Suruhanjaya Tenaga
Energy Commission

ANNUAL REPORT 2013

ensuring ENERGY for all

CONTENTS

CHAIRMAN'S MESSAGE

ASSALAMUALAIKUM W.B.T AND SALAM 1 MALAYSIA.

On behalf of the Energy Commission (ST), I am pleased to present the Annual Report for the year 2013. It presents ST's achievements in implementing its roles as stipulated in the Energy Commission Act 2001. The achievements serve as a benchmark for ST to continue providing its services at a high standard of performance and commitment in the wake of the challenges ahead.

I would like to express my appreciation to the former Minister of Energy, Green Technology and Water, YBhg. Tan Sri Peter Chin Fah Kui and YB Datuk Seri Panglima Dr. Maximus Johnity Ongkili, the current Minister of Energy, Green Technology and Water, and also his Ministry for their encouragement, support and cooperation to ensure that ST can continue to advance in developing the industry under its regulation.

I would also like to take this opportunity on behalf of ST to record our deepest appreciation and thanks to YBhg. Tan Sri Datuk Dr. Ahmad Tajuddin bin Ali, the former Chairman of the Energy Commission and two former members of the Commission – YBhg. Datuk Pengiran Hassanel bin Datuk Pengiran Haji Mohd Tahir and YBhg. Dato' Ir. Aishah binti Dato' Haji Abd. Rauf who have made invaluable contributions to ST. During the time with YBhg. Tan Sri Datuk Dr. Ahmad Tajuddin, YBhg. Datuk Pengiran Hassanel and YBhg. Dato' Ir. Aishah, ST faced the most challenging development phase in the energy industry. However, with their leadership and commitment and the support of the other Commission members, ST managed to implement various key initiatives to enhance the effectiveness of the monitoring of the piped gas and electricity supply industry especially in the aspects of economy, technicality and safety.

This Annual Report presents ST's achievements for the calendar year of 2013. In ensuring that energy supply remains reliable and secured and that the energy industry is transparent and competitive, ST is committed towards the energy industry development plan together with the Ministry of Energy, Green Technology and Water (KeTTHA), the Economic Planning Unit, PEMANDU, MyPower Corporation and the Sustainable Energy Development Authority of Malaysia (SEDA).

ST has also implemented competitive bidding and generation capacity plan to develop new capacity for electricity generation, in ensuring that the nation's electricity supply for the future is guaranteed. In 2013, ST launched the international competitive bidding process for two bidding tenders, namely the Brown Field Track Project 3A with 1,000 MW capacity and the Green Field Project with 2,000 MW capacity. These two generation stations will generate coal-based technology energy to meet the generation needs in the peninsula for the year 2017 and 2018 onwards. The bid for the 3A Project has been

In 2013, ST launched the international competitive bidding process for two bidding tenders, namely the Brown Field Track Project 3A with 1,000 MW capacity and the Green Field Project with 2,000 MW capacity.

finalised and awarded to TNB as the competitive bidding winner, to build a generation plant on the existing site in Manjung, Perak. The award for the successful bidder for the 3B Project was scheduled for early 2014.

As in 2011 and 2012, ST continues to face many challenges in ensuring that the lights are on. One of the key challenges is the electricity supply in Peninsular Malaysia and Sabah. The main issue in 2012 was insufficient supply of natural gas. In 2013, it was resolved by importing liquefied natural gas through the Regasification Terminal (RGT) in Sungai Udang, Malacca, which started operation in May 2013. The scenario of electricity outage in the peninsula has begun to show signs of recovery except for certain plants due to unsatisfactory coal combustion.

The issue of electricity supply in Sabah remains unresolved and the situation has become aggravated due to unresolved load requirements and several blackout incidents. It is an arduous task, and ST has taken various measures which include submitting a proposal on strategic and comprehensive recovery plan to the Government.

In implementing economic regulation, ST has developed an Incentive-Based Regulation (IBR) Framework to determine electricity tariff in the peninsula. In 2013, ST initiated the regulation in deciding the electricity tariff in the peninsula, effective from 1 January 2014. ST also revised the electricity tariffs in Sabah and the Federal Territory of Labuan. The three new tariffs were announced by the YB Minister of KeTTHA on 2 December 2013.

In the aspect of regulating the gas industry, ST has been identified by the Government to be the regulator for the Third Party Access (TPA) system, a system that allows different institutions and companies to import natural gas. This will prevent dependency on natural gas sources in the country. ST continues to work closely with industry players and government agencies to develop the required codes and regulations.

In the area of safety regulation, other than improving its enforcement activities, ST always strives to enhance the effectiveness of existing safety programmes and strategies, as well as introducing other alternative strategies. A reduction in accident cases involving electricity and piped gas or an absence of similar cases in 2013 is a good sign and ST will continue to increase the level of awareness and implementation of preventive measures.

Together with KeTTHA, ST is also very serious on implementing programmes to enhance the efficiency of energy utilisation. Through a collaborative programme with the California Energy Resources Conservation and Development Commission, ST took the opportunity to study the management and implementation of their energy efficiency programmes.

Even though ST has achieved so much until 2013, the energy industry will continue to grow, and as we reflect upon the achievements in 2013, I would also like to express ST's appreciation for the contributions and tireless efforts of ST's management and workforce for this satisfactory achievement. Moving ahead in 2014, the management team, members of ST and I are determined to strive in increasing the performance of the electricity supply industry in collaboration with KeTTHA and the relevant stakeholders.

Thank you.

DATO' ABDUL RAZAK BIN ABDUL MAJID
Chairman, Energy Commission

On behalf of ST's staff, I would like to express my sincere appreciation to our former Chairman, YBhg. Tan Sri Datuk Dr. Ahmad Tajuddin bin Ali, for his guidance and invaluable leadership in ST, and in the country's energy sector, during his four-year tenureship. Our thanks also goes to two former members of the Commission, YBhg. Pengiran Hassanel bin Datuk Pengiran Haji Mohd Tahir, and YBhg. Dato Ir. Aishah binti Dato Haji Abd. Rauf, as well as to all Members of the Commission, for their contributions and direction in improving the integrity of ST as the regulator of the energy sector.

In 2013, the reliability performance of the electricity supply system in the peninsula continued to increase, although it was not as significant as in previous year. The System Average Interruption Duration Index (SAIDI) for TNB's supply system was at 60.35 minutes per customer per year compared to 60.46 minutes in 2012, which did not exceed the target of 65 minutes set by the government for 2013. Many initiatives such as condition-based monitoring - a type of preventive maintenance, and the implementation of programmes to replace faulty cable connections were intensified by TNB to enhance the system performance.

In the context of demand and supply of electricity, the maximum demand in the peninsula's grid system increased by 4.65% to 16,562 MW, that was recorded on 13 May 2013. Meanwhile, generating capacity decreased to 21,628 MW due to the decommissioning of Unit 1 Power Station in Pasir Gudang which had a capacity of 120 MW. Annual power generation increased by 3.6% from 108.473 GWh in 2012 to a total of 112.358 GWh in 2013, 50.1% of which was generated by using fuel gas, 42.8% coal, 4.8% hydro and 2.3% fuel oil/distillate/import/energy renewable.

The power plants experienced deteriorating Equivalent Availability Factors (EAF) which were recorded between 4% to 11%. In ensuring a secured supply of electricity, a joint working committee comprising ST and the electricity generation industry reviewed measures to take drastic actions in order to overcome the decreasing availability of coal-based generating plants. In its efforts to improve the security of supply, the generation capacity development plan was also revised to optimise fuel diversification and cost based on the Herfindahl-Hirschman Index (HHI) criteria, which should not exceed 0.5. In 2013, the development of a coal-based power generation plant using the supercritical technology with a capacity of 1,000 MW in Manjung, Perak, was awarded to TNB through a competitive bidding process (Track 3A) with a levelised tariff rate of 22.78 sen/kWh. The plant is scheduled to start its commercial operation on 1 October 2017.

The incidents of gas supply disruptions to the energy sector escalated in 2013. This was due to the increased gas supply constraints to the peninsula resulting from scheduled and unscheduled downtime at the gas production platforms off the coast. It resulted in a higher cost of electricity generation when the power plants were forced to use fuel oil and distillates as the substitute fuels besides importing energy from the neighbouring countries. Following the gas supply constraints in the peninsula, the operation of Unit 2 (65 MW) Sultan Iskandar Thermal

Power Station in Pasir Gudang, Johor, was extended for a year until 31 December 2013.

In light of this situation, the Regasification Terminal (RGT) in Sungai Udang, Malacca, which was developed by PETRONAS to overcome gas supply constraints in the peninsula, started operation on 23 May 2013. The RGT was able to supply natural gas with an average capacity of 251.8 mmscfd in 2013, and it was projected to be able to supply a maximum quantity of gas at 450 mmscfd by 2014. In connection with this, ST has proposed the amendments to the Gas Supply Act 1993 to allow for the import of natural gas by third parties through the RGT and transporting through the transmission and distribution pipelines under the Third Party Access (TPA) system regulatory framework. The proposed draft has been submitted to the Economic Planning Unit (EPU).

