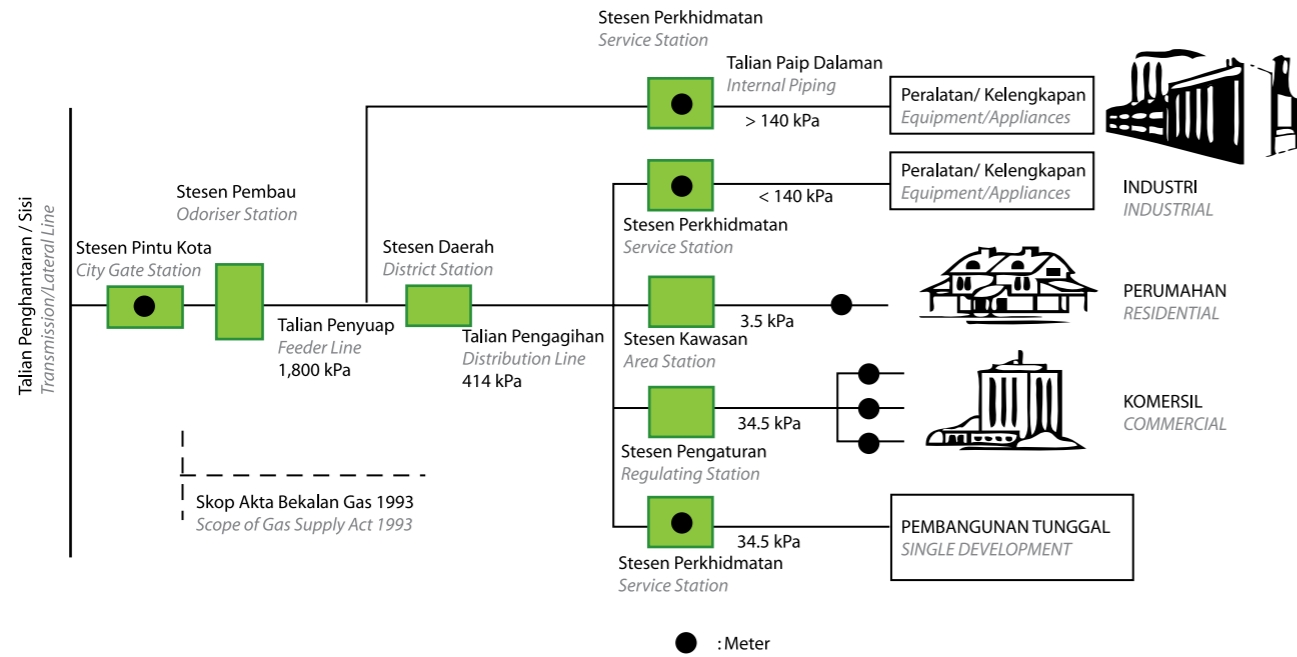
Graviti Tentu <i>Specific Gravity</i>	0.61
Nilai Kalori Kasar <i>Gross Calorific Value</i> (kcal/Sm ³)	9694.11
Halaju Pembakaran <i>Burning velocity</i> (m/s)	> 0.39
Had Atas Kemudahbakaran <i>Upper Flammability Limit</i> (%)	14.0
Had Bawah Kemudahbakaran <i>Lower Flammability Limit</i> (%)	4.0
Suhu Pengautocucuhan <i>Autoignition Temperature</i> (°C)	> 630
Teori Keperluan Udara <i>Theoretical Air Requirement</i> (m ³ /m ³)	9.87



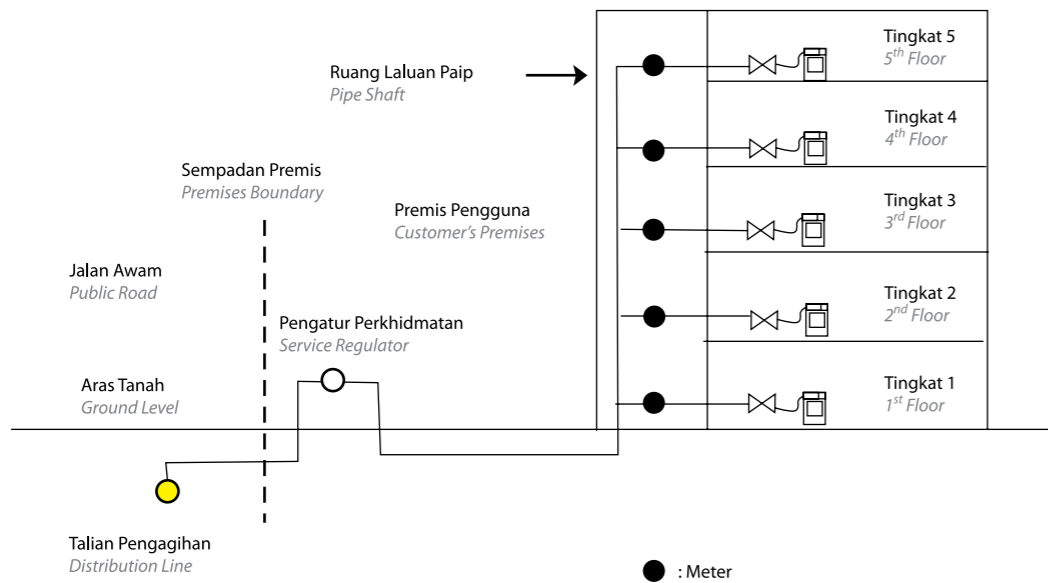
PEMBEKALAN GAS | GAS SUPPLY

PENGAGIHAN GAS | GAS DISTRIBUTION

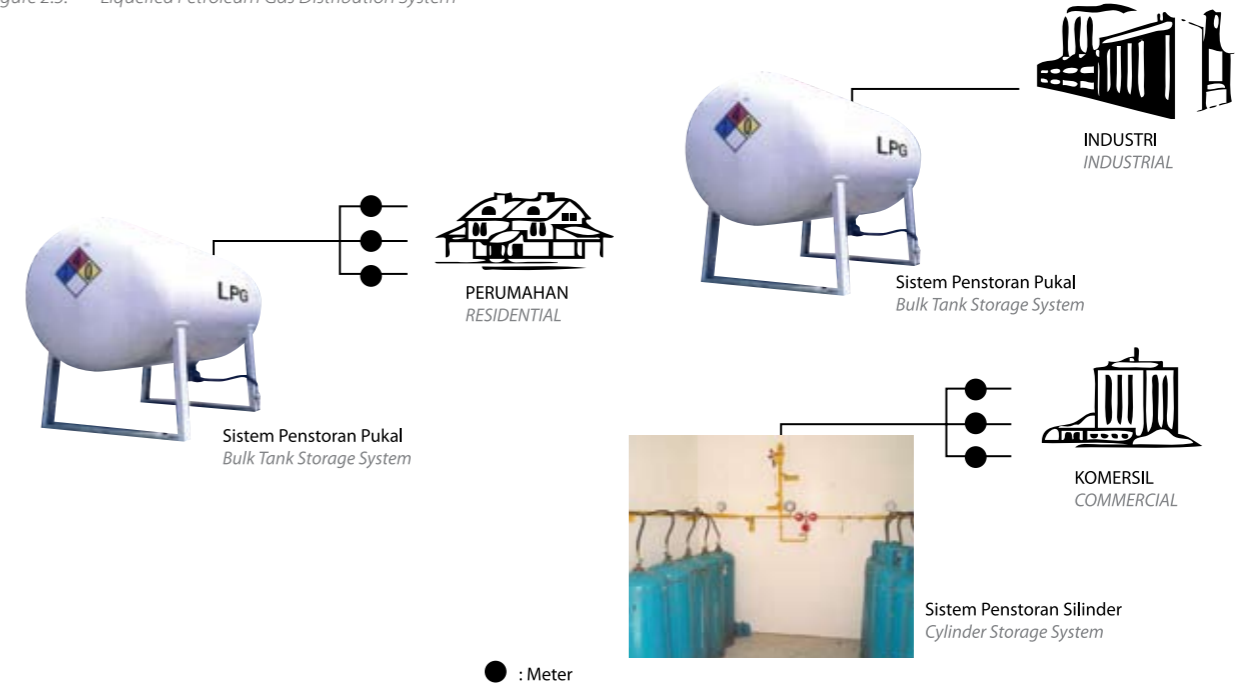
Rajah 2.1: Sistem Pengagihan Gas Asli
Figure 2.1: Natural Gas Distribution System



Rajah 2.2: Sistem Perpaipan Gas Asli Ke Pengguna Perumahan
Figure 2.2: Natural Gas Piping System To Residential Users



Rajah 2.3: Sistem Pengagihan Gas Petroleum Cecair
Figure 2.3: Liquefied Petroleum Gas Distribution System



Sehingga tahun 2006, sepanjang 1,403 km rangkaian talian paip agihan gas asli di Semenanjung Malaysia telah beroperasi. Rangkaian talian paip agihan gas asli ini telah meliputi kawasan utara, kawasan pantai timur, kawasan tengah dan kawasan selatan semenanjung seperti yang ditunjukkan dalam Rajah 2.4.

Up to year 2006, over 1,403 km natural gas pipelines distribution network in Peninsular Malaysia has been in operation. The natural gas pipelines network covered north, east, central and southern region of peninsula as shown in Figure 2.4

Rajah 2.4: Sistem Pengagihan Gas Asli di Semenanjung Malaysia
Figure 2.4: Natural Gas Distribution System in Peninsular Malaysia



PEMBEKALAN GAS | GAS SUPPLY

Rangkaian talian paip agihan gas asli turut dipasang di Sabah, Labuan dan Sarawak seperti yang ditunjukkan dalam Rajah 2.5 dan 2.6. Sepanjang 3,582m talian paip agihan gas asli terdapat di Sabah di mana ia tertumpu di Kawasan Perindustrian Kota Kinabalu. Labuan pula memiliki 2,400m talian paip agihan gas asli, manakala di Sarawak sepanjang 451km rangkaian talian paip gas asli tertumpu di Miri.

Natural gas pipelines network is also installed in Sabah, Labuan and Sarawak as shown in Figure 2.5 and 2.6. Over 3,582m gas pipelines network installed in Sabah where it is convergent in Kota Kinabalu Industrial Park. Labuan has 2,400m of natural gas pipelines network, while Sarawak has over 451km gas pipelines network convergent in Miri.

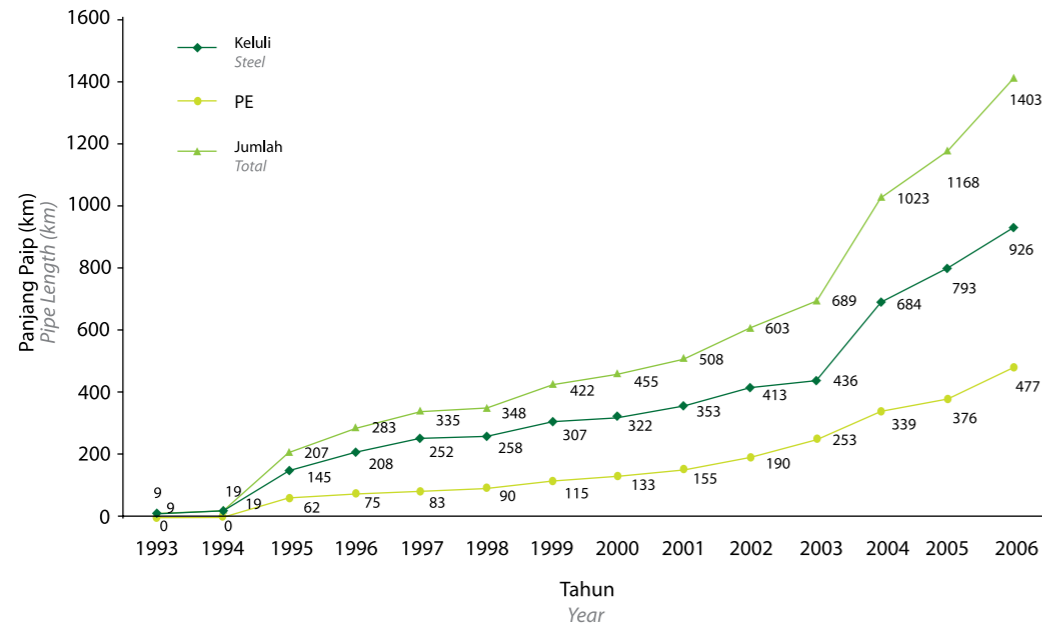
Rajah 2.5: Sistem Pengagihan Gas Asli di Sabah dan Labuan
Figure 2.5: Natural Gas Distribution System in Sabah and Labuan



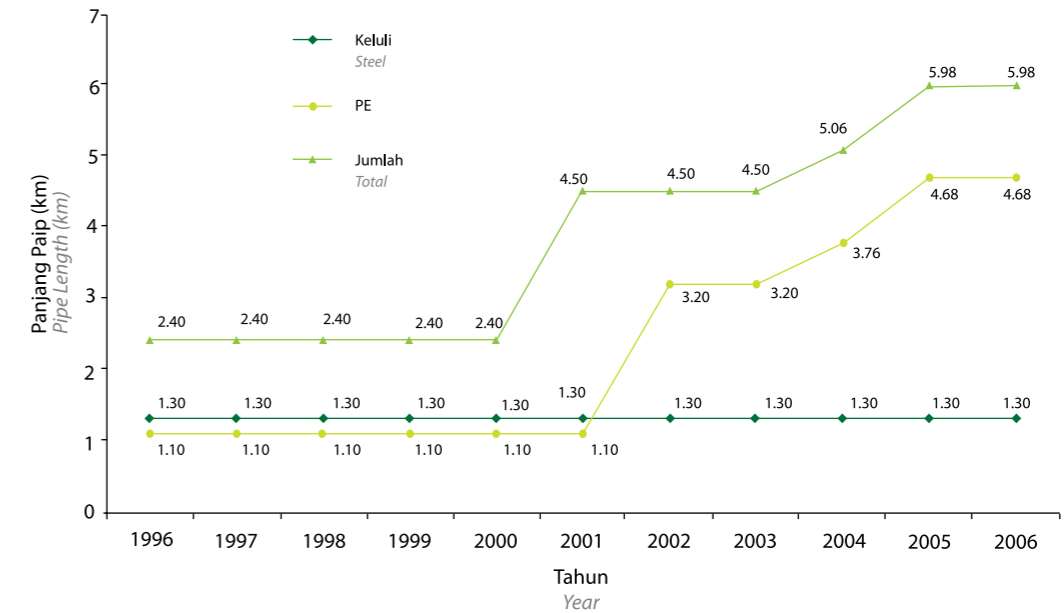
Rajah 2.6: Sistem Pengagihan Gas Asli di Sarawak
Figure 2.6: Natural Gas Distribution System in Sarawak



Rajah 2.7: Perkembangan Talian Paip Gas Asli di Semenanjung Malaysia
Figure 2.7: Development of Natural Gas Pipeline in Peninsular Malaysia



Rajah 2.8: Perkembangan Talian Paip Gas Asli di Sabah dan Labuan
Figure 2.8: Development of Natural Gas Pipeline in Sabah and Labuan



LESEN PENGGUNAAN GAS GAS UTILITY LICENSE

Sehingga tahun 2006, empat Lesen Penggunaan Gas telah dikeluarkan oleh ST dan terdapat tiga pemegang Lesen Penggunaan Gas yang beroperasi iaitu Gas Malaysia Sdn. Bhd. (GMSB) – gas asli, Gas Malaysia Sdn. Bhd. (GMSB) – LPG dan Sabah Energy Corp. Sdn. Bhd. (SEC). GMSB membekalkan gas asli dan LPG di Semenanjung Malaysia manakala SEC membekalkan gas asli di Sabah dan Labuan.