The issues of power quality in the peninsula also became more challenging in 2013. The number of complaints relating to the issues of power quality increased by 95.5% to 217 complaints, involving 93 industrial users. However, the number of recorded voltage dip incidents decreased by 15% to 887 incidents. In addressing this issue, several initiatives were undertaken with TNB to reduce the damage of the underground cables and reinforce the electricity supply system which were exposed to lightning interference. In addition, ST continued to monitor the System Average RMS Frequency Index (SARFI) using the power quality recorders installed in selected substations.

In 2013, the reliability performance of the electricity supply system in the peninsula continued to increase, although it was not as significant as in previous year. The System Average Interruption (SAIDI) for the TNB's supply system was at 60.35 minutes per customer per year compared to 60.46 minutes in 2012, which did not exceed the target of 65 minutes set by the government for 2013.

Meanwhile, the electricity supply system's reliability situation in Sabah improved in 2013. The SAIDI for the SESB supply system decreased by 23.9% to 424 minutes per customer per year compared to 557 minutes in 2012. The SAIDI for the generation and transmission system reduced by 40.14% while the SAIDI for the distribution system reduced by 6%.

The maximum demand for the Sabah grid system rose by 5.3% to 874.4 MW, which was recorded on 23 September 2013. The dependable generating capacity stood at 1,172 MW. In 2013, two power plants with a total capacity of 84 MW started operating in the east coast while another power station with a capacity of 38MV in the west coast ceased operation. The electricity generation for the year 2013 increased by 2.6% to 5,618 GWh compared to 5,478 GWh in 2012. A total of 67.2% of the power generation was from gas fuel, 20.9% fuel oil/diesel, 8.0% hydro and 3.9% renewable energy.

Sabah is still facing numerous issues related to the unsatisfactory performance of the grid system. This, among others, is due to the constraints of the generating capacity, the age factor and ineffective maintenance resulting from the tariff situation and the imbalanced cost of SESB. Several incidents of load shedding and tripping involving a large number of consumers occurred due to the breakdown of high capacity power station and the transmission systems. To address this situation, SESB implemented a few medium-term and short-term initiatives which were a result of a comprehensive study conducted by SESB and supported by TNB experts. The initiatives include re-adjusting the transmission system protection schemes, enhancing rentice clearing, improving condition-based monitoring and creating new sources of supply.

In late November 2013, the Government approved the tariff adjustment to be implemented in the peninsula effective from 1 January 2014, involving an increase of 14.89% from an average rate of 33.54 sen/kWh to 38.53 sen/kWh. To further enhance the effectiveness of the tariff regulatory functions, taking into account the needs of consumers and the industry for the next four years, ST, for the first time, introduced the Incentive-Based Regulation (IBR) mechanism in the TNB's electricity tariff revision.

The IBR mechanism would allow for the provision of incentives and imposition of penalty on the TNB's annual financial turnover, based on the achievement of annual performance targets and a reasonable rate of return determined by ST with the consent of the government.

The IBR allows TNB to initiate cost-saving measures without compromising the quality of service in the current regulatory period which is effective until 2017. The saving would be shared with the consumers through tariff reductions when the current base tariff is to be reviewed for the next regulatory period. Any change in costs beyond the control of TNB, such as changes in fuel prices, would be released through tariff adjustments every six months.

For Sabah and the Federal Territory of Labuan, the Government also approved an increase in the average tariff rate of 5.0 sen/kWh (an increase of 16.9% to 34.52 sen/kWh) and the restructuring of SESB's tariffs in line with TNB tariff structure effective from 1 January 2014. SESB's tariffs need to be restructured to offset the growing gap between the cost of supply and the existing tariff rates so that SESB could further enhance the reliability of electricity supply in Sabah and Labuan.

In the piped gas sector, the quantity of natural gas supplied by the licensee, Gas Malaysia Berhad (GMB), increased by 8.53% to 138,244,288 mmBtu in 2013. The number of natural gas consumers in the industrial sector increased from 709 in 2012 to 740 in 2013. In Sabah and Labuan, total natural gas consumption increased by 25% to 93.583 mmBtu, and the number of consumers rose 50% to 18. Although problems related to the gas constraints still existed in 2013, the service performance of the gas supply through pipelines in the peninsula fared much better than in 2012, in which the SAIDI decreased by 80% to 0.1480 minutes per customer per year compared to 0.7489 minutes per customers per year in 2012.

In terms of energy efficiency performance, in 2013, the electricity intensity in the country increased marginally by 1.3% to 0.157 GWh per RM million GDP compared to the performance in 2012. This increase, among other things, was caused by the growing number of energy-intensive industrial plants which operated in 2013. To promote energy efficiency, ST has approved 17 energy efficiency projects to obtain the Investment Tax Allowance under the Malaysian Industrial Development Authority (MIDA) Incentive Scheme, compared to 33 projects in 2012. In addition to promoting energy efficiency through the mass media, seminars and touch points activities, ST also organised the Energy Efficiency Run 2013 in Putrajaya, which involved more than 1,000 participants.

On the aspect of energy efficiency legislation, the Electricity Regulations 1994 was amended to include requirements in respect of Minimum Energy Performance Standards (MEPS) for five types of domestic electrical equipment and was gazetted on 3 May 2013. Meanwhile, a total of 1,682 installations identified were subjected to the Efficient Management of Electrical Energy Regulations 2008. Subsequently, 717 installations have appointed Electrical Energy Managers compared to 427 installations in 2012. In addition, ST has recognised two training programmes for the Electrical Energy Managers and registered nine Energy Service Companies (ESCOs) in 2013 to develop the service industry in the field of energy efficiency in the country.

In the context of safety performance, the number of electrical accidents decreased by 16.4% to 46 cases in 2013 compared to 55 cases in 2012. The number of fatal electrical accidents also decreased by nine cases to 19 cases. The death rate per million consumers decreased by 29.5% to 2.37% in 2013. Investigations also found that the number of accidents involving overhead lines increased significantly, mainly due to members of the public engaging in some activities near the line and trespassing. A total of 36.4% of the accidents resulted from improper installation or maintenance, while 30.4% was due to improper implementation of electrical safety procedures.

To further improve the performance of electrical safety in the country, ST expanded its activities and focused on the awareness programmes on electrical safety among the consumers, electrical workers and the public based on the lessons learnt from the accidents. In this context, the risk control due to electricity leakage in residential bathrooms were still not fully efficacious. This resulted in a case of fatal electric shock in the bathroom of a luxury apartment in Kuala Lumpur. Consequently, ST launched a massive awareness campaign through the mass media, calling the consumers to test the automatic circuit breakers in their homes to ensure that they are fully functional. Users were also advised to install circuit breakers with sensitivity not exceeding 10 mA for the water heater circuit.

To address the issue of electrical installations which are not maintained properly and electrical workers' failure to comply with the safe work procedures, ST, in collaboration with industry partners, published a Safe Work Handbook for Electrical Works especially for the Competent Persons and also for others who work in close proximity to any electrical installation. A series of awareness seminar were held throughout the country. ST also conducted management audits for electrical safety at four TNB state offices based on user requirements outlined in the handbook.

On piped gas safety, a case of major leak occurred in the underground natural gas distribution pipe system owned by GMB at the Air Keroh Industrial Area. However, the leak

was repaired immediately by GMB without affecting the natural gas supply in the area. No injuries or casualties were reported. Consequently, in order to enhance gas safety in public places, 361 outlet malls were audited and instructed to rectify the weaknesses identified.

In terms of licensing and certification, ST has issued 178 public electrical licences in 2013 compared to 128 in 2012, including two new licences for electricity generation with a total capacity of 380 MW in Sabah and 57 licences for the generation of 117 MW of renewable energy. A total of 2,581 private electrical and 1,088 private gas licences were issued to supply electricity and gas for own use. A total of 10,488 electrical installations were registered compared to 11,068 in 2012, following the adjustments to the conditions of registration and licensing in 2013. Meanwhile, the total approval of piped gas installations increased significantly from 1,865 in 2012 to 2,083 in 2013. The number of registered contractors decreased by 4.6% to 3,376 for electrical work, but increased by 7.2% to 133 for piped gas work. A total of 6,036 certificates of electrical competency and 22 new certificates of gas competency were issued in 2013. In addition, 40 electrical competency training institutions were given accreditation by ST. For the approval of equipment, 6,787 certificates of approval of electrical equipment were issued in 2013 compared to 5,043 in 2012. In the meantime, the number of approved manufacturers and importers of gas equipment increased significantly to 33 compared to four in 2012.

Regarding the management of complaints, 434 complaints have been received by ST in 2013, a decrease by 20% from the 542 complaints received in 2012. More than 98% of these complaints were resolved successfully by ST. In addressing the issue of electricity metering which has been reported by many users, ST has enforced the Guideline for Electricity Meter: Testing and Initial Verification Requirements starting January 2013. Every model of electric meter requires a Certificate of Approval from ST and each laboratory manufacturer is required to register with the Product Certification Scheme by SIRIM QAS International. Since June 2013 onwards, the new meters installed at consumer premises have to be equipped with the "ST-SIRIM" label. In this regard, the tests which were conducted on the meter randomly by ST in 2013 found that the new digital meters complied with the prescribed accuracy standards which did not exceed ± 3%.

To increase its enforcement effectiveness in addressing current issues, ST has established a taskforce at its headquarter to deal with issues such as the electrical and gas installations which did not comply with standards and regulations, unacceptable quality of work of Competent Persons, the sale of hazardous electrical equipment, meter irregularities and meter tampering. A total of 3,203 inspections by ST officials from the headquarter and the regional offices in Peninsular Malaysia and Sabah were carried out for enforcement purposes in 2013. In terms of legal actions taken, three cases have been tried in court and four persons have been found guilty and fined a total of RM58,000. Six compounds totalling RM14,500 were issued by ST with respect to electrical accident cases.

Other than that, ST has implemented various promotional programmes and disseminated information through seminars, workshops, Meet the Customers Days and exhibitions around the country which targeted the industry, government agencies, consumers, students, media and general public. There were also wide coverage through talk shows and interviews in electronic and print media, focusing on the review of electricity tariff, IBR mechanism, electrical safety measures, energy-efficient practices and metering.

Based on ST's transformation plan that emphasises on continuous improvement initiatives to meet current and future needs of the country's energy sector, the service delivery was improved in 2013 through the development of the Online Application System. This system is developed for application process, payment of fees, appraisal report for technical test equipment, production licensing and certification; and periodic reporting by the licensees. At the same time, ST's terms and conditions of service were amended and made effective starting from 1 January 2013 to attract and retain talent with high competency and performance. Since 2013 onwards, the employees of ST underwent a series of more structured capacity building programmes and ST adopted an online system to manage the annual performance-based targets.

I take this opportunity to express my deepest gratitude to YBhg. Tan Sri Peter Chin Fah Kui, the former Minister of Energy, Green Technology and Water for the support, advice and leadership given to ST during his tenure. I welcome the current Minister YB Datuk Seri Panglima Dr. Maximus Ongkili and Deputy Minister, YB Dato' Seri Diraja Mahdzir Bin Khalid, who have been leading the country's energy sector since May 2013. I would like to express our appreciation and thanks for the commitment and support shown by the Minister, the Deputy Minister, the Chief Secretary and KeTTHA's employees towards ST.

I would like to express my deepest gratitude to all ST employees for their hard work. ST's improved achievements during 2013 as reported in this Annual Report may not have been possible without the cooperation and support

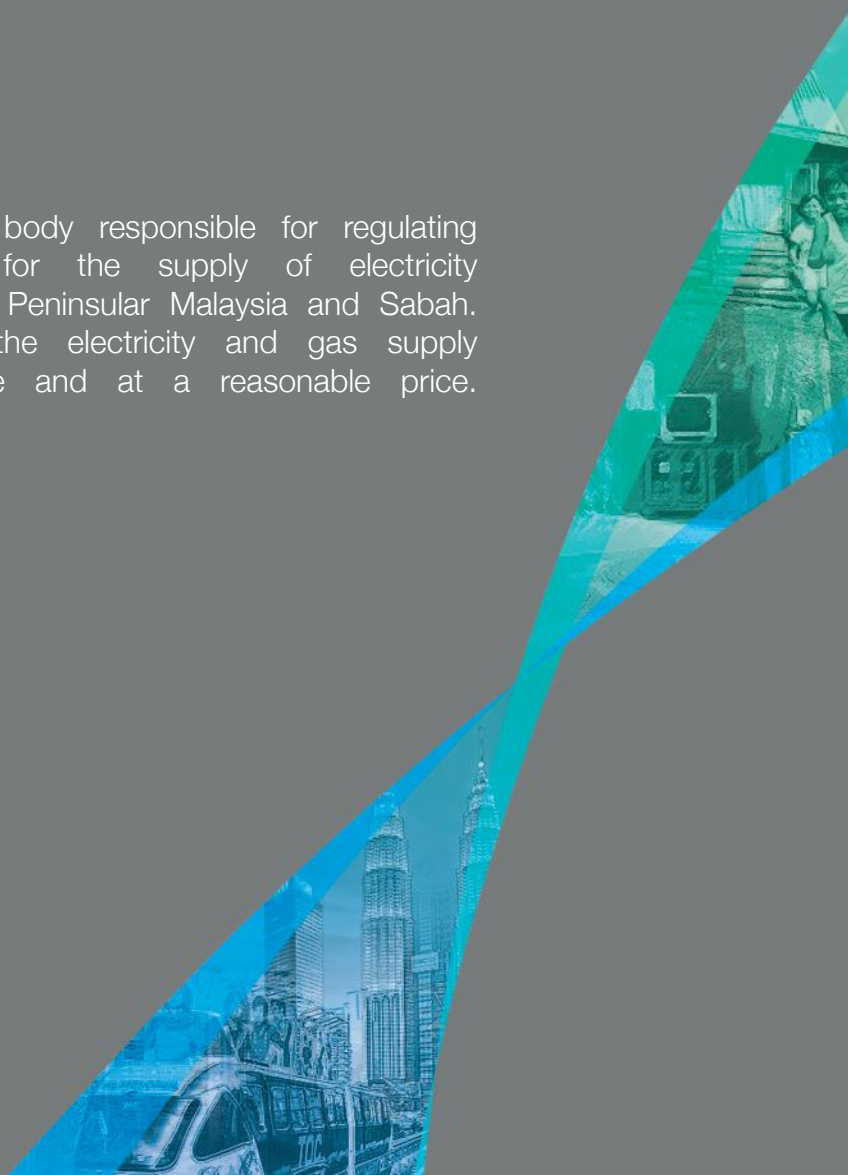
of everyone. I hope that our noble efforts can be enhanced on a continuous basis in line with ST's vision of becoming an effective energy regulator as well as the authority on energy matters, in ensuring the nation's energy supply performance is always secured.

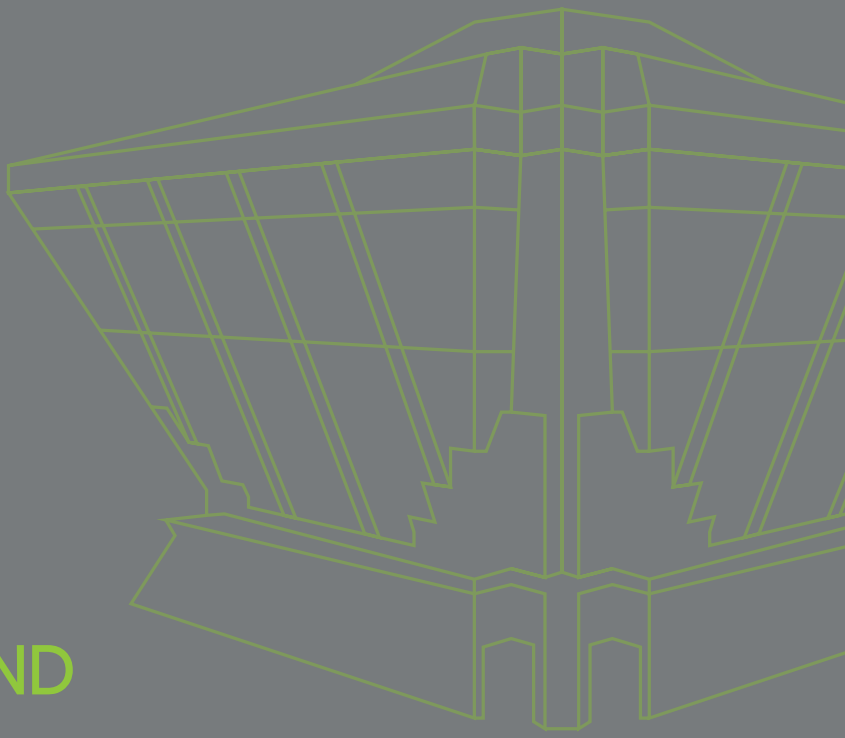
Thank you.

DATUK IR. AHMAD FAUZI BIN HASAN
Chief Executive Officer, Energy Commission

CORPORATE INFORMATION

ST is a statutory body responsible for regulating the energy sector for the supply of electricity and piped gas in Peninsular Malaysia and Sabah. ST ensures that the electricity and gas supply are secure, reliable and at a reasonable price.