Up to 2006, four Gas Utility Licenses have been issued by EC and three Gas Utility Licensees are in operation namely Gas Malaysia Sdn Bhd (GMSB) - natural gas, Gas Malaysia Sdn. Bhd. (GMSB) – LPG and Sabah Energy Corp. Sdn. Bhd. (SEC). GMSB supplies natural gas and LPG in Peninsular Malaysia while SEC supplies natural gas in Sabah and Labuan.

Jadual 2.6: Senarai Pemegang Lesen Penggunaan Gas dan Tempoh Lesen
Table 2.6: List of Gas Utilities Licensee and Licence Duration

Pemegang Lesen Penggunaan Gas Gas Utility Licensee	Tempoh Lesen Duration of Licence
GMSB - Gas Asli Natural Gas	30 Tahun – Berkuatkuasa pada 1 September 1998 30 Years – In force on 1 st September 1998
GMSB - LPG	20 Tahun – Berkuatkuasa pada 15 Disember 2000 20 Years – In force on 15 th December 2000
SEC - Gas Asli Natural Gas	30 Tahun – Berkuatkuasa pada 1 September 1998 30 Years – In force on 1 st September 1998



PEMBEKALAN GAS | GAS SUPPLY

ALAMAT PEMEGANG LESEN PENGGUNAAN GAS | GAS UTILITY LICENSEE ADDRESS

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40732 Shah Alam
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Timur

Eastern

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26080 Kuantan
Pahang Darul Makmur

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Faks: 09 583 6339

Utara

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Kangar

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Taman Sena Indah
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01000 Kangar
Perlis Indera Kayangan

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Faks: 04 976 0625

Senawang

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Faks: 03 583 6339

II. Sabah Energy Corporation Sdn Bhd

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Sabah

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Tel: 087 418 060 / 417 162
Faks: 087 413 877



PENGGUNAAN GAS
GAS UTILISATION

PENGGUNAAN GAS | GAS UTILISATION

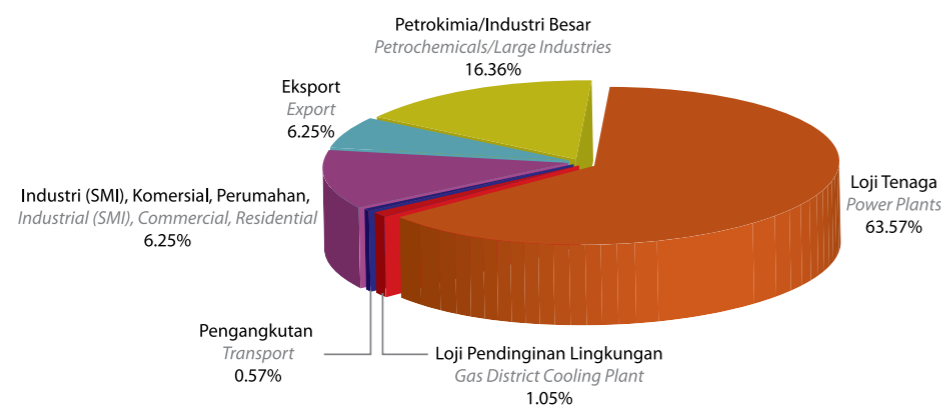
Gas asli dari pesisir pantai timur Semenanjung Malaysia diproses di enam loji pemprosesan gas yang terletak di Kerteh dan Paka, Terengganu. Loji-loji tersebut berkapasiti pengeluaran gas sejumlah 2,060mmscfd disamping mengeluarkan produk sampingan seperti etena, propana, butana dan condensates. Pada tahun 2005, penyaluran tambahan berjumlah 316mmscfd gas telah dibawa melalui talian paip daripada Malaysia Thailand Joint Development Area (MT-JDA) ke sistem talian paip penghantaran PGU dan talian sisi di Changlun, Kedah. Rajah 3.1 menunjukkan pecahan penggunaan gas asli di Semenanjung Malaysia pada tahun 2006.

Jumlah isipadu gas asli dan LPG yang dibekalkan oleh pemegang-pemegang lesen penggunaan gas meningkat sebanyak 31.92% kepada 97,046,876mmBtu pada tahun 2006 berbanding dengan 73,565,481mmBtu pada tahun 2005 (Rajah 3.2). Sektor industri merupakan pengguna utama gas asli dan LPG yang menggunakan 96,091,368mmBtu atau bersamaan dengan 99.02% jumlah isipadu gas yang dibekalkan (Rajah 3.3). Rajah 3.4 hingga 3.12 menunjukkan bilangan pengguna gas asli dan LPG, dan isipadu penggunaannya oleh sektor industri, komersial dan perumahan.

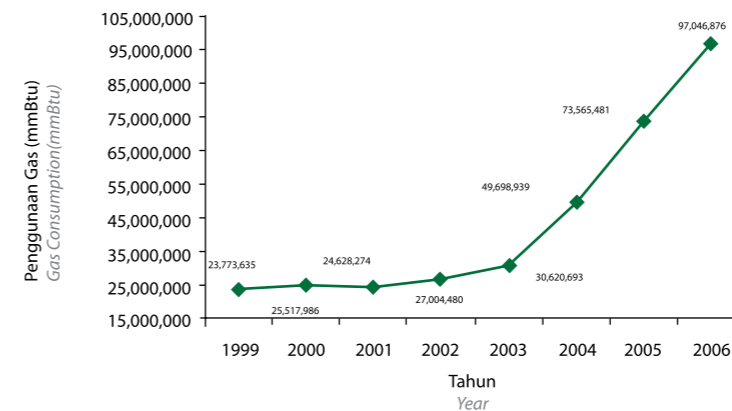
Natural gas from offshore the east coast of Peninsular Malaysia is processed at six processing plants located at Kerteh and Paka, Terengganu. The plants have a gas production capacity of 2,060mmscfd, beside producing by-products such as ethane, propane, butane and condensates. In year 2005, an additional of 316mmscfd gas is being transported through pipeline from Malaysia Thailand Joint Development Area (MT-JDA) to the PGU transmission and lateral pipeline system at Changlun, Kedah. Figure 3.1 shows breakdown of natural gas utilisation in Peninsular Malaysia in year 2006.

Total volume of natural gas and LPG supplied by gas utility licensees increased by 31.92% to 97,046,876mmBtu in year 2006 compared to 73,565,481mmBtu in year 2005 (Figure 3.2). Industrial sector was the main user of natural gas and LPG with gas consumption of 96,091,368mmBtu or 99.02% of the total gas volume supplied (Figure 3.3). Figure 3.4 to 3.12 illustrates number of natural gas and LPG users, and their consumption by industrial, commercial and residential sectors.

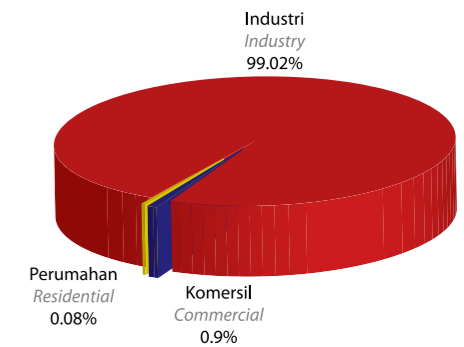
Rajah 3.1: Penggunaan Gas Asli di Semenanjung Malaysia Pada Tahun 2006
Figure 3.1: Utilisation Of Natural Gas In Peninsular Malaysia In Year 2006



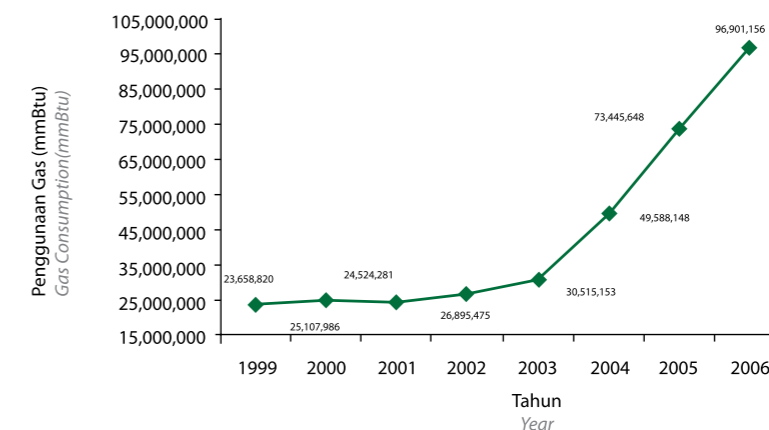
Rajah 3.2: Jumlah Penggunaan Gas Asli Dan LPG Yang Dibekalkan Oleh Pemegang Lesen
Figure 3.2: Natural Gas And LPG Total Consumption Supplied By Licensee



Rajah 3.3: Peratusan Penggunaan Gas Asli Dan LPG Mengikut Sektor Bagi Tahun 2006
Figure 3.3: Percentage Of Natural Gas And LPG Consumption By Sectors In Year 2006

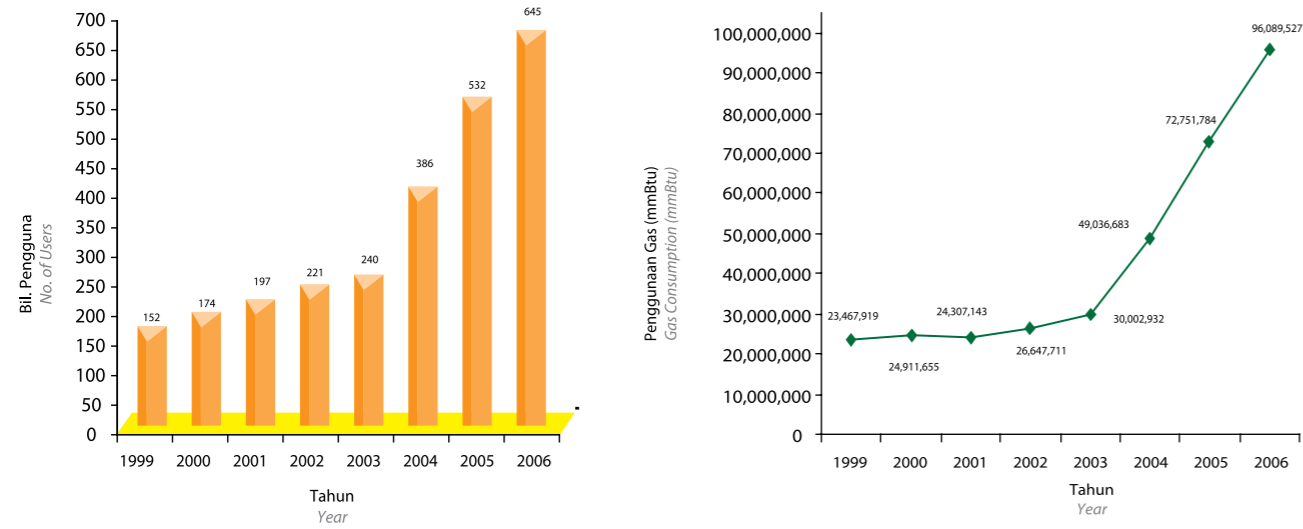


Rajah 3.4: Penggunaan Gas Asli Oleh Semua Sektor Yang Dibekalkan Oleh Pemegang Lesen
Figure 3.4: Natural Gas Consumption By All Sectors Supplied By Licensee