BACKGROUND

In the effort to increase the performance of the energy supply industry, the Government of Malaysia established the Energy Commission (Suruhanjaya Tenaga - ST) on 1 May, 2001 under the Energy Commission Act 2001. Fully operational on 1 January, 2002, ST took over the functions of the Department of Electricity and Gas Supply, which was dissolved on the same date.

The energy supply industry has undergone rapid and significant changes since 1990s. This was driven by the Government's aspiration to enhance the energy supply security, improve the efficiency and quality of utility services, and increase private sector participation in infrastructure development.

The Commission's responsibilities are enshrined by the Energy Commission Act 2001, and the following acts and regulations :

- Electricity Supply Act 1990 (Amendment) 2001
- Gas Supply Act 1993 (Amendment) 2001
- Licensee Supply Regulations 1990 (Amendment) 2002
- Electricity Regulations 1994 (Amendment) 2003
- Gas Supply Regulations 1997 (Amendment) 2000
- Electricity Supply (Compounding of Offences) Regulations 2001
- Gas Supply (Compoundable Offences) Order 2006
- Efficient Management of Electrical Energy Regulations 2008

VISION

STRIVES TO BE A HIGHLY EFFECTIVE ENERGY REGULATOR AS WELL AS THE AUTHORITY ON ENERGY MATTERS

MISSION

THE ENERGY COMMISSION AIMS TO BALANCE THE NEEDS OF CONSUMERS AND PROVIDERS OF ENERGY TO ENSURE SAFE AND RELIABLE SUPPLY AT REASONABLE PRICES, PROTECT PUBLIC INTEREST, AND FOSTER ECONOMIC DEVELOPMENT AND COMPETITIVE MARKETS IN AN ENVIROMENTALLY SUSTAINABLE MANNER.

FUNCTIONS OF ST

- To advise the Minister on all matters pertaining to the objectives of the national energy supply policy, and supply and use of electricity and piped gas.
- To implement, enforce and review laws on energy supply (Electricity Supply Act 1990 and Gas Supply Act 1993).
- To encourage efficiency, economy and safety in the supply and use of electricity and piped gas.
- To encourage and protect competition, ensure a fair and efficient market, and prevent the misuse of monopoly.
- To encourage the usage of renewable energy and conservation of non-renewable energy.
- To encourage research, development and the usage of new techniques in supplying and using of electricity and piped gas.
- To encourage the development of electricity and piped gas supply industry.
- To promote self-regulation in the industry.

Licensing and Accreditation Activities

ST issues the following licences and accreditation for the electrical and piped gas supply industry:

- Licence for electricity and piped gas supply to others and/or for own consumption.
- Certificate of Competency for Competent Persons.
- Registration of contractor firms.
- Accreditation of competency training institutes.
- Registration of energy efficiency managers.
- Approval of equipment.
- Registration of electrical installations.
- Approval for piped gas installations.
- Registration of energy services companies.

Monitoring and Enforcement Activities

- Monitoring
  - Licensee service performance and accreditation.
  - Status of electricity, piped gas and generation fuel supply.
- Inspection and Audit
  - Supplier and consumer installations.
  - Licensees and accreditation.
  - Equipment manufacturers, importers and sellers.
  - Competency training institutes.
- Competency tests (written, oral and practical).
- Review of tariff and charges for electricity/ piped gas and generation fuel prices.
- Investigation on complaints, accidents and offences.
- Legal action.
- Arbitration of disputes.
- Raising of awareness.

Planning and Development Activities

- Legal requirements and industrial codes of practice.
  - Acts, regulations, licence terms and performance standards.
  - Codes, guidelines, circulars and directives.
- Regulatory framework.
  - Incentive-based electricity and piped gas tariff.
  - Third party access to gas infrastructure.
- National Energy Database.
  - Publication of the National Energy Balance Report.
- Power generation capacity.
  - Preparation of the new generation capacity development plan.
  - Selection of power plant developers via open bidding process.

- Initiatives on resolution of issues and the enhancement of industrial performance.
- Electricity supply industry reformation programme.

STRATEGIC OBJECTIVES

- Ensuring a reliable and efficient energy supply at a reasonable price.
- Ensuring secure electricity supply.
- Encouraging the development of a transparent and competitive energy industry.
- Ensuring efficient and safe energy consumption.
- Ensuring legal compliance.
- Protecting consumer interests.
- Developing a robust regulatory framework.
- Enhancing organisational capability.

ST MEMBERS

Standing from left:

IR. DR. PHILIP TAN CHEE LIN
Appointment date: 1 September 2009

DATUK MOHD NASIR BIN AHMAD
Appointment date: 1 September 2012

DATO' IR. AISHAH BINTI DATO' HJ. ABDUL RAUF
Appointment date: 1 September 2009 until 31 August 2013

DATO' M. RAMACHELVAM
Appointment date: 1 September 2010

DATUK IR. PETER LAJUMIN
Appointment date: 1 September 2010

DATUK DR. RAHAMAT BIVI BINTI YUSOFF
Director General, Economic Planning Unit
Appointment date: 1 October 2012

DATUK LOO TOOK GEE
Secretary General
Ministry of Energy, Green Technology and Water
Appointment date: 25 May 2007

DATUK PENGIRAN HASSANEL BIN
DATUK PENGIRAN HJ. MOHD TAHIR
Financial Permanent Secretary, Sabah
Appointment date: 1 September 2009 until 31 August 2013

Sitting from left:

DATUK IR. (DR.) ABDUL RAHIM BIN HJ HASHIM
Appointment date: 1 September 2009

DATUK IR. AHMAD FAUZI BIN HASAN
Chief Executive Officer
Appointment date: 1 April 2010

DATO' ABDUL RAZAK BIN ABDUL MAJID
Deputy Chairman
Appointment date: 1 October 2013

TAN SRI DATUK DR. AHMAD TAJUDDIN BIN ALI
Chairman
Appointment date: 1 April 2010

ST MEETINGS

Meetings of the Energy Commission

MEETING	DATE	DAY	TIME	VENUE
ST 1/2013	3 January 2013	Thursday	9.30 a.m	Putrajaya
ST 2/2013	4 March 2013	Monday	9.30 a.m	Kota Kinabalu, Sabah
ST 3/2013	7 May 2013	Thursday	9.30 a.m	Putrajaya
ST 4/2013	25 June 2013	Tuesday	9.30 a.m	Putrajaya
ST 5/2013	22 August 2013	Thursday	9.30 a.m	Putrajaya
ST 6/2013	24 October 2013	Thursday	9.30 a.m	Putrajaya
ST 7/2013	12 December 2013	Thursday	9.30 a.m	Putrajaya

Special Meetings of the Energy Commission

MEETING	DATE	DAY	TIME	VENUE
ST KHAS 1/2013	25 January 2013	Friday	3.00 p.m	Putrajaya
ST KHAS 2/2013	9 April 2013	Tuesday	2.30 p.m	Putrajaya
ST KHAS 3/2013	11 April 2013	Thursday	5.00 p.m	Putrajaya
ST KHAS 4/2013	23 July 2013	Tuesday	10.30 a.m	Putrajaya
ST KHAS 5/2013	8 October 2013	Tuesday	5.30 p.m	Putrajaya

Audit Committee Meetings

MEETING	DATE	DAY	TIME	VENUE
JKA 1/2013	15 March 2013	Friday	10.00 a.m	Putrajaya
JKA 2/2013	27 May 2013	Monday	10.30 a.m	Putrajaya

Joint Licensing Committee Meetings (Energy Commission and Management)

MEETING	DATE	DAY	TIME	VENUE
JKBP 1/2013	26 February 2013	Tuesday	10.00 a.m	Putrajaya
JKBP 2/2013	16 April 2013	Tuesday	10.00 a.m	Manjung
JKBP 3/2013	5 June 2013	Wednesday	9.30 a.m	Putrajaya
JKBP 4/2013	26 July 2013	Friday	9.30 a.m	Putrajaya
JKBP 5/2013	23 October 2013	Wednesday	9.30 a.m	Putrajaya
JKBP 6/2013	3 December 2013	Tuesday	9.30 a.m	Putrajaya

Finance and Tender Committee Meetings

MEETING	DATE	DAY	TIME	VENUE
JKKT 1/2013	25 February 2013	Monday	10.30 a.m	Putrajaya
JKKT 2/2013	25 April 2013	Thursday	2.30 p.m	Putrajaya
JKKT 3/2013	31 May 2013	Friday	2.30 p.m	Putrajaya
JKKT 4/2013	31 July 2013	Wednesday	10.30 a.m	Putrajaya

Renumeration and Nomination Committee Meetings

MEETING	DATE	DAY	TIME	VENUE
RQN 1/2013	27 March 2013	Wednesday	11.00 a.m	Putrajaya
RQN 2/2013	6 June 2013	Thursday	11.00 a.m	Putrajaya
RQN 3/2013	22 August 2013	Thursday	9.00 a.m	Putrajaya
RQN 4/2013	3 December 2013	Tuesday	11.00 a.m	Putrajaya

SENIOR MANAGEMENT TEAM

IR. AHMAD NORNADZMI BIN DATUK DR. DZULKARNAIN
Director
Gas Safety and Supply Regulation

MOHD. ELMI BIN ANAS
Director
Energy Management and Industry Development

IR. OTHMAN BIN OMAR
Director
Enforcement and Regional Coordination

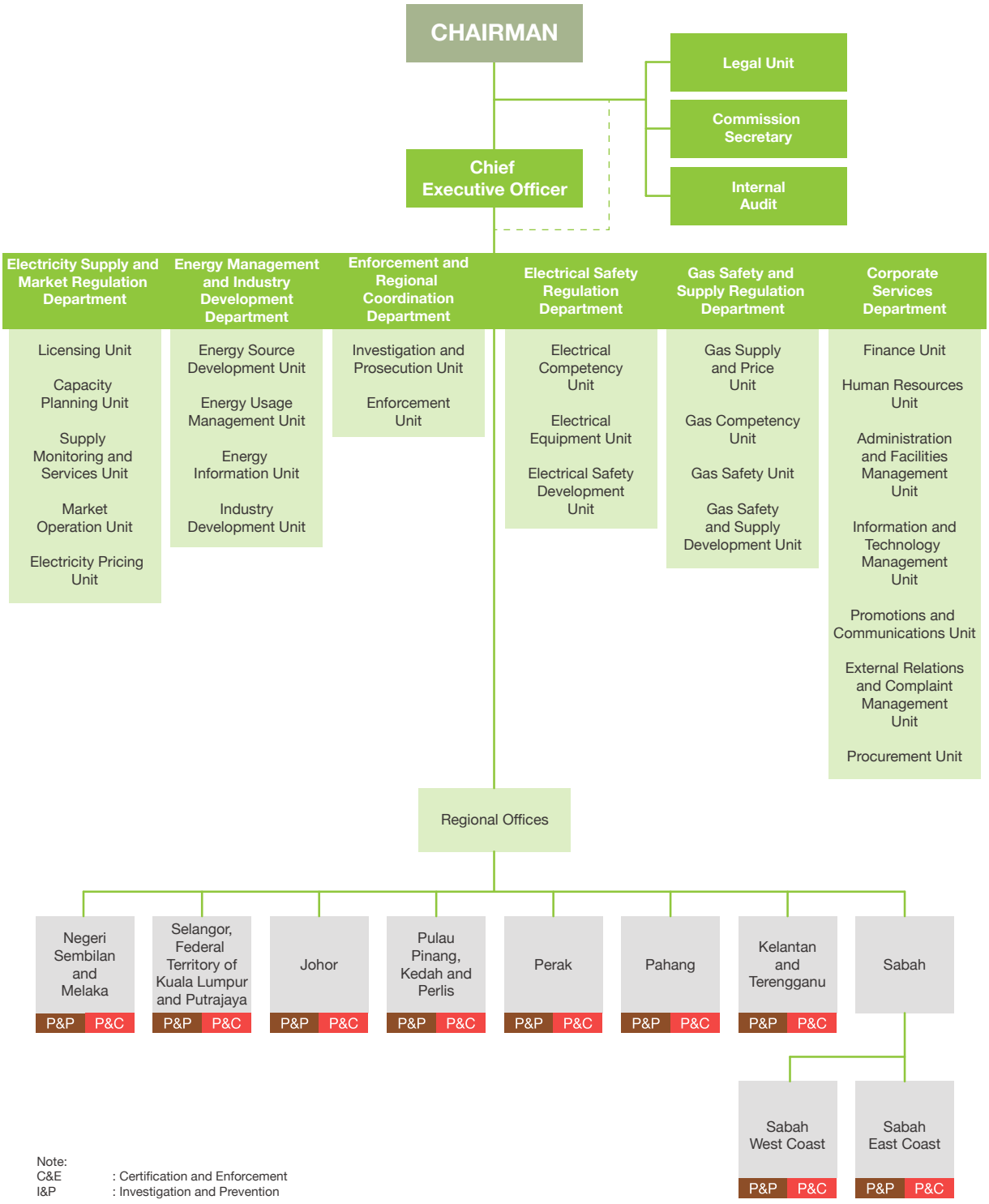
DATUK IR. AHMAD FAUZI BIN HASAN
Chief Executive Officer

IR. AZHAR BIN OMAR
Senior Director
Electricity Supply and Market Regulation

IR. ABDUL RAHIM BIN IBRAHIM
Director
Electrical Safety Regulation

ASMA AINI BINTI MOHD NADZRI
Director
Corporate Services

ORGANISATIONAL STRUCTURE



Note:
C&E : Certification and Enforcement
I&P : Investigation and Prevention

2013 AT A GLANCE

EVENTS CALENDAR

1 **15 January**
Visit by the Hassan II Academy of Science and Technology, Morocco.

2 **2 February**
Participation in MyGreen Carnival organised by KeTTHA in Sarikei, Sarawak.

3 **19 March**
Discussion session with Dr. R. K. Pachauri, Chairholder in Energy Economics at the Institute of Energy Policy and Research (IEPRe), Universiti Tenaga Nasional (UNITEN).

4 **29 March**
Monthly assembly and the Excellence Service Award Ceremony.

5 **8 April**
An interview on RTM's "Selamat Pagi Malaysia", on the topic of electrical safety, attended by ST's Director Ir. Abdul Rahim Ibrahim.

6 **8 April**
Working visit by the Bhutan Electricity Authority to learn more about ST's regulatory procedures.

7 **17 April**
APEC Energy Outlook Workshop 2013, jointly organised by KeTTHA and ST.

8 **18 April**
Meet the Customers Day Programme in Langkawi, Kedah.

9 **18 April**
Seminar on Safety and Supply of Electricity and Gas for hotel and business premises in Langkawi, Kedah.

10 **18 April**
Awareness Seminar on Grid Code for stakeholders of the energy industry at PICC, Putrajaya.

11 **9 May**
Datuk Ir. Ahmad Fauzi bin Hasan presented a working paper at the Seminar on Energy Sustainability and Safety in Malaysia: Issues and Challenges at Universiti Kebangsaan Malaysia (UKM), Bangi.

12 **28 May**
Briefing session to the new Minister of Energy, Green Technology and Water, YB Datuk Seri Panglima Dr. Maximus Johnity Ongkili (centre) during his visit to ST.

13 **31 May**

A brainstorming session between ST and CIDB during the Centralised Registration System for Gas and Electrical Contractors Workshop.

14 **1 June**

Interview Session with the Senior Director, Electricity Supply and Market Regulation Department, ST, Ir. Azhar Omar on the mechanism and process of determining electricity tariffs in "Nasi Lemak Kopi O", TV9.

15 **11 June**

Appreciation dinner held for the former Minister of Energy, Green Technology and Water, YB Tan Sri Peter Chin Fah Kui.

16 **26 June**

Awareness Programme on Grid Code Module 1 for stakeholders in the energy industry.

17 **4 July**

Visit by delegation from Petrobangla, Bangladesh to share knowledge and exchange views on the best practices in this region.

18 **22 August**

1435H Aidilfitri Celebration at the Diamond Building, Putrajaya.

19 **28 August**

Seminar on Energy Efficiency and Electrical and Gas Safety in Johor Bahru, Johor.

20 **3 September**

5th National Energy Forum 2013 themed "Delivering a Sustainable Energy Future for Malaysia – Taking on Tomorrow's Challenges Today" jointly organised by ST, Malaysian Gas Association dan Energy Council of Malaysia.

21 **3 September**

The CEO of PEMANDU, YB Dato' Sri Idris Jala presenting a paper in the 5th National Energy Forum.

22 **19 September**

Meet the Customers Day at the KB Mall, Kota Bharu, Kelantan.

23 **21 September**

Meet the Customers Day at the Melaka Mall, Ayer Keroh, Melaka.

24 **10 - 13 October**

ST's participation in the 4th International Greentech and Eco Product Exhibition & Conference Malaysia 2013 (IGEM 2013).

25 **2 October**

ST and members of the media in a TNB's digital meter inspection and examination operation at consumers' premises in Subang Jaya, Petaling Jaya and Kajang.

26 **28 - 30 October**

Joint Organisations Data Initiative (JODI) 8th Regional Training Workshop in Kuala Lumpur.

27 **21 - 22 November**

16th Joint Sectoral Committee for Electrical and Electronic Equipment (JSC EEE) meeting in Kuala Lumpur.

28 **28 November**

KeTTHA Industry Award Presentation Ceremony 2013 jointly organised by KeTTHA, ST, National Water Services Commission and Malaysian Green Technology Corporation.

29 **1 December**

Energy Industry Golf 2013.

30 **7 December**

Energy Efficiency Run 2013 in Putrajaya to promote effective and efficient consumption of energy.