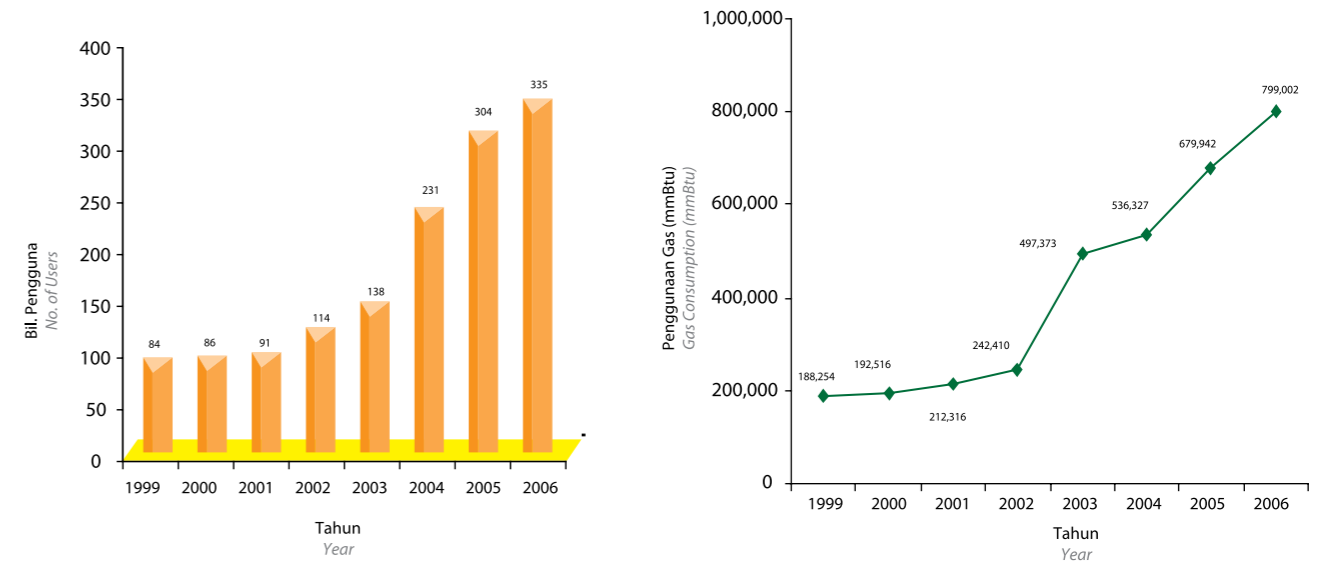


PENGGUNAAN GAS | GAS UTILISATION

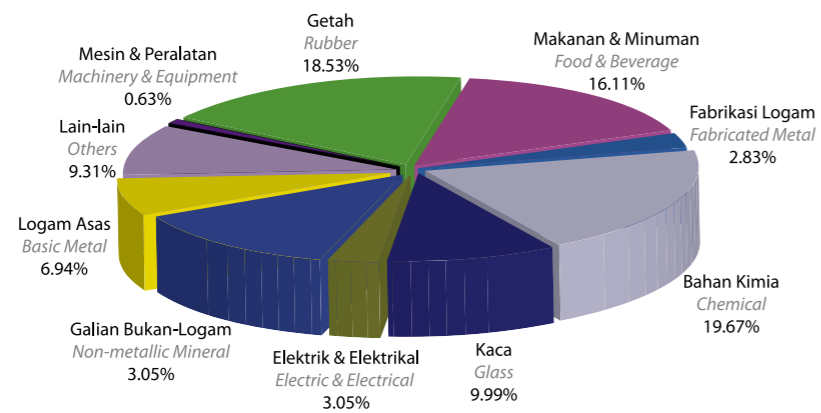
Rajah 3.5: Bilangan Pengguna Gas Asli dan Penggunaannya Oleh Sektor Industri Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.5: No. of Natural Gas Users And Their Consumption By Industrial Sector Supplied By Licensee



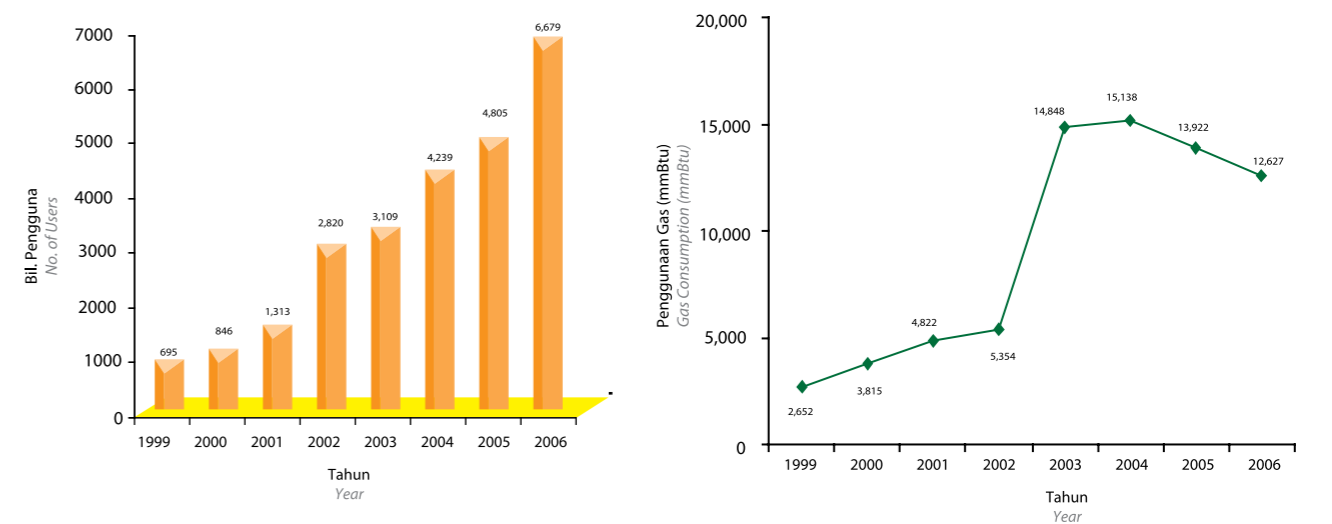
Rajah 3.7: Bilangan Pengguna Gas Asli Dan Penggunaannya Oleh Sektor Komersil Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.7: No. Of Natural Gas Users And Their Consumption By Commercial Sector Supplied By Licensee



Rajah 3.6: Peratus Penggunaan Gas Asli Sektor Industri Mengikut Sub-Sektor Yang Dibekalkan Oleh GMSB
 Figure 3.6: Industrial Sector Natural Gas Consumption Percentage By Sub-Sector Supplied By GMSB

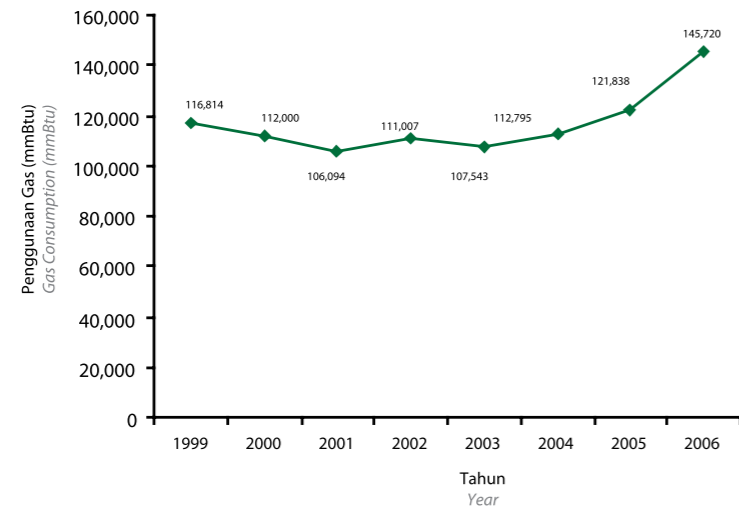


Rajah 3.8: Bilangan Pengguna Gas Asli Dan Penggunaannya Oleh Sektor Perumahan Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.8: No. Of Natural Gas Users And Their Consumption By Residential Sector Supplied By Licensee

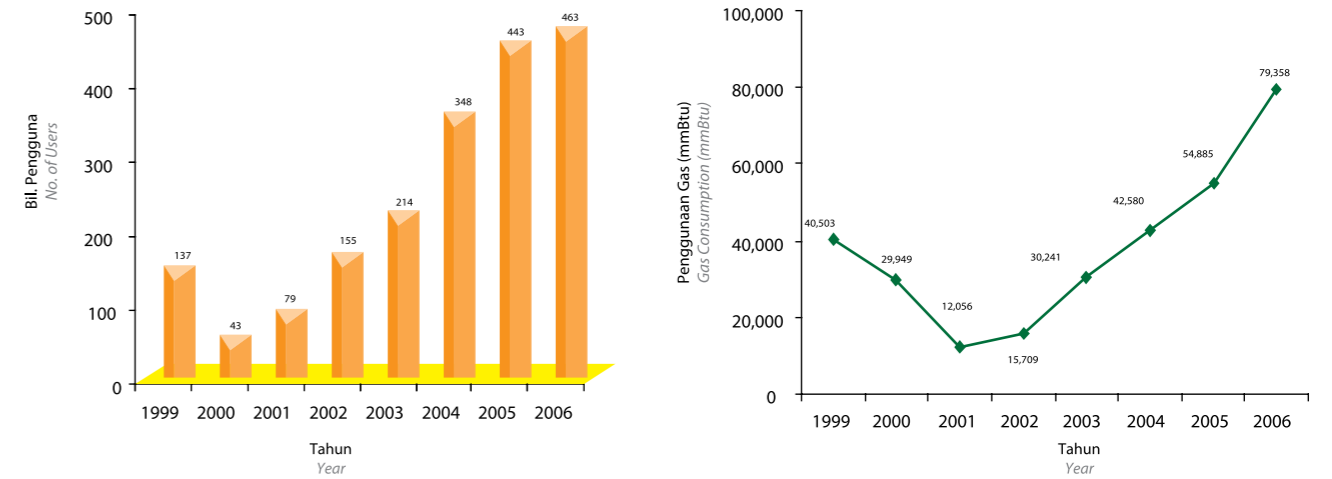


PENGGUNAAN GAS | GAS UTILISATION

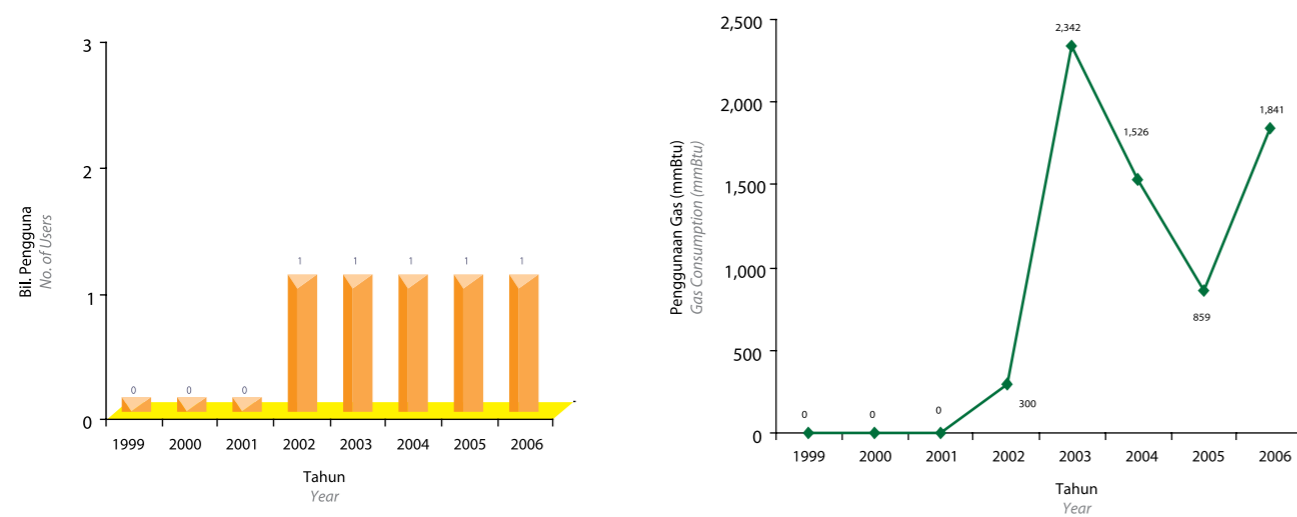
Rajah 3.9: Penggunaan LPG Oleh Semua Sektor Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.9: LPG Consumption By All Sectors Supplied By Licensee



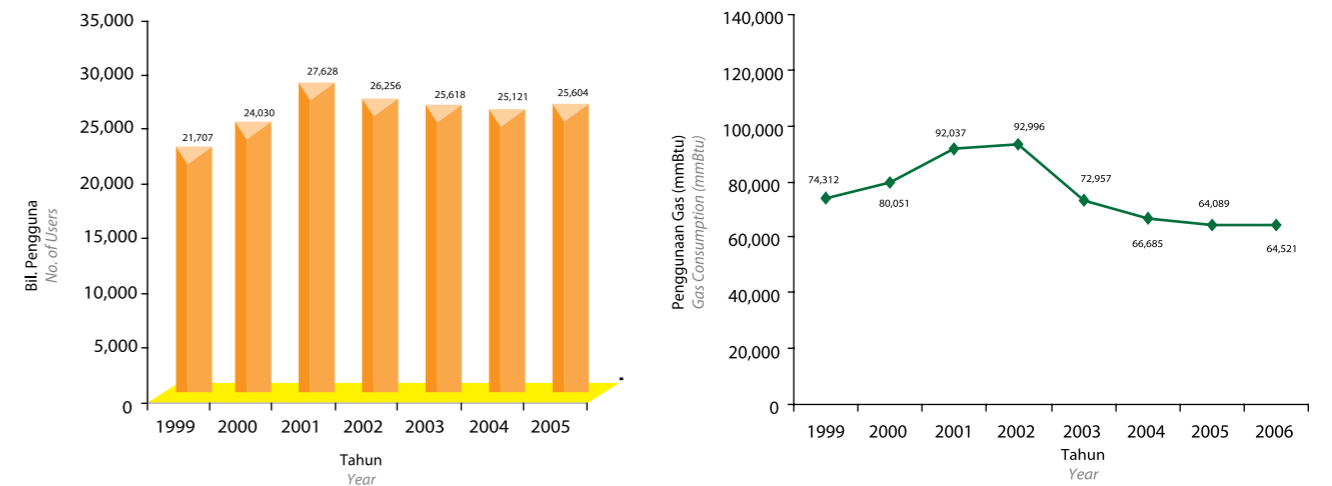
Rajah 3.11: Bilangan Pengguna LPG Dan Penggunaannya Oleh Sektor Komersil Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.11: No. Of LPG Users And Their Consumption By Commercial Sector Supplied By Licensee



Rajah 3.10: Bilangan Pengguna LPG Dan Penggunaannya Oleh Sektor Industri Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.10: No. Of LPG Users And Their Consumption By Industrial Sector Supplied By Licensee



Rajah 3.12: Bilangan Pengguna LPG Dan Penggunaannya Oleh Sektor Perumahan Yang Dibekalkan Oleh Pemegang Lesen
 Figure 3.12: No. Of LPG Users And Their Consumption by Residential Sector Supplied By Licensee



**TARIF GAS ASLI DAN HARGA GAS
PETROLEUM CECAIR**
*NATURAL GAS TARIFF AND LIQUEFIED
PETROLEUM GAS PRICE*

TARIF GAS ASLI DAN HARGA GAS PETROLEUM CECAIR

NATURAL GAS TARIFF AND LIQUEFIED PETROLEUM GAS PRICE

TARIF GAS ASLI | NATURAL GAS TARIFF

Kerajaan telah meluluskan tarif gas asli bagi pengguna-pengguna GMSB seperti Jadual 4.1 yang berkuatkuasa dari 1 Oktober 2002 sehingga 31 Disember 2005. Namun begitu, ia telah dipanjangkan sehingga tarif gas asli yang baru diluluskan oleh kerajaan.