31 **18 December**

Meet the Customers Day at the SACC Mall, Shah Alam, Selangor.

32 **18 December**

Seminar on Energy Efficiency and Electrical and Gas Safety in Shah Alam, Selangor.

33 **19 December**

An Information Session on Determining the Electricity Tariff in Peninsular Malaysia and Sabah for consumers including Malaysian International Chamber of Commerce and Industry, FMM, FOMCA and analysts.

34 **28 December**

Briefing Session on Compliance with Efficient Management of Electrical Energy Regulations 2008 for Selangor, Federal Territory of Kuala Lumpur and Putrajaya conducted in Shah Alam, Selangor.

MEDIA COVERAGE : THE CEO OF ST TALKED ABOUT THE RATIONALE BEHIND THE INCREASE OF ELECTRICITY TARIFF

6 December

"Bisnes Awani", Astro Awani.

7 December

"Selamat Pagi 1Malaysia", RTM.

9 December

1News@Bring Me Equal, RTM.

23 December

Hello On 2, RTM, Angkasapuri, Kuala Lumpur.

11 December

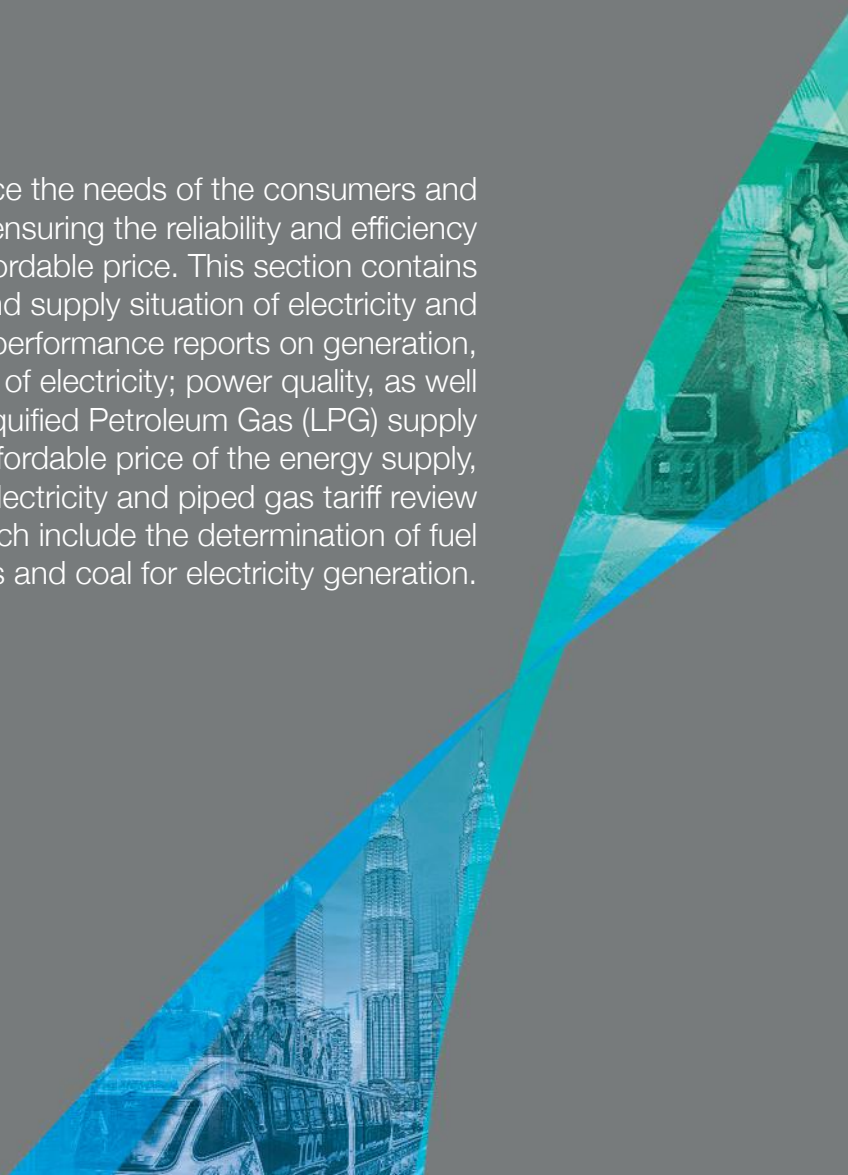
"Ruang Bicara", Channel 502, BERNAMA TV.

ST IN MASS MEDIA


CUSTODIANS OF POWER
Suruhanjaya Tenaga Malaysia and Energy Security
GUNAKAN ELEKTRIK SECARA SELAMAT DAN CEKAP
Ujilah Suis Pemutus Litar Automatik di rumah anda
HARI INI!
Meter accuracy matters
Energy Commission tests 170 digital meters in Klang Valley
Levelling the playing field for power sector
EC shortlists five consortia
The Energy Commission (EC) has shortlisted five consortia to tender for the 2,000 MW Project 3B coal-fired power plant to be developed at an estimated cost of RM12bil. >2
EC shortlists 5 consortia for Project 3B
BY LEONG HUNG YEE
PETALING JAYA: The Energy Commission (EC) has shortlisted five consortia to tender for the 2,000
In addition, the EC said all shortlisted bidders, including each member of the consortium, would be required to sign an integrity pact.
TNB is also bidding for new fired power plants of 1,000 (Project 3A).
能源委會抽樣檢測
數碼電表操作正常
Hak pengguna terjamin melalui GSL

ENSURING RELIABLE AND EFFICIENT ENERGY SUPPLY AT REASONABLE PRICE

ST is responsible to balance the needs of the consumers and the industry players by ensuring the reliability and efficiency of energy supply at an affordable price. This section contains reports on the demand and supply situation of electricity and piped gas, as well as the performance reports on generation, transmission, distribution of electricity; power quality, as well as natural gas and Liquified Petroleum Gas (LPG) supply performance. In ensuring affordable price of the energy supply, this report also covers the electricity and piped gas tariff review implemented by ST, which include the determination of fuel prices, namely gas and coal for electricity generation.

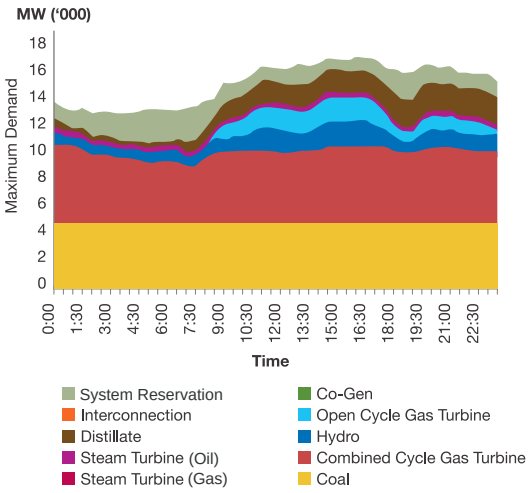


ELECTRICITY SUPPLY AND DEMAND SITUATION

PENINSULAR MALAYSIA

The maximum demand on the grid system in Peninsular Malaysia increased to 16,562 MW on 13 May 2013, an increase of 4.65% compared to 15,826 MW on 20 June 2012. The demand for energy on that day was 337.20 GWh, an increase of 2.57% from 328.72 GWh in 2012.

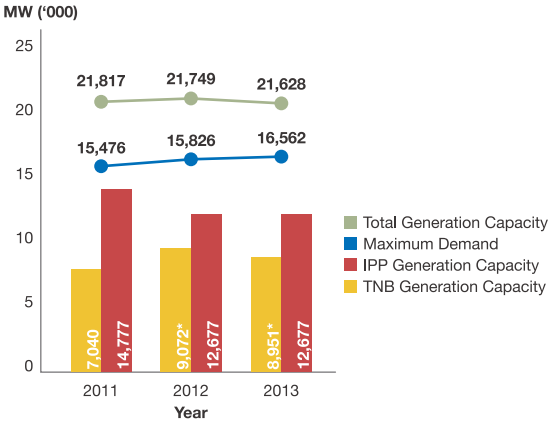
Generation Profile on 13 May 2013



The highest demand for daily energy was 345.25 GWh on 25 Jun 2013, an increase of 5.0% compared to 328.72 GWh the year before. Overall, the annual energy demand increased by 3.6% from 108,473 GWh in 2012 to 112,358 GWh in 2013. The energy sales also increased to 100,999 GWh, an increase of 3.9% compared to 97,243 GWh in 2012.

The generation capacity decreased to 21,628 MW due to the termination of operation of unit 1 at the Pasir Gudang Power Station with a capacity of 120 MW. The installed generation capacity, wholly owned by TNB, contributed about 41.4% (8,951 MW) which comprised of 1,911 MW hydro, 4,940 MW thermal and 2,100 MW coal. The independent power producers (IPP) contributed the remaining 58.6% of the total generation capacity in Peninsular Malaysia.