The Government has approved natural gas tariff for GMSB users effective from 1st October 2002 to 31st December 2005 as shown in Table 4.1. However, the natural gas tariff was extended until a new natural gas tariff approved by government.

Jadual 4.1: Tarif Gas Asli Bagi Pengguna-Pengguna GMSB Berkuatkuasa Sehingga 31 Disember 2005
Table 4.1: Natural Gas Tariff for GMSB Users Effective until 31 December 2005

KATEGORI CATEGORY	JULAT PENGGUNAAN GAS (mmBtu/tahun) GAS CONSUMPTION RANGE (mmBtu/year)	KADAR RM/meter padu (RM/mmBtu) RATE RM/cubic meter (RM/mmBtu)	KUANTITI MINIMUM BULANAN (meter padu) MONTHLY MINIMUM QUANTITY (cubic meter)
Tarif A (pengguna domestik) <i>Tariff A</i> (domestic user)	-	0.75* (19.72)	-
Tarif B (pengguna perdagangan) <i>Tariff B</i> (commercial user)	Sehingga 600	0.58 (15.25)	210
Tarif C (pengguna perdagangan dan industri) <i>Tariff C</i> (commercial and industrial users)	601 – 5,000	0.51 (13.41)	980
Tarif D (pengguna perdagangan dan industri) <i>Tariff D</i> (commercial and industrial users)	5,001 – 50,000	0.50 (13.15)	1,600
Tarif E & F (pengguna industri) <i>Tariff E & F</i> (industrial user)	50,001 – 750,000	0.49 (12.87)	25,000

* Bayaran minimum bulanan bagi Tarif A ialah RM 5.00
* Minimum monthly charges for Tariff A is RM 5.00

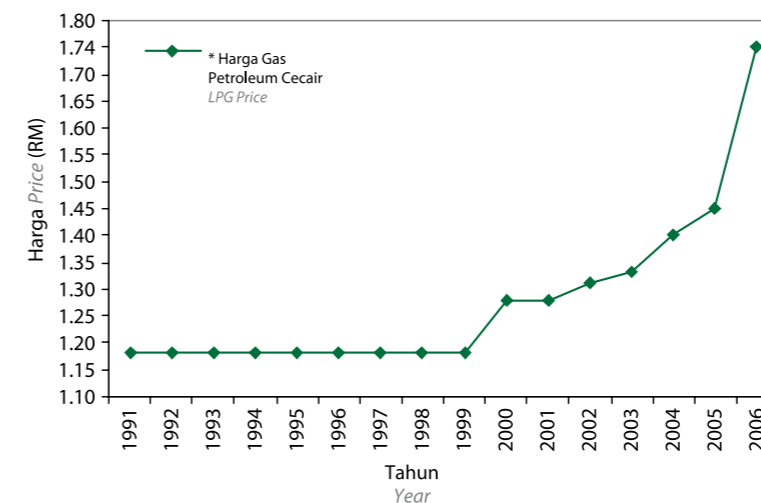
HARGA GAS PETROLEUM CECAIR

LIQUEFIED PETROLEUM GAS PRICE

Harga LPG bagi sektor industri dan komersil bergantung kepada harga pasaran semasa LPG. Manakala harga LPG bagi sektor perumahan yang dibekalkan oleh pemegang lesen penggunaan gas iaitu GMSB adalah berdasarkan harga subsidi iaitu harga siling yang dikawal secara pentadbiran oleh kerajaan (Rajah 4.2).

LPG price for industrial and commercial sectors depends on LPG's current market price. On the other hand, LPG price for residential sector supplied by gas utility licensee ie GMSB is based on subsidised price, which was controlled by government (Figure 4.2).

Rajah 4.2: Harga Siling LPG Bagi Pengguna Domestik Yang Ditetapkan Oleh Kerajaan
Figure 4.2: LPG Ceiling Price For Domestic Users Set By Government



* sumber : Kementerian Perdagangan Dalam Negeri dan Hal Ehwal Pengguna
source : Ministry of Domestic Trade and Consumer Affairs



PIAGAM PELANGGAN
CLIENT CHARTER

PIAGAM PELANGGAN | CLIENT CHARTER

STANDARD KUALITI PERKHIDMATAN PELANGGAN | CUSTOMER SERVICES QUALITY STANDARD

Jadual 5.1: Standard Kualiti Perkhidmatan Pelanggan GMSB
Table 5.1: GMSB Customer Services Quality Standard

BIL. NO.	PERKHIDMATAN SERVICES	PENYATA PRESTASI STATEMENT OF PERFORMANCE
1	Waktu Perniagaan <i>Business Hours</i>	8.30 pagi – 5.30 petang Isnin - Jumaat <i>8.30 a.m. – 5.30 p.m. Monday - Friday</i>
2	Menangani Aduan <i>Complaints Handling</i>	Aduan bertulis - 5 hari bekerja dari tarikh penerimaan. Aduan & pertanyaan menerusi telefon - 24 jam dari masa panggilan dibuat. <i>Written complaint - 5 working days receipt.</i> <i>Complaint & telephone enquiries - 24 hours upon receiving the call.</i>
3	Bayaran Bil <i>Billings</i>	Pertanyaan/Aduan mengenai ketepatan bil - 5 hari bekerja. <i>Enquiries/Complaints on the accuracy of the gas bills - 5 working days.</i>
4	Pemulangan Refunds	Pelanggan Komersil/Industri - Deposit dipulangkan dalam tempoh 1 bulan selepas pemotongan/pemberhentian bekalan. Pelanggan Perumahan - Deposit dipulangkan dalam tempoh 2 bulan selepas pemotongan/pemberhentian bekalan. Jaminan Bank - Dilepaskan dalam tempoh 1 bulan selepas pemotongan/pemberhentian bekalan. <i>Commercial/Industrial Customers - Deposits will be refunded within 1 month of termination/ disconnection of supply.</i> <i>Residential Customers - Deposits will be refunded within 2 months of termination/ disconnection of supply.</i> <i>Bank guarantees - discharged within 1 month or termination or disconnection of supply.</i>
5	Tindakan Kecemasan <i>Emergency Responds</i>	Menghantar Pasukan Tindakan Kecemasan dalam tempoh 45 minit selepas menerima sebarang panggilan yang berkaitan dengan hal kecemasan. <i>Dispatch the Emergency Response Team within 45 minutes of receiving any calls of an emergency nature.</i>
6	Pengawasan Pihak Ketiga <i>Third Party Supervision</i>	Notis bertulis daripada kontraktor sekurang-kurangnya 3 hari sebelum bermulanya kerja. Notis yang tidak cukup boleh mengakibatkan arahan berhenti kerja. <i>Written notice from the contractor at least 3 days before work commences.</i> <i>Inadequate notice may result in a stop work order.</i>
7	Mengenalpasti Lokasi Paip <i>Identification of Pipeline Location</i>	Permohonan bertulis - 4 hari selepas permohonan. <i>Written request - 4 working days after application.</i>
8	Pusat Panggilan 24 Jam <i>24-Hour Call Centre</i>	1-800-88-5656 & 1-800-88-9119

BIL. NO.	PERKHIDMATAN SERVICES	PENYATA PRESTASI STATEMENT OF PERFORMANCE
9	Gangguan Terancang <i>Planned Interruptions</i>	Pelanggan akan diberitahu sekurang-kurang 48 jam sebelum dilakukan sebarang gangguan yang terancang. <i>Customers will be informed at least 48 hours before a planned interruption is carried out.</i>
10	Penukaran Meter <i>Replacement of Meters</i>	Ditukar - 3 hari selepas dijalankan siasatan. <i>Replacement - 3 days prior to investigation.</i>

Jadual 5.2: Nombor Perhubungan GMSB
Table 5.2: GMSB Contact Number

Lokasi Location	Alamat Address	Telefon Telephone	Faksimili Facsimile
Ibu Pejabat <i>Head Office</i>	No. 5, Jalan Serendah 26/17 Seksyen 26, Peti Surat 7901 40732 Shah Alam Selangor Darul Ehsan	03 5192 3000	03 5192 6766
Pusat Kawalan Operasi <i>Operation Control Room</i>	No. 5, Jalan Serendah 26/17 Seksyen 26, Peti Surat 7901 40732 Shah Alam Selangor Darul Ehsan	1 800 88 9119	03 5192 6751
Pusat Perkhidmatan Pelanggan <i>Customer Service Unit</i>	No. 27 & 27-1, Jalan 3/76D Desa Pandan 55100, Kuala Lumpur	1 800 88 5656	03 9282 9818
Pejabat Wakil Daerah Selatan <i>Southern Regional Office</i>	PLO343, Jalan Emas Tiga Kawasan Perindustrian Pasir Gudang 81700 Pasir Gudang Johor Darul Takzim	07 252 2314	07 252 2561
Pejabat Cawangan Kerteh <i>Kerteh Branch Office</i>	No. 77, Bandar Baru Kerteh 24300 Kerteh, Kemaman Terengganu Darul Iman	09 826 3661 / 7	09 826 3672
Pejabat Wakil Daerah Kuala Lumpur <i>Kuala Lumpur Regional Office</i>	No. 27 & 27-1, Jalan 3/76D Desa Pandan 55100 Kuala Lumpur	03 4142 8401	03 4143 9527



PIAGAM PELANGGAN | CLIENT CHARTER

Jadual 5.3: Standard Kualiti Perkhidmatan Pelanggan SEC
Table 5.3: SEC Customer Services Quality Standard

BIL. NO.	PERKHIDMATAN SERVICES	PENYATA PRESTASI STATEMENT OF PERFORMANCE
1	Waktu Perniagaan <i>Business Hours</i>	7.45 pagi – 5.00 petang Isnin – Jumaat <i>7.45 a.m. – 5.00 p.m. Monday to Friday</i>
2	Menangani Aduan/Pertanyaan <i>Complaints/Enquiry Handling</i>	Aduan/pertanyaan bertulis - 5 hari bekerja dari tarikh penerimaan. Pertanyaan melalui telefon - 1 hari bekerja. <i>Written complaint/enquiry - 5 working days upon receipt.</i> <i>Telephone enquiry - 1 working day.</i>
3	Bayaran Bil <i>Billings</i>	Apa-apa pertanyaan berkenaan bil gas - 5 hari bekerja. <i>For any enquiry in regard to the gas bill - 5 working days.</i>
4	Pemulangan <i>Security Deposits and Refund</i>	Pelanggan bukan perumahan - Deposit dipulangkan dalam tempoh 1 bulan jika bekalan tidak lagi diperlukan. Pelanggan perumahan - Deposit dipulangkan dalam tempoh 2 bulan jika bekalan gas tidak lagi diperlukan. <i>Non-residential customers – Deposits will be returned within 1 month if supply is no longer required.</i> <i>Residential customers - Deposits will be returned within 2 months if supply is no longer required.</i>
5	Tindakan Kecemasan <i>Emergency Response</i>	Satu pasukan akan dihantar ke tapak binaan dalam tempoh 45 minit jika kecemasan berlaku di sepanjang atau di sekitar talian atau pemasangan paip gas. <i>A team will be dispatched to the site of the emergency within 45 minutes in the event of an emergency along or in the vicinity of gas pipeline or installation.</i>
6	Talian Kecemasan 24-Jam <i>24-Hour Emergency Lines</i>	019 882 1480, 019 882 0850, 013 864 6079, 019 860 0860, 013 874 4973 Waktu Perniagaan <i>Office Hours</i> Nombor Telefon <i>Telephone Number</i> Kota Kinabalu 088-440600 Labuan 087-417162
7	Pengawasan Pihak Ketiga <i>Third Party Supervision</i>	Notis bertulis daripada kontraktor sekurang-kurangnya 3 hari sebelum bermulanya kerja. Notis yang tidak cukup boleh mengakibatkan arahan berhenti kerja. <i>Written notice from the contractor at least 3 days before work commences. Inadequate notice may result in a stop work order</i>
8	Lokasi Talian Paip Gas <i>Location of Gas Pipeline</i>	Maklumat akan disampaikan kepada pihak ketiga dalam tempoh 4 hari bekerja. <i>Information would then be conveyed to the third party within 4 working days.</i>

BIL. NO.	PERKHIDMATAN SERVICES	PENYATA PRESTASI STATEMENT OF PERFORMANCE
9	Gangguan Terancang <i>Planned Interruptions</i>	Pelanggan akan diberitahu sekurang-kurang 48 jam sebelum dilakukan sebarang gangguan yang terancang. <i>Customer will be informed 48 hours before a planned interruption is carried out.</i>
10	Penukaran Meter <i>Replacement of Meters</i>	Meter gas akan diganti dalam tempoh 3 bulan – Pengguna Domestik. Meter gas akan diganti dalam tempoh 6 bulan – Pengguna Industri dan Komersil. <i>A gas meter will be replaced within 3 months – Domestic User</i> <i>A gas meter will be replaced within 6 months – Industrial and Commercial Users</i>

Jadual 5.4: Nombor Perhubungan SEC
Table 5.4: SEC Contact Number

Lokasi Location	Alamat Address	Telefon Telephone	Faksimili Facsimile
Ibu Pejabat <i>Head Office</i>	1st, 2nd and 3rd Floors, 62A, Wisma Boon Siew 9.5 km, Tuaran Road, Locked Bag No. 2 88990 Kota Kinabalu, Sabah	088 440 600 / 656	088 440 657
Jualan dan Bekalan Gas Asli Pembangunan Perniagaan/ Unit Perancangan Korporat <i>Sale and Supply of Natural Gas Business Development/Corporate Planning Division</i>	1st, 2nd and 3rd Floors, 62A, Wisma Boon Siew 9.5 km, Tuaran Road, Locked Bag No. 2 88990 Kota Kinabalu, Sabah	088 440 600 / 657 / 658 / 634	088 440 657
Operasi Unit Tenaga Gas Asli <i>Natural Gas Operation Energy Division</i>	1st, 2nd and 3rd Floors, 62A, Wisma Boon Siew 9.5 km, Tuaran Road, Locked Bag No. 2 88990 Kota Kinabalu, Sabah	088 440 600 / 657 / 659	088 440 657