Installed Generation Capacity and Maximum Demand in Peninsular Malaysia, 2013



* Includes TNB Janamanjung

Breakdown of Installed Capacity Based on Types of Generation

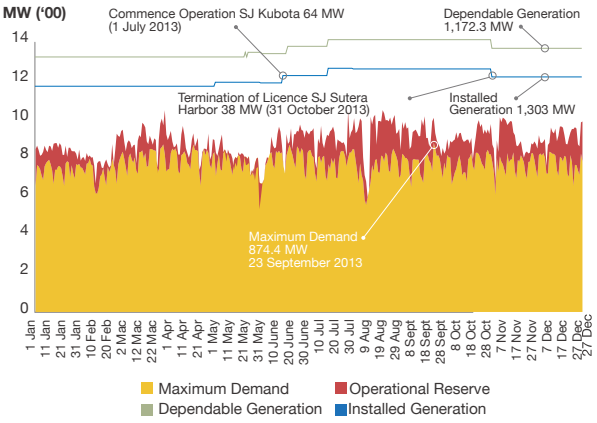
Type	Main Fuel	MW
Conventional Thermal	Coal	7,170
Conventional Thermal	Gas/Oil	720
Open Cycle Gas Turbine	Gas	2,455.4
Combined Cycle Gas Turbine	Gas	9,372
Hydroelectric	Hydro	1,911
Total Installed Capacity		**21,628.4**

SABAH

A few power stations, which are owned by SESB and IPP, showed a low level of readiness and reliability especially at the east coast of Sabah. The power stations in the area were dominated by distillate/medium fuel oil (MFO) generating units, many of which were already old.

There was an increase in the generation capacity in Sabah. The Batu Sapi Rehabilitation Project with a capacity of 20 MW started its operations in March 2013 and the Kubota Power Station which was transferred from Teluk Ewa, Pulau Langkawi to Tawau with a capacity of 64 MW began operation in July 2013. In October 2013, Sutera Harbour Power Station ceased operations which resulted in an installed generation capacity loss of 38 MW in the West Coast of Sabah.

Trend of Maximum Demand and Daily Operation Reserve in Sabah, 2013

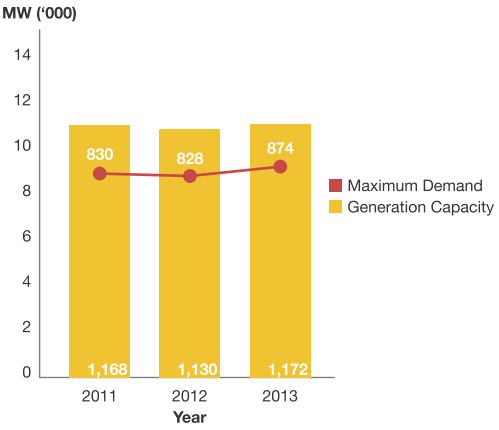


Until December 2013, the total installed generation capacity in Sabah was 1,303 MW. However, considering the deration and constraints of the generation systems, the level of dependable capacity was at 1,172.3 MW. Of the overall dependable capacity, 637.5 MW was the generation capacity by IPP, 495.3 MW by SESB and 40 MW from renewable energy stations which are connected to the grid system in Sabah.

In line with its economic growth, the demand for electricity in Sabah continued to increase. The maximum demand of the grid system in Sabah increased by 5.3% to 874.4 MW, which was recorded on 23 September 2013, compared to 828.4 MW in 2012.

The total energy generation in Sabah was 5,618 GWh, of which 3,776.9 GWh (67.2%) was from gas, 1,174 GWh (20.9%) from MFO and diesel, 446.5 GWh (7.9%) from hydro and 220.6 GWh (3.9%) from renewable energy stations.

Dependable Generation Capacity and Maximum Demand in Sabah 2013



Installed Generation Capacity in Sabah

Fuel	Installed Generation Capacity (MW)	Dependable Capacity (MW)			
		West Coast (MW)	East Coast (MW)	Total (MW)	Percentage (%)
Gas	641.0	598.5	0.0	598.5	51.1
MFO	151.9	47.5	96.0	143.5	12.2
Diesel	393.5	43.6	278.4	322.0	27.5
Hydroelectric	76.6	74.0	1.3	75.3	6.4
Biomass	40.0	0.0	33.0	33.0	2.8
Total	**1,303.0**	**763.6**	**408.7**	**1,172.3**	**100.0**

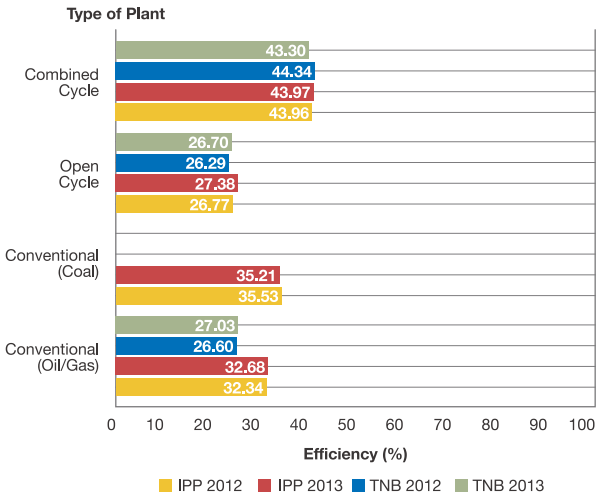
GENERATION SYSTEM PERFORMANCE

PENINSULAR MALAYSIA

Thermal Efficiency

Overall, the average thermal efficiency of power stations in Peninsular Malaysia has been consistent since 2012 until 2013. The efficiency of the power stations is related to the operation mode at full load.

Average Thermal Efficiency in Peninsular Malaysia

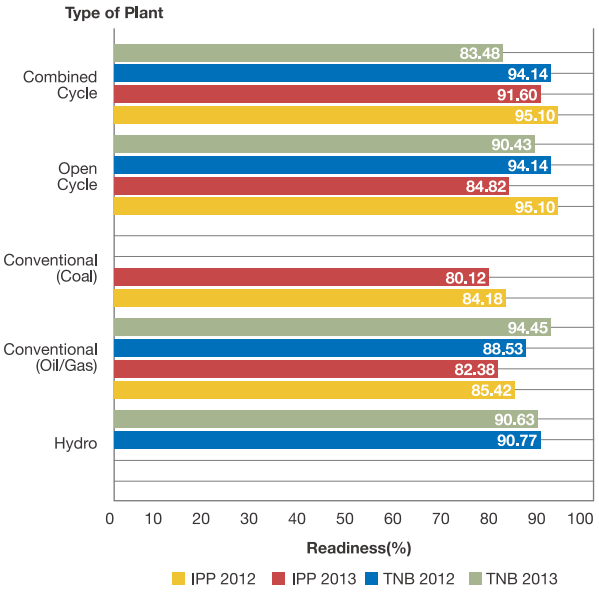


There was a slight drop in the thermal efficiency of the combined cycle power stations owned by TNB due to the increase of unplanned outages, age factor, degradation and power stations operating in the open cycle mode. The total gas consumption for the gas-based power stations was 440,163 mmscf compared to 372,739 mmscf in 2012.

Equivalent Availability Factor - EAF

EAF for the power stations in Peninsular Malaysia has decreased between 4% to 11%. A significant decline was detected at the combined and open cycle power stations. The coal power stations recorded the lowest EAF at about 80% only. The drop in EAF was closely related to the increase in the outage events, scheduled or unscheduled.

Average of EAF in Peninsular Malaysia

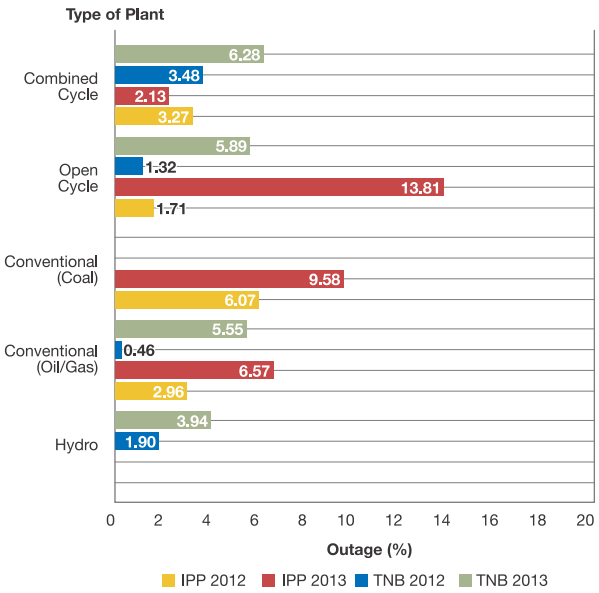


Equivalent Unplanned Outage Factor – EUOF

There was a significant increase in EUOF for almost all power stations. Although there was an increase in the natural gas supply for the energy sector, there were still some combined cycle power stations which experienced major breakdowns of the steam turbines that required long maintenance period.