Jadual 5.4: Nombor Perhubungan SEC
Table 5.4: SEC Contact Number

Lokasi <i>Location</i>	Alamat <i>Address</i>	Telefon <i>Telephone</i>	Faksimili <i>Facsimile</i>
Kecemasan <i>Emergency</i> Unit Tenaga <i>Energy Division</i> Talian Kecemasan 24-Jam <i>24-Hours Emergency Lines</i>		019 882 1480 019 864 6079 019 860 0860 019 882 0850 013 874 4973	088 440 657
Ketika Waktu Pejabat <i>During Office Hours</i> Kota Kinabalu Labuan		088 440 600 / 656 / 657 / 658 / 659	
Telefon Sebelum Menggali <i>Call Before You Dig</i>		088 417 162	

**PRESTASI PERKHIDMATAN PERBEKALAN DAN
RELIABILITI**
SUPPLY SERVICES AND RELIABILITY PERFORMANCE



PRESTASI PERKHIDMATAN PERBEKALAN DAN RELIABILITI SUPPLY SERVICES AND RELIABILITY PERFORMANCE

Aspek-aspek utama yang dipantau dan dianalisis bagi menilai keadaan sistem pembekalan gas oleh pemegang-pemegang lesen penggunaan gas adalah seperti berikut :

The main aspects being monitored and analysed to assess the condition of gas supply system by Gas Utility Licensee are as follows:

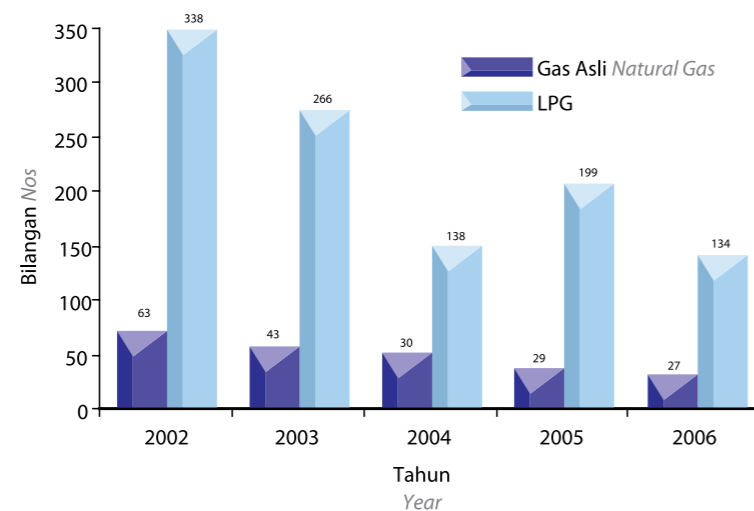
- ◆ Bilangan gangguan bekalan
 - ◆ Tempoh dan punca gangguan bekalan
 - ◆ Indeks Tempoh Purata Gangguan Bekalan (SAIDI)
 - ◆ Indeks Purata Kekerapan Gangguan Bekalan (SAIFI)
 - ◆ Indeks Tempoh Purata Gangguan Pelanggan (CAIDI)
 - ◆ Aduan pengguna
- ◆ Number of supply interruption
 - ◆ Duration and causes of supply interruption
 - ◆ Supply Average Interruption Duration Index (SAIDI)
 - ◆ Supply Average Interruption Frequency Index (SAIFI)
 - ◆ Customer Average Interruption Duration Index (CAIDI)
 - ◆ Customer complaint

Bilangan Gangguan Bekalan Number Of Supply Interruption

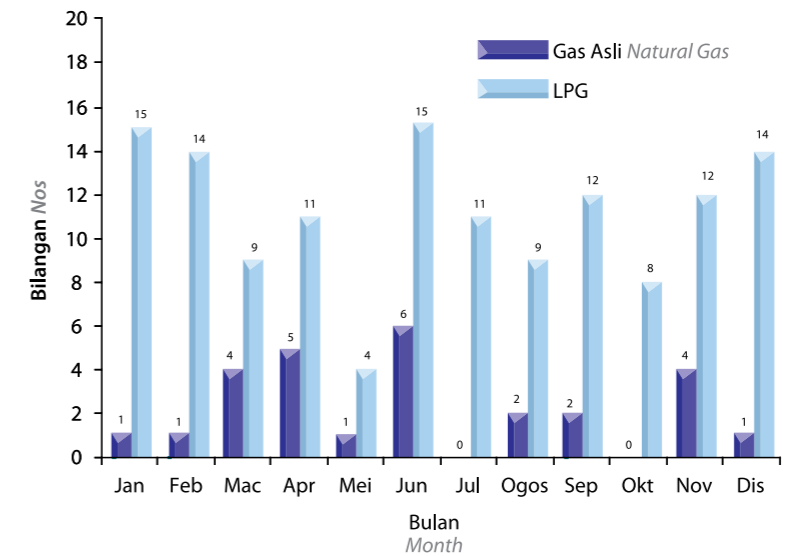
Pada tahun 2006, jumlah gangguan bekalan gas yang dilaporkan oleh pemegang lesen penggunaan gas adalah 161 gangguan iaitu penurunan sebanyak 29.4% berbanding 228 gangguan pada tahun 2005. Rajah 6.1 dan 6.2 menunjukkan jumlah gangguan bekalan gas yang dilaporkan pada sistem gas asli dan LPG berpaip dari tahun 2002 hingga 2005.

In year 2006, the total interruption of gas supply reported by Gas Utility Licensee is 161 interruptions reduced by 29.4% compared to 228 interruptions in year 2005. Figure 6.1 and 6.2 shows the total interruption of gas supply for natural gas and LPG systems reported from year 2002 to 2006.

Rajah 6.1 : Gangguan Bekalan Gas Yang Dilaporkan Dari Tahun 2002 – 2006
Figure 6.1 : Gas Supply Interruption Reported From Year 2002 - 2006



Rajah 6.2 Menunjukkan Bilangan Gangguan Bekalan Gas Pada Tahun 2006.
Figure 6.2 Number Of Gas Supply Interruption In Year 2006



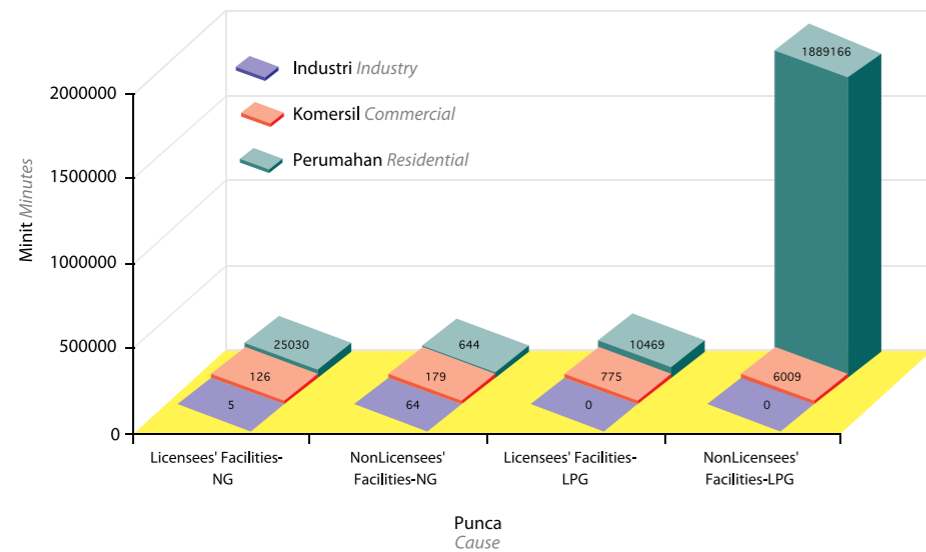
Tempoh Dan Punca Gangguan Bekalan Duration And Cause Of Supply Interruption

Jadual 6.1: Tempoh Dan Punca Gangguan Bekalan Bagi Tahun 2006
Table 6.1: Duration And Causes of Supply Interruption In Year 2006

LOKASI LOCATION	TEMPOH GANGGUAN BEKALAN (minit) DURATION OF SUPPLY INTERRUPTION (minutes)					
	GAS ASLI NATURAL GAS			LPG LPG		
	Industri Industry	Komersil Commercial	Perumahan Residential	Industri Industry	Komersil Commercial	Perumahan Residential
Gangguan berpunca daripada kegagalan kemudahan pemegang lesen penggunaan gas Interruption due to Gas Utility Licensee's facility failure	5	126	25,030	0	775	10,469
Gangguan berpunca daripada kegagalan, bukan di kemudahan pemegang lesen penggunaan gas Interruption due to Non-Gas Utility Licensee's facility failure	64	179	644	0	6,009	1,889,166



Rajah 6.3: Tempoh Dan Punca Gangguan Bekalan Bagi Tahun 2006
Figure 6.3: Duration And Causes of Supply Interruption In Year 2006



Petunjuk Reliabiliti Dan Prestasi Reliability And Performance Indicators

Tiga indeks yang digunakan bagi mengukur kualiti perkhidmatan perbekalan gas adalah Indeks Purata Tempoh Gangguan Bekalan (SAIDI), Indeks Purata Frekuensi Gangguan Bekalan (SAIFI) dan Indeks Purata Tempoh Gangguan Pengguna (CAIDI = SAIDI/SAIFI). Jadual 6.2 menunjukkan prestasi perkhidmatan perbekalan Gas Malaysia Sdn Bhd. Petunjuk prestasi berkaitan kebocoran gas pula ditunjukkan dalam Jadual 6.3.

The three indices used for assessing the supply service quality are namely Supply Average Interruption Duration Index (SAIDI), Supply Average Interruption Frequency Index (SAIFI) and Customer Average Interruption Duration Index (CAIDI = SAIDI/SAIFI). Table 6.2 shows the supply service performance of GMSB and performance indicator pertaining to gas leak is shown in Table 6.3.

Jadual 6.4 dan 6.5 menunjukkan aduan-aduan yang diterima oleh pemegang lesen penggunaan gas.

Table 6.4 and 6.5 show the complaints received by Gas Utility Licensee.

Jadual 6.2: Petunjuk Prestasi Gas Malaysia Sdn Bhd (GMSB)
Table 6.2: Gas Malaysia Sdn Bhd (GMSB) Reliability Indicator

PETUNJUK PRESTASI RELIABILITY INDICATOR	FORMULA PENGIRAAN MEASUREMENT FORMULA	UNIT UNIT	PENANDA ARAS BENCH-MARK	TAHUN YEARS				
				2002	2003	2004	2005	2006
SAIDI (Supply Average Interruption Duration Index)	$\frac{\text{Total Minutes Per Year}}{\text{Average Total No of Customer}}$	Minit/ Pelanggan/ Tahun Minutes/ customer / year	0.81	0.027	0.0013	0.0186	0.0012	1.0812
SAIFI (Supply Average Interruption Frequency Index)	$\frac{\text{Total No of Customer Interruptions Per Year}}{\text{Average Total No of Customers}}$	Gangguan/ Pelanggan/ Tahun Interruptions/ customer / year	6.7	0.00042	0.00003	0.0002	0.0001	0.0128
CAIDI (Customer Average Interruption Duration Index) (SAIDI/SAIFI)	$\frac{\text{Total Customer Minutes}}{\text{Total No of Customer Interruptions}}$	Minit/Gangguan Minutes/ Interruption	41.2	64.3	40	93.3	20.0	84.3



Jadual 6.3: Petunjuk Prestasi Berkaitan Kebocoran Gas
Table 6.3: Performance Indicator Related to Gas Leaks

PETUNJUK PRESTASI RELIABILITY INDICATOR	FORMULA PENGIRAAN MEASUREMENT FORMULA	UNIT UNIT	TAHUN YEARS					PENANDA ARAS BENCH- MARK
			2002	2003	2004	2005	2006	
Kebocoran di sepanjang talian paip gas bagi setiap 1000km <i>Leak along gas pipeline for every 1000km</i>	GMSB Kebocoran disebabkan kegagalan talian paip seperti paip pecah akibat pengaratan <i>Leak caused by gas pipeline failure such as pipe burst caused by corrosion</i>	Bilangan 1000km Nos. 1000km	0	0	4.24	0	0.00072	0.7
	Pihak ketiga <i>Third Party</i> Kebocoran sepanjang talian paip disebabkan pihak ketiga <i>Leak along gas pipeline caused by third party</i>	Bilangan 1000km Nos. 1000km	1.12					
Kebocoran di kemudahan gas bagi setiap 1000 pelanggan <i>Leak at gas facilities for every 1000 customers</i>	GMSB Kebocoran di kemudahan gas disebabkan kegagalan sistem GMSB <i>Leak at gas facilities caused by GMSB system failure</i>	Bilangan Pelanggan Nos. Customers	0.91	4.0	1.43	4.5241	0.03303	14.95
	Pihak ketiga <i>Third Party</i> Kebocoran di kemudahan gas disebabkan pihak ketiga <i>Leak at third party facilities caused by third party</i>	Bilangan Pelanggan Nos. Customers	1.12					

Jadual 6.4: Statistik Aduan Pengguna Kepada Pemegang Lesen Penggunaan Gas Mengikut Sektor
Table 6.4: Statistic of Customer Complaints to Gas Utility Licensee by Sector

LOKASI LOCATION	INDUSTRI INDUSTRY					KOMERSIL COMMERCIAL					DOMESTIK DOMESTIC					JUMLAH TOTAL				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
Semenanjung Malaysia (Gas Asli) Peninsular Malaysia (Natural Gas)	24	15	21	42	41	26	13	6	1	9	85	85	25	46	21	135	113	52	89	71
Sabah (Gas Asli) (Natural Gas)	0	0	0	0	2											0	0	0	0	2
Semenanjung Malaysia Peninsular Malaysia (LPG)	0	0	0	0	0	21	46	22	5	23	659	531	167	345	260	680	577	189	350	283

Jadual 6.5: Statistik Aduan Pengguna Kepada Pemegang Lesen Penggunaan Gas Mengikut Kategori Aduan
Table 6.5: Statistic of Customer Complaints to Gas Utility Licensee by Complaint Category

LOKASI LOCATION	GANGGUAN BEKALAN SUPPLY DISTRUPTION					KEBOCORAN LEAKING					LAIN-LAIN OTHERS					JUMLAH TOTAL				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
Semenanjung Malaysia (Gas Asli) Peninsular Malaysia (Natural Gas)	63	43	30	29	26	25	31	22	60	45	47	39	0	0	0	135	113	52	89	71
Sabah (Gas Asli) (Natural Gas)	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Semenanjung Malaysia Peninsular Malaysia (LPG)	338	266	138	199	134	231	209	51	151	149	111	102	0	0	0	680	577	189	350	283



PRESTASI KESELAMATAN
SAFETY PERFORMANCE

PRESTASI KESELAMATAN | SAFETY PERFORMANCE

Bilangan kes-kes kemalangan yang dilaporkan kepada Suruhanjaya Tenaga (ST) sehingga tahun 2006 ditunjukkan dalam Jadual 7.1

Number of accident cases reported to Energy Commission (EC) up to 2006 is shown in Table 7.1.

Jadual 7.1: Punca-Punca Bagi Kejadian Yang Dilaporkan (1993-2006)
Table 7.1: Cause Of Incident Reported (1993-2006)

PUNCA KEJADIAN CAUSE OF INCIDENT	SISTEM GAS BERPAIP GAS PIPING SYSTEM		SISTEM GAS TIDAK BERPAIP NON-PIPED GAS SYSTEM	
	Bil. No.	%	Bil. No.	%
Pemasangan / senggaraan sistem paip gas tidak memuaskan <i>Installation / Maintenance of gas piping system not satisfied</i>	16	50	5	56
Kerja / tindakan berbahaya pihak ketiga berdekatan / di talian paip <i>Dangerous work / action by third party near / on piping network</i>	11	34	0	0
Penggunaan kelengkapan gas secara tidak selamat <i>Unsafe uses of gas appliance.</i>	5	16	4	44
Jumlah <i>Total</i>	32	100	9	100

Jadual 7.2: Akibat Kejadian Yang Dilaporkan (1993-2006)
Table 7.2: Consequence of Incident Reported (1993-2006)

AKIBAT KEJADIAN CONSEQUENCE OF INCIDENT	BILANGAN KEJADIAN NO. OF INCIDENT		JUMLAH TOTAL
	SISTEM GAS BERPAIP GAS PIPING SYSTEM	SISTEM GAS TIDAK BERPAIP NON-PIPED GAS SYSTEM	
Kematian <i>Fatality</i>	11	5	16
Kecederaan <i>Injury</i>	22	14	36
Kerosakan harta benda <i>Property damage</i>	32	9	41

Pendaftaran Kontraktor Gas Dan Orang Kompeten Gas Contractor And Competent Person Registration

Pendaftaran kontraktor gas diklasifikasikan kepada 4 kelas iaitu Kelas A, Kelas B, Kelas C dan Kelas D. Setiap kelas mempunyai ruang lingkup kerja yang berbeza berdasarkan kelas pemasangan gas.

Gas contractor registration is classified into 4 classes, which are Class A, Class B, Class C and Class D. Each classes has different scope of work based on class of gas installation.

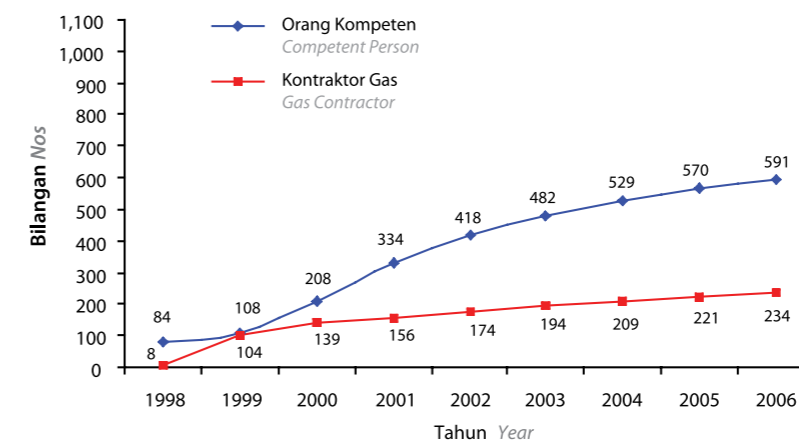
Perakuan kekompetenan pula terbahagi kepada 5 kategori iaitu Jurutera Gas, Penyelia Kejuruteraan Gas, Jurugegas Gas Kelas 1, Jurugegas Gas Kelas II dan Jurugegas Gas Kelas III. Setiap kategori turut mempunyai ruang lingkup kerja yang berbeza berdasarkan kelas pemasangan gas

Certificate of Competency is divided into 5 categories, which are Gas Engineer, Gas Engineering Supervisor, Gas Fitter Class 1, Gas Fitter Class II and Gas Fitter Class III. Each category has different scope of work based on class of gas installation.

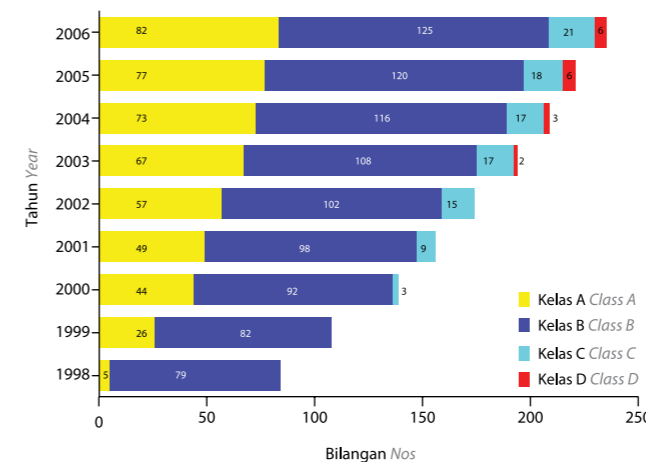
Figure 7.1, Figure 7.2 and Figure 7.3 show the number of registered gas contractor and competent person up to 2006.

Rajah 7.1, Rajah 7.2 dan Rajah 7.3 menunjukkan bilangan pendaftaran kontraktor gas dan orang kompeten sehingga tahun 2006.

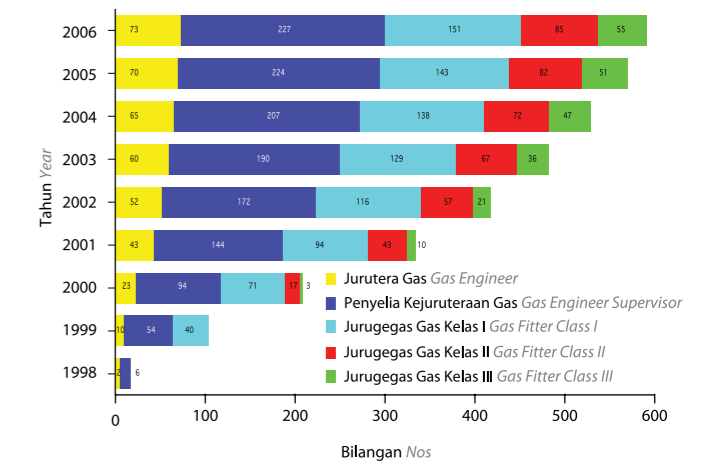
Rajah 7.1: Jumlah Kontraktor Gas dan Orang Kompeten
Figure 7.1: Total Gas Contractor and Competent Person



Rajah 7.2: Jumlah Kontraktor Gas Mengikut Kelas
Figure 7.2: Total of Gas Contractor by Classes



Rajah 7.3: Jumlah Orang Kompeten Mengikut Kategori Kompetensi
Figure 7.3: Total of Competent Person by Competency Categories

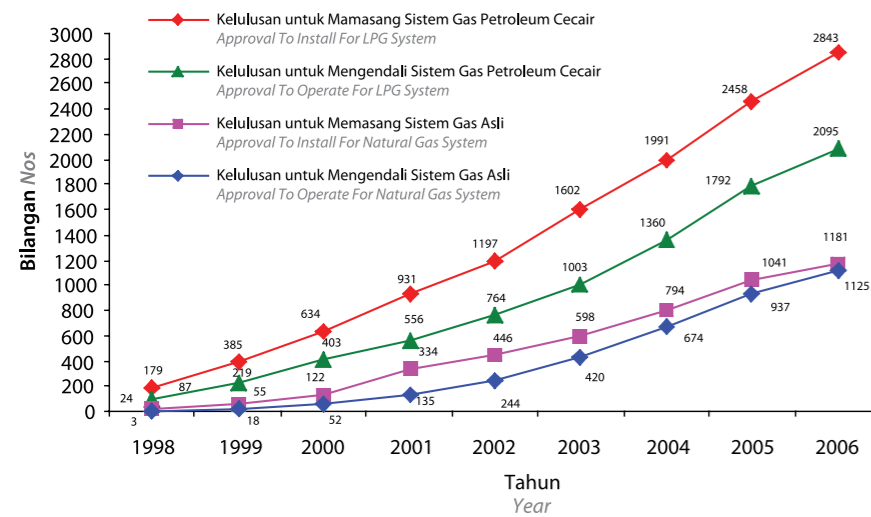


Kelulusan Untuk Memasang Dan Mengendali Approval To Install And Operate

Bagi menjamin keselamatan pemasangan sistem talian paip gas, Suruhanjaya Tenaga (ST) mengeluarkan dua jenis kelulusan iaitu kelulusan untuk memasang dan kelulusan untuk mengendali pemasangan sistem talian paip bagi gas petroleum cecair dan gas asli. Sehingga tahun 2006, jumlah kelulusan untuk memasang dan kelulusan untuk mengendali adalah 4,938 bagi sistem gas petroleum cecair dan 2,306 bagi sistem gas asli. (Rajah 7.4)

To ensure the safety of gas piping installation system, Energy Commission (EC) issues two types of approval, which are approval to install and approval to operate for natural gas and liquefied petroleum gas piping installation systems. Up to 2006, total approval to install and approval to operate is 4,938 for liquefied petroleum gas system and 2,306 for natural gas system. (Figure 7.4)

Rajah 7.4: Jumlah Kelulusan Untuk Memasang/ Mengendali Sistem Talian Paip Gas Asli Dan LPG
Figure 7.4: Total of Approval To Install/Operate Natural Gas And LPG Systems

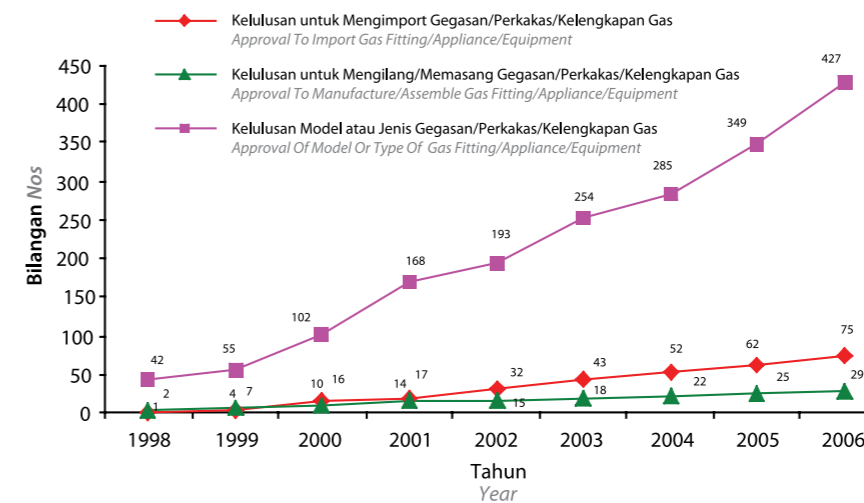


Pendaftaran Gegasan, Perkakas Dan Kelengkapan Gas Gas Fittings, Equipment And Appliances Registration

Bagi mengawal selia keselamatan gegasan, perkakas dan kelengkapan gas, Suruhanjaya Tenaga (ST) mengeluarkan kelulusan untuk mengilang atau mengimport barangan gas di samping meluluskan jenis atau model gegasan, perkakasan atau kelengkapan gas. Bilangan kelulusan yang telah dikeluarkan adalah seperti yang ditunjukkan dalam Rajah 7.5.

To regulate the safety of gas equipment, fittings and appliances, Energy Commission (EC) issues approval to manufacture or import gas equipment as well as type or model approval of gas equipment, fittings or appliances. The number of approval issued is shown in Figure 7.5.

Rajah 7.5: Jumlah Pengilang/Pengimport dan Jenis Barangan Gas Yang Diluluskan
Figure 7.5: Total of Manufacturer/Importer and Type of Approved Gas Equipment



NAMA & ALAMAT ORGANISASI-ORGANISASI
ORGANISATIONS NAME & ADDRESS

NAMA & ALAMAT ORGANISASI-ORGANISASI ORGANISATIONS NAME & ADDRESS

KEMENTERIAN DAN JABATAN KERAJAAN | GOVERNMENT MINISTRIES AND DEPARTMENTS

Kementerian Tenaga, Air dan Komunikasi

Ministry of Energy, Water and Communication

Blok E4/5, Parcel E
Pusat Pentadbiran Kerajaan Persekutuan
62668 Putrajaya
Tel: 03 8883 6000
Faks: 03 8889 3712
Laman web: www.ktak.gov.my

Kementerian Perdagangan Antarabangsa dan Industri

Ministry Of International Trade and Industry

Blok 10, Kompleks Pejabat Kerajaan
Jalan Duta
50592 Kuala Lumpur
Tel: 03 6203 3022
Faks: 03 6201 2337
Laman web: www.miti.gov.my

Kementerian Kewangan

Ministry Of Finance

Kompleks Kementerian Kewangan
Pusat Pentadbiran Kerajaan Persekutuan
62592 Putrajaya
Tel: 03 8882 3000
Faks: 03 8882 3893
Laman web: www.treasury.gov.my

Kementerian Perusahaan Perdagangan dan Komoditi

Ministry Of Plantation Industries and Commodities

Tingkat 6-8, Menara Dayabumi
Jalan Sultan Hishamuddin
50654 Kuala Lumpur
Tel: 03 2274 7511
Faks: 03 2274 5014
Laman web: www.kppk.gov.my

Kementerian Pembangunan Usahawan dan Koperasi

Ministry Of Entrepreneurial And Cooperative Development

Tingkat 22-26, Bangunan Medan Mara
Jalan Raja Laut
50652 Kuala Lumpur
Tel: 03 2698 5022
Faks: 03 2691 7623
Laman web: www.meccd.gov.my

Kementerian Perdagangan Dalam Negeri dan Hal Ehwal Pengguna

Ministry Of Domestic Trade & Consumer Affairs

Lot 2G3, Presint 2
Pusat Pentadbiran Kerajaan Persekutuan
62623 Putrajaya
Tel: 1-800-886-800 / 03 8882 5500
Faks: 03 8882 5762
Laman web: www.kpdnhep.gov.my

Kementerian Sumber Manusia

Ministry of Human Resource

Aras 6, Blok D3, Parcel D
Pusat Pentadbiran Kerajaan Persekutuan
62530 Putrajaya
Tel: 03 8886 5000
Faks: 03 8889 2381
Laman web: www.mohr.gov.my

Unit Perancang Ekonomi

Economic Planning Unit

Blok B5 & B6
Pusat Pentadbiran Kerajaan Persekutuan
62502 Putrajaya
Tel: 03 8888 3333
Faks: 03 8888 3817
Laman web: www.epu.jpm.my

Malaysian Industrial Development Authority (MIDA)

Level 6, Plaza Sentral
Jalan Stesen Sentral 5
Kuala Lumpur Sentral
50470 Kuala Lumpur
Tel: 03 2267 3633
Faks: 03 2274 7970
Laman web: www.mida.gov.my

Malaysia External Trade Development Corporation (MATRADE)

Tingkat 7(West Wing)
Wisma Sime Darby
Jalan Raja Laut
50350 Kuala Lumpur
Tel: 03 2694 7259
Faks: 03 2694 7363
Laman web: www.matrade.gov.my

Jabatan Statistik

Department of Statistics

Aras 8, Blok C6
Parcel C, Pusat Pentadbiran Kerajaan Persekutuan
62514 Putrajaya
Tel: 03 8885 7000
Faks: 03 8888 9250
Laman web: www.statistics.gov.my

SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS A (2006) LIST OF REGISTERED GAS CONTRACTOR - CLASS A (2006)

A.I. Total Engineering Sdn Bhd

2764 M, Jalan Changkat Permata
Taman Permata
53300 Ulu Klang
Kuala Lumpur
Tel: 03 4106 9341

Algotech (M) Sdn Bhd

No. 43-M & 43-1, Wisma Algotech
Medan Setia 1, Plaza Damansara
50490 Bukit Damansara
Kuala Lumpur
Tel: 03 2094 5733

Alpha Flowtech Sdn Bhd

No. 24, Jln Industri Mas 9, Taman Mas
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8520 0101

Applied Industrial Eng Sdn Bhd

No. 11A, Jalan PBS 14/5
Tmn Perindustrian Bkt Serdang
43300 Seri Kembangan
Selangor Darul Khusus
Tel: 03 8941 0201

Bilpro Engineering Sdn Bhd

Lot 40, Kawasan Perindustrian Ringan
Kg Baru Ampang Tambahan
68000 Ampang
Selangor Darul Ehsan
Tel: 03 4297 2399

Bijak Aktif Sdn Bhd

No. 40, Tingkat 3
Jalan Dagang SB 4/2
Taman Sungai Indah
43300 Seri Kembangan
Selangor Darul Ehsan
Tel: 03 8945 1469

Bina Hormat Sdn Bhd

Wisma Yahaya Ariffin
No. 34, Plaza Puchong
Jalan Puchong Mesra 1
58200 Kuala Lumpur
Tel: 03 4256 3777

Black Rock Corporation Sdn Bhd

39-1, Jalan 8/146
Bandar Tasik Selatan
57000 Sungai Besi
Kuala Lumpur
Tel: 03 9059 1903

Broadgate Engineering (M) Sdn Bhd

No. 27-2, Jalan 45A/26
Pusat Bandar Sri Rampai
53300 Setapak
Kuala Lumpur
Tel: 03 4143 4669

DCM Technical Services Sdn Bhd

No. 5A, Jalan Wawasan Ampang 2/8
Bandar Baru Ampang
68000 Ampang
Selangor Darul Ehsan
Tel: 03 4270 4172

Diversified Eng. & Const Sdn Bhd

No. 14, Jalan TPP 6/3
Taman Perindustrian Puchong, Section 6
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8062 5933

Elpiji (M) Sdn Bhd

601-A, Level 6, Tower A, Uptown 5
5, Jalan SS21/39, Damansara Uptown
47400 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7660 1377

Excel Oilfield Manufacturing Svcs Sdn Bhd

Warehouse 11, Door 9
Kemaman Supply Base
24007 Kemaman
Terengganu Darul Iman
Tel: 09 863 1198

Galaxy Onshore Sdn Bhd

No. 15-3, Jalan Mewah 2/2B
Regalia Business Center
47500 Subang Jaya
Selangor Darul Ehsan
Tel: 03 8023 6413

Ho Hup Construction Sdn Bhd

No. 2, Medan Imbi
55100 Kuala Lumpur
Tel: 03 2148 7711

Inter Region Engineering (M) Sdn Bhd

Lot 8, Jalan Astaka U8/84, Seksyen U8
Bukit Jelutong
40100 Shah Alam
Selangor Darul Ehsan
Tel: 03 7846 2263

Jurugas Engineering Sdn Bhd

No. 6, Jalan BP 5/10, Bandar Bukit Puchong
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8060 5940

K & K Sepadu Sdn Bhd

605, 6th. Floor, Block A, Damansara Intan
No. 1, Jalan SS 20/27
47400 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7725 3176



SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS A (2006)

LIST OF REGISTERED GAS CONTRACTOR - CLASS A (2006)

Kat Services (M) Sdn Bhd

Puchong Prima Business Centre
E-03-08, Block E, Jalan Prima 5/3
Persiaran Puchong Utama
Taman Puchong Prima
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8060 5515

KEB Ventures Sdn Bhd

Lot 4163, Jalan Besar Sg. Long
Bandar Sungai Long
43000 Kajang
Selangor Darul Ehsan
Tel: 03 8739 1300

Kejuruteraan Gosan (M) Sdn Bhd

PT. 1027, Kampung Sungai Kayu Ara
Damansara
47400 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7729 4187

Kejuruteraan Jayagas Sdn Bhd

245, Jalan Mahkota, Taman Maluri
55100 Cheras
Kuala Lumpur
Tel: 03 9285 1708

Kejuruteraan QKS Sdn Bhd

No. 47, Jalan PJ 8
Taman Perindustrian Jaya Subang
47200 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7845 0618

Kencana HL Sdn Bhd

No. 2, Jalan SB Jaya 2
Taman Perindustrian SB Jaya
Sungai Buloh
47000 Selangor
Tel: 03 6140 5801

Kosel Industries Sdn Bhd

2586, Lorong Perusahaan 10
Kawasan Perusahaan Perai
13600 Perai
Pulau Pinang
Tel: 04 399 7201

Kumpulan Juruteknik Sdn Bhd

Unit C-13A-5, BlokC, Megan Phileo Avenue
12, Jalan Yap Kwan Seng
50450 Kuala Lumpur
Tel: 03 2166 2121

Langsutra Sdn Bhd

No. 17-2, Jalan 45A/26
Taman Sri Rampai
53300 Setapak
Kuala Lumpur
Tel: 03 4149 4835

LP Gas Industries Sdn Bhd

No. A 8.5, Jln 2/142-A, Phoenix Business
Center Off 10th. Mile, Jalan Cheras
56000 Cheras
Kuala Lumpur
Tel: 03 9133 3887

Maju Gas Engineering Sdn Bhd

No. 43, Jalan Perdana 6/4, Pandan Perdana
55300 Cheras
Kuala Lumpur
Tel: 03 9200 1223

Majupipe Gas Construction Sdn Bhd

No. 68-1, Jalan Komersil
Senawang 7
Taman Komersil Senawang
70200 Seremban
Negeri Sembilan Darul Khusus
Tel: 06 679 1609

Masmirin Corporation Sdn Bhd

No. 2, Jalan CJ 3/13-1
Pusat Bandar Cheras Jaya
43200 Cheras
Selangor Darul Ehsan
Tel: 03 9075 7211

Methane Engineering Sdn Bhd

No. 36-3, Jln Mewah 2/2B, Regallia Busi.
Centre Taman Subang Mewah
47500 Subang Jaya
Selangor Darul Ehsan
Tel: 03 8023 1996

MMC Engineering Services Sdn Bhd

6th. Floor, Block B, HP Tower
Jalan Gelenggang Bukit Damansara
50490 Kuala Lumpur
Tel: 03 2092 5588

Orbtech Engineering Corporation Sdn Bhd

B10-8, 10th Floor, Megan Avenue 1
189, Jalan Tun Razak
50400 Kuala Lumpur
Tel: 03 21661735

Panglima Dagang Sdn Bhd

Suite 3B-16-3A, Blok 3B Level 16, Plaza
Sentral Jalan Stesen Sentral
50470 Kuala Lumpur
Tel: 03 2274 0088

Paramaunt Energy Sdn Bhd

1-39, Jalan PJS 9/1A
Bandar Sunway
46150 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7880 8848

SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS A (2006)

LIST OF REGISTERED GAS CONTRACTOR - CLASS A (2006)

Paremba Construction Sdn Bhd

Tkt. 5 Blok A, Paremba Square, Saujana
Resort Seksyen U2
40150 Shah Alam
Selangor Darul Ehsan
Tel: 03 7844 9888

PCM FEAM Sdn Bhd

No. 4 Jalan TPP 5/13, Taman Perindustrian
Puchong, Seksyen 5
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8062 4740

Permai Gas-Pipe Eng Sdn Bhd

No. 25, Lorong Nafiri 1, Kaw. Perindustrian
Valdor, Sungai Bakap
14200 Seberang Prai (S)
Pulau Pinang
Tel: 04 582 4053

Permai Prestij Sdn Bhd

No. 64A, Jalan Badminton 13/29
Tadisma Business Park, Seksyen 13
40100 Shah Alam
Selangor Darul Ehsan
Tel: 03 5518 0198

PFC Engineering Sdn Bhd

Kawasan Perindustrian Telok Kalong
24007 Kemaman
Terengganu Darul Iman
Tel: 09 863 4758

PTIS Baxtech JV Sdn Bhd

No. 23 Jalan Badminton 13/29, Seksyen 13
40100 Shah Alam
Selangor Darul Ehsan
Tel: 03 5511 9821

R & Y Engineering and Construction Sdn Bhd

No. 23, Jalan PCR 3
Kawasan Perniagaan Cheras Jaya
Batu 11, Cheras
43200 Selangor Darul Ehsan
Tel: 03 9018 7750

Raslow Sdn Bhd

50, Jalan 12/152, Tmn Perindustrian OUG
Batu 6, Jalan Puchong
58200 Kuala Lumpur
Tel: 03 7781 0416

Rightgas Sdn Bhd

No. 1, Tkt Mezzanine 1, 2 & 3,
Taman Tahang Rimau, Jalan Buloh Kasap
85000 Segamat
Johor Darul Takzim
Tel: 07 932 9642

Rira Metal Sdn Bhd

17-3 & 19-3, The Boulevard, Mid Valley City
Lingkar Syed Putra
59200 Bangsar
Kuala Lumpur
Tel: 03 2282 8253

Sedia Engineering Works Sdn Bhd

No. 44, Jalan B/P 5/9
Bandar Bukit Puchong
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8060 5928

Sidenco Eng & Construction Sdn Bhd

77-2B OG Business Park
Jalan Taman Yew Lai
58200 Kuala Lumpur
Tel: 03 7782 8273

Sumatec Corporation Sdn Bhd

Lot PT 33638, Batu 7, Jln Bukit Kemuning
Section 32
40460 Shah Alam
Selangor Darul Ehsan
Tel: 03 5121 8833

Tikam Batu Drilling Sdn Bhd

33 Jalan Perdana 6/9
Taman Pandan Perdana
55300 Kuala Lumpur
Tel: 03 92008051 / 012 2774115

Tractors Malaysia Sdn Bhd

No. 1, Jalan Puchong, Taman Perindustrian
Puchong Utama
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8060 1180

Transwater API Sdn Bhd

No. 83, Jalan SS25/2, Taman Bukit Emas
47301 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7803 3131

Yuen Tat Gas Eng Works Sdn Bhd

64 & 65, Jalan Sri Ehsan
52100 Kepong
Kuala Lumpur
Tel: 03 5273 2710

Zumatec Eng. Sdn Bhd

No. 1-14, Tingkat 1, Jalan Kasturi 1
Off Jalan Balakong
43200 Cheras
Selangor Darul Ehsan
Tel: 03 9075 8600



SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS B (2006)

LIST OF REGISTERED GAS CONTRACTOR - CLASS B (2006)

Aceprenuers Eng Sdn Bhd

No. 15, 1st. Floor, Jalan 3/27D
Seksyen 6
53300 Wangsa Maju
Kuala Lumpur
Tel: 03 4149 6966

Acmal Engineering Works

No. 7, Jalan IM 14/12,
Kaw. Perindustrian Indera Mahkota 2
25200 Kuantan
Pahang Darul Makmur
Tel: 09 514 1257

Airlite (M) Sdn Bhd

No. 9, Jalan 9/118-B, Desa Tun Razak
56000 Cheras
Kuala Lumpur
Tel: 03 9172 2211

Alam Gas Sdn Bhd

Lot 9032, Jln Meranti 6
Kg Sg Rasau, Batu 18
Pulau Meranti
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8061 3766

All Zone Eng & Trading

No. 33, Lengkok Pasir Putih
Taman Yik Sang
31650 Ipoh
Perak Darul Ridzuan
Tel: 04 321 6477

Astaraya Sdn Bhd

Lot 3389, Off Jalan 7/1, Li Fong Ind. Area
Taman Industri Selesa Jaya
43300 Seri Kembangan
Selangor Darul Ehsan
Tel: 03 8962 6933

Berjaya Gas System Sdn Bhd

No. 32, Jalan 3/154, Tmn Bukit Anggerik
Batu 7
56000 Cheras
Kuala Lumpur
Tel: 03 9102 4208

Bumifocus Sdn Bhd

No. 23B, Jalan 6/5
Pandan Indah Commercial Park
55100 Pandan Indah
Kuala Lumpur
Tel: 03 4297 8094

Castleteam Sdn Bhd

No. 36M, Jalan SS 21/58, Damansara
Utama
47400 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7725 7898

Daya Asal Eng. Construction

Lot 19, Lorong Selatan 1A
Kota Kinabalu Industrial Park
88450 Menggatal
Sabah
Tel: 088 493 831

Eng Hong Leong

No. 46, Jalan 6/31, Petaling Garden
46000 Petaling Jaya
Selangor.
Tel: 03 7929517

Fluid Dynamics Engineering Sdn Bhd

Block 737-4-10, Seri Sungai Nibong
Complex, Jalan Sultan Azlan Shah
11900 Pulau Pinang
Tel: 04 646 7513

Gas Emas Corporation Sdn Bhd

No. 5 Jalan Industri Batu Caves 1/6
Batu caves Industrial Park
68100 Selangor Darul Ehsan
Tel: 03 6186 2825

Gas Pantai Eng Sdn Bhd

No. 92 Jalan Bangsar
59200 Kuala Lumpur
Tel: 03 2287 2031

Gassupply Sdn Bhd

No. 8B, Tingkat 2, Jalan P9G/7, Presint 9
62550 Putrajaya
Tel: 03 8888 9622

Globegas Sdn Bhd

No 1, Tingkat 1
Jalan Mamanda 7
Ampang Point
68000 Kuala Lumpur
Tel: 03 9200 2369

Green River Technologies Sdn Bhd

No. 12, Jalan SG 3/2
Taman Sri Gombak
68100 Batu Caves
Selangor Darul Ehsan
Tel: 03 6184 2824

Ideal Plant Technology Sdn Bhd

54/2, Jalan Haruan 5/2
Oakland Commerce Square
70300 Seremban, Negeri Sembilan
Tel: 06 601 4245

Ilmar Engineering

No. 12, Jalan Tembaga SD 5/2H
Sri Damansara
52200 Damansara
Kuala Lumpur
Tel: 03 6272 2396

Isujaya Eng Sdn Bhd

16-B, Jalan Lumut off Jalan Ipoh
Kompleks Damai
54000 Kuala Lumpur
Tel: 03 4042 4440

SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS B (2006)

LIST OF REGISTERED GAS CONTRACTOR - CLASS B (2006)

KAG Engineering Sdn Bhd

No. 13 & 13A, Persiaran Raja
Kg. Kepayang
30100 Ipoh
Perak Darul Ridzuan
Tel: 05 357 3066

Kitchenlink Gas System Sdn Bhd

No 3-1 & 3-2, Jalan 7/11, Bandar Puteri
47100 Puchong
Selangor Darul Ehsan
Tel: 03 8060 0911

L & W Engineering Works

32, Jalan Satria 10
Taman Perindustrian JB Perdana
81300 Skudai
Johor Darul Takzim
Tel: 06 7512 1761

Laidah Gas Sales & Service Sdn Bhd

No. 33, Tingkat 1, Jalan Tun Dr. Ismail
70200 Seremban
Negeri Sembilan Darul Khusus
Tel: 06 762 5770

Loo Soon Hong Sdn Bhd

192P, Jalan Thean Teik
11500 Pulau Pinang
Tel: 04 828 5932

Mabam Corporation (M) Sdn Bhd

Lot 6548B-B, Jalan Tepi Sungai, Teluk Pulai
41000 Klang
Selangor Darul Ehsan
Tel: 03 3373 7086

Maintek Enterprise

No. 9, Dataran Kledang 2
Tmn Perindustrian Chandan Jaya
31450 Menglembu
Perak Darul Ridzuan
Tel: 05 282 8969

Majutera Sdn Bhd

No. 15 Jalan AU 5C/K, Lembah Keramat
54200 Hulu Klang
Selangor Darul Ehsan
Tel: 03 4105 8068

Mix-Target (M) Sdn Bhd

No. 4, Jalan AU5C/14, Lembah Keramat
Ampang
54200 Ulu Kelang
Selangor Darul Ehsan
Tel: 03 4106 4944

MTE Engineering Sdn Bhd

No.3, Jalan Saujana Indah 10
Taman Perindustrian Saujana Indah
40150 Shah Alam
Selangor Darul Ehsan
Tel: 03 7845 4217

Ninaz Enterprise

Lot 81,1st Flr, Blk C, Inanam Point Komersial
Phase 2, Bt 2 1/2, Jln Tuaran Inanam
88839 Kota Kinabalu
Sabah
Tel: 016 841 5628

Petrolife Engineering (M) Sdn Bhd

T20, Kawasan Perindustrian MIEL
Telok Kalong
24007 Kemaman
Terengganu
Tel: 09 863 1904

Pewaris Maju (M) Sdn Bhd

Lot 2-1-57, 1st. Flr, Wisma Rampai
Jalan 34/26, Taman Sri Rampai
53300 Setapak
Kuala Lumpur
Tel: 03 4149 6002

Pipemech Sdn Bhd

No. 12, Block D, Lot 757, Jalan Subang 3
47610 Subang Jaya
Selangor Darul Ehsan
Tel: 03 5634 9442

Pioneer Engineering Sdn Bhd

Lot 1264. Kg. Cacar Paka
23100 Dungun
Terengganu Darul Iman
Tel: 09 827 2160

Prima Gas Sdn Bhd

No. 5 Jalan Ros Merah 1/3
Taman Johor Jaya
81100 Johor Bharu
Johor Darul Takzim
Tel: 07 353 3132

Rakyat Budiman Sdn Bhd

15-1-1, Jalan 6/62D, Medan Putra Business
Center, Bandar Sri Menjalara
52200 Kepong
Kuala Lumpur
Tel: 03 4507 7277

Rex Radio Service

28, Jalan Taiping (Ground. Floor)
Off Jalan Pahang
50400 Kuala Lumpur
Tel: 03 4042 9427

Science-Tech Solutions Sdn Bhd

2A, Jalan Wawasan Ampang 2/4
Bandar Baru Ampang
68000 Ampang
Kuala Lumpur
Tel: 03 4295 8419

Sinarmas Trading & Engineering Works

Blk 1, 1-0-7, Grd Floor, Jalan 7/154D
Desa Cheras
56000 Kuala Lumpur
Tel: 03 9101 7280



SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS B (2006)

LIST OF REGISTERED GAS CONTRACTOR - CLASS B (2006)

Syarikat Kejuruteraan Bersatu

13, Jalan SK 7/12
43300 Seri Kembangan
Selangor Darul Ehsan
Tel: 03 8948 8662

Teraju Laksana Sdn Bhd

No. 61-3, Jalan 8/146
Bandar Tasek Selatan
57000 Sg. Besi
Kuala Lumpur
Tel: 03 9059 2079

Thye Heng Eng Sdn Bhd

Plot 262, Jalan Perusahaan
Kaw. Perindustrian Prai
13600 Prai
Pulau Pinang
Tel: 04 390 7901

Tween Ox Engineering Sdn Bhd

4, Lorong 14, P.O Box No. 17
86100 Ayer Hitam
Johor Darul Takzim
Tel: 07 758 1279

Usaha Damai Gas Sdn Bhd

22G & 22M, GF & Mezzanine Floor
Blok E, Jalan Maju 3/3
Taman Lembah Maju
56100 Kuala Lumpur
Tel: 03 4280 8668

Wan Abd. Rahim (M) Sdn Bhd

Lot No. 35-0, Ground Floor
Blok D, Riverside Plaza
Kingfisher Park, Kuala Inanam
88450 Kota Kinabalu
Sabah.
Tel: 088 384202

Weldcon Eng.& Construction

No. 33 Jalan Cenderai 25
Kaw. Perindustrian Kota Puteri
81750 Masai
Johor Darul Takzim
Tel: 07 386 3388

WEP (KEL) Sdn Bhd

Lot 1-10, Tingkat Satu, MARA Complex
Jalan Dato' Pati
15000 Kota Bharu
Kelantan Darul Naim
Tel: 09 747 2551

Witech Equipment

Lot 2-0-4, Kompleks Niaga Utama, Jalan
Bangsar Utama Satu
59000 Bangsar Utama
Kuala Lumpur
Tel: 03 2284 8996

Wizacorp Sdn Bhd

Lot 4990, Batu 6 1/2, Jalan Lembah Jaya
68000 Ampang
Selangor Darul Ehsan
Tel: 03 4293 9872 / 5621 9872

SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS C (2006)

LIST OF REGISTERED GAS CONTRACTOR - CLASS C (2006)

AJS Engineering Sdn Bhd

No. 20A, Jalan Danau 2
Taman Desa Jaya
81100 Johor Bharu
Johor Darul Takzim
Tel : 07 351 2755

Ambience Logistics Sdn Bhd

Unit 337, Block A, Kelana Centre Point
No. 3, Jln SS 7/19, Kelana Jaya
47301 Petaling Jaya
Selangor Darul Ehsan
Tel: 03 7804 1717

Azmex Berjaya Enterprise

No. 22, Lorong Delima
Taman Jali
01000 Kangar
Perlis Indera Kayangan
Tel: 019 478 5445

Bersama Teknik & Trading

4289-D, Seksyen 27
KM 1/2, Jln Pengkalan Chepa
15400 Kota Bharu
Kelantan Darul Naim
Tel: 09 743 2898

Bumi P.C.B Enterprise

PT 180, Ground Mezz, 1st. Floor
Jalan Hamzah
15050 Kota Bharu
Kelantan Darul Naim
Tel: 09 745 3991

Dung Kiong Gas Equipment

Lot 10, Ground Floor, Blok A
Damai Plaza, Luyang
88759 Kota Kinabalu
Sabah
Tel: 088 245 863

Gsmaco Enterprise

Lot 132, Kawasan Perindustrian Semambu
25350 Kuantan
Pahang Darul Makmur
Tel: 09 566 6725

Kejuruteraan Elmek Sdn Bhd

23, Jalan Kilang Satu, Kawasan
Perindustrian Jelapang, Taman Pertama
30100 Ipoh
Perak Darul Ridzuan
Tel: 05 526 3515

Kejuruteraan Kemelah Jaya

No.4-1, Blok B, Lorong Jaya 14
Taman Jaya Cheras
56000 Kuala Lumpur
Tel: 03 9130 6142

Kim Chin Hin Leong (M) Sdn Bhd

Jalan Yeap Chor Ee, 3-G-08
Lorong Delima 20, Desa Mutiara
11700 Pulau Pinang
Tel: 04 658 7269

Kitchtech Services Sdn Bhd

No. 3 & 3M, Jalan 6/8
Taman Komersial Pandan Indah
55100 Kuala Lumpur
Tel: 03 4295 4511

M H Chua Brothers Sdn Bhd

No. 28 Lot 5252, Batu 7 1/2
Jalan Sungai Besi
57100 Kuala Lumpur
Tel: 03 9058 5868

Mindsway Sdn Bhd

1599 Jalan Dato Hj. Ahmad Badawi
Kepala Batas
13200 Seberang Prai
Pulau Pinang
Tel: 04 575 7224

Petro Gas Trading Agensi

Np. 4, Jalan Sungai Batu
Taman Teluk Indah
11920 Teluk Kumbar
Pualu Pinang
Tel: 04 649 1550

Pusaka Pelangi Sdn Bhd

35, Lengkok Lahad, Falim
30200 Ipoh
Perak Darul Ridzuan
Tel: 05 282 8066

Raywa Engineering Sdn Bhd

No. 69, Blok K, Lorong Sri Teruntum 2
Medan Warisan
25100 Kuantan
Pahang Darul Makmur
Tel: 09 515 1927

Seiring Sepakat Sdn Bhd

No. 26, 1st Floor, Tingkat Ciku 1
Taman Ciku, Bukit Mertajam
14000 Seb. Prai Tengah
Pulau Pinang
Tel: 04 491 5463

TMM Engineering Sdn Bhd

No.5, Aras 1, Taman Johon
Jalan Santong
23100 Paka
Terengganu Darul Naim
Tel: 09 828 6885



SENARAI KONTRAKTOR GAS BERDAFTAR - KELAS D (2006) LIST OF REGISTERED GAS CONTRACTOR - CLASS D (2006)

Kejuruteraan Budi Sakti

20, Jalan 7/3
Taman Industri Selesa Jaya
43300 Balakong, Seri Kembangan
Selangor Darul Ehsan
Tel: 03 8961 4786

Sintera Enterprise Sdn Bhd

No. 22, Jalan Sena Indah 3
Simpang 3, Taman Sena Indah
01000 Kangar
Perlis
Tel: 04 978 2007

T. A. Cool Sdn Bhd

No. 13, Jalan Kelumpang
Taman Alam Megah
40400 Shah Alam
Selangor Darul Ehsan
Tel: 03 5192 1099

Wira Air Conditioning & Enterprise

Kedai No. 2, Taman Anggerik
Jalan Junjung
09000 Kulim
Kedah Darul Aman
Tel: 04 490 4589

KURSUS-KURSUS YANG DITAUJAH ACCREDITED COURSES

Kursus Jurutera Gas, Penyelia Kejuruteraan Gas dan Jurugegas Gas

Pusat Teknologi Gas (GASTEG)
Fakulti Kejuruteraan Kimia dan Kejuruteraan Sumber Asli
81310 UTM Skudai
Johor Darul Takzim
Tel: 07 553 5653
Faks: 07 554 5667
Laman web: www.utm.my/gasteg

CSWIP-CIDB Practical Welder Training Certifications Programme

Akademi Binaan Malaysia (Wilayah Selatan)
Lot 2067, Batu Tiga, Jalan Tampoi
81200 Johor Bahru
Johor Darul Takzim
Tel: 07 232 3808
Faks: 07 235 4800
Laman web: twicidb@tm.net.my

Diploma Teknologi Mekanikal (Gas)

Institut Kemahiran Mara (IKM)
Bahagian Pendidikan & Latihan (Kemahiran)
Tingkat 20 & 21, Medan MARA
21, Jalan Raja Laut
50609 Kuala Lumpur
Tel: 03 2691 5111
Faks: 03 2691 4510
Laman web: www.ikm.edu.my

Copper and Brazing Course

Akademi Binaan Malaysia (Wilayah Timur)
(Institut Latihan CIDB)
Jenagor
Peti Surat 25
21700 Kuala Berang
Terengganu
Tel: 09 681 4327/8
Faks: 09 681 4329

Copper and Brazing Course

Akademi Binaan Malaysia (Wilayah Tengah)
(Institut Latihan CIDB)
Lot 8, Blok 5
Jalan Chan Sow Lin
55200 Kuala Lumpur
Tel: 03 9200 2008
Faks: 03 9200 2009



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