The tube leak problem was still the major factor for the unplanned outages of the coal-based power stations. The outages of the coal and combined cycle power stations caused an increase in the operation of the open cycle power stations. After operating at a high load level for a long period of time, the open cycle power stations experienced equipment failure because of the age factor which directly resulted in declining of dependability.

Average EUOF in Peninsular Malaysia

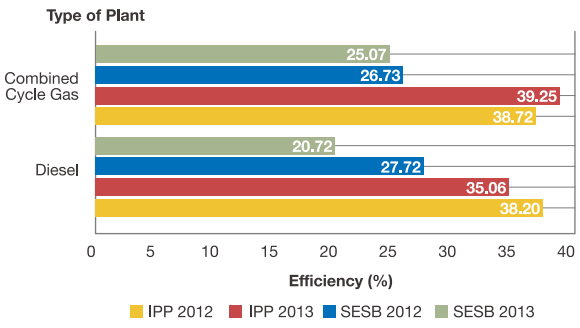


SABAH

Thermal Efficiency

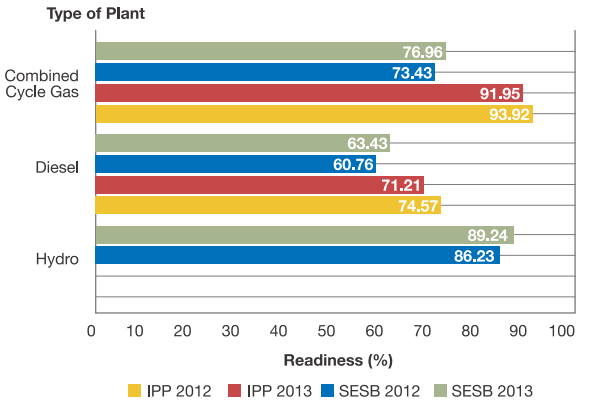
The thermal efficiency of the diesel power stations has declined by 3% to 7%. In Sabah, most of the diesel power stations were over 20 years old and the degradation factor of the stations would decrease on average of 3% every year. For 2013, combined cycle gas power stations showed a consistent thermal efficiency performance compared to 2012.

Average Thermal Efficiency in Sabah

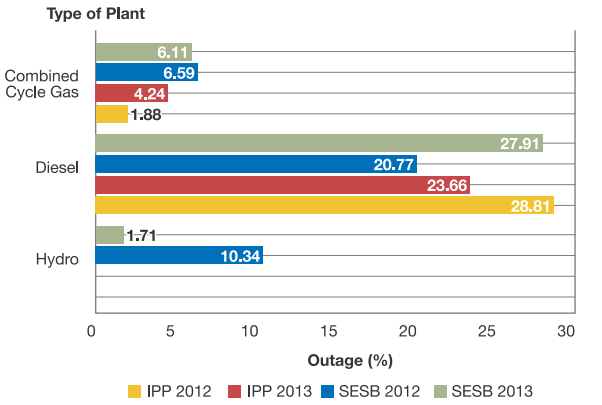


EAF of the combined cycle and diesel power stations, owned by IPPs in Sabah, has declined by 3% compared to 2012. The main reason was the increase in the unplanned outage factor. The stations were unable to operate due to the repair or maintenance works to avoid further damage. This includes the damage of the compressor blades of the combined cycle power stations owned by IPPs that required a longer outage period.

Average EAF in Sabah



Average EUOF in Sabah



The EUOF rate of the diesel power stations owned by SESB and IPPs increased by 5% and 7% respectively. The high rate of EUOF was caused by the failure of combined cycle power stations due to the change over operation from natural gas to distillate. In the second quarter of 2013, Sabah experienced gas supply interuptions to the power sector and this situation affected the capability of the combined cycle power stations that operated using distillate for a longer period of time.

For SESB's hydro power stations, the EUOF rate declined by 9% because of maintenance works of the auto voltage regulator equipment which was implemented in 2012. Accordingly, the lowest rate of EUOF recorded in 2013 was at 1.71%.

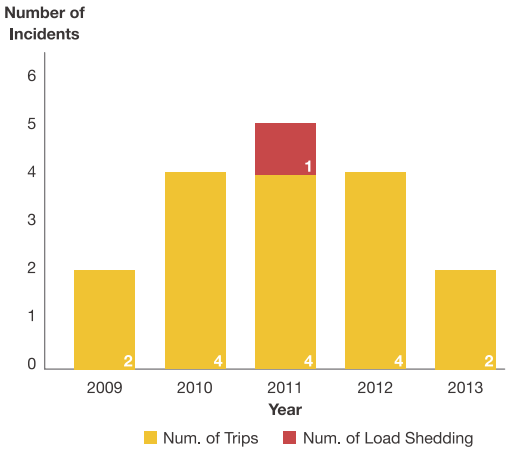
TRANSMISSION SYSTEM PERFORMANCE

PENINSULAR MALAYSIA

System Reliability

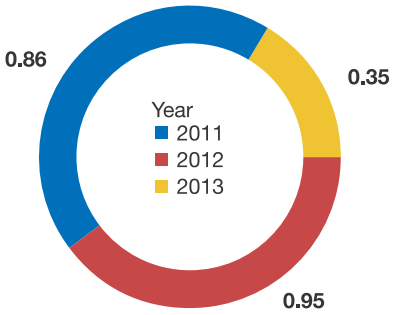
Overall, there was an increase in the performance of the transmission system in Peninsular Malaysia. In 2013, there were only two tripping incidents with a loss of load exceeding 50 MW, reported compared to four incidents in 2012. Similar to 2012, there was no load shedding incident reported. Nonetheless, the total amount of unsupplied energy increased by 11.9% to 238.2 MWh in 2013 compared to 212.7 MWh in 2012.

Number of Trips of the Transmission System with Load Shedding Exceeding 50MW in Peninsular Malaysia



The performance of the transmission system in Peninsular Malaysia has been improving. In the period of 2011 to 2013, the Delivery Point Unreliability Index (DePUI) or the System Minute for the national grid was within the range of 1 minute. The System Minute declined by 63.2% to 0.35 minutes compared to 0.95 minutes in 2012 and did not exceed the determined target of 1 minute.

DePUI in the Peninsular Malaysia in System Minute



Tripping Incidents of the Transmission System with Loss of Load Exceeding 50 MW in Peninsular Malaysia, 2013

Date	Duration (Start / End)	Component	Load Loss (MW)	Energy Loss (MWh)	Primary Cause
15 March	0047 / 0454	275/132/33 kV East Kuala Lumpur Substation	65	51.95	Flashover at the 132 kV East Kuala Lumpur main busbar
25 June	2319 / 0133	275/132/33/ 11 kV Bukit Raja GIS Substation	98	186.2	Operation of the breaker failure relay caused the 132 kV main busbar protection system at the Substation Bukit Raja GIS to operate.

SABAH

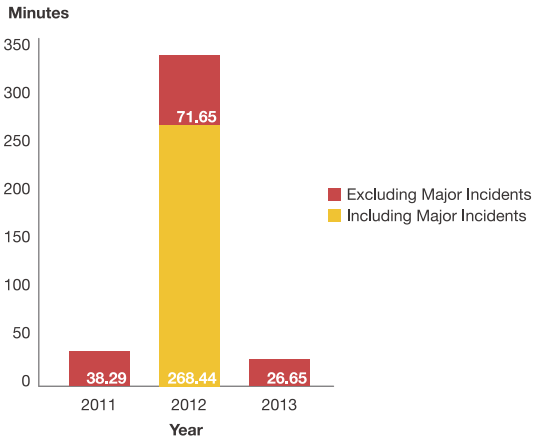
System Reliability

Sabah still faces the problems of low level of reliability and lacks of generating capacity. The capability of existing stations to accommodate the demand for electricity supply should there be any outage in the high capacity generation stations remained low. The electricity supply system operation in Sabah would be affected by the load management and load shedding incidents.

The System Minute for the Grid System in Sabah showed a significant decline of 62.81% to reach 26.65 minutes in 2013 compared to 71.65 minutes in 2012 (excluding major incidents). This decline indicated a general improvement in the SESB's transmission system performance compared to 2012, but it still exceeded the target of 25 minutes.

There were three recorded tripping incidents at the grid system in Sabah which caused loss of load exceeding 50MW. The biggest incident occurred on 9th August, 2013 with a load loss of 59.8 MW and the total unsupplied energy of 3,758.06 MWmin, which contributed 4.30 System Minute in Sabah. The incident was caused by the trippings at both ends of the 132 kV Beaufort – Penampang overhead transmission lines, a result of the operation of a distance relay. This had caused the electricity supply to Labuan, Beaufort, Keningau dan Tenom to be cut off from the grid.

DePUI -System Minute for the Sabah Grid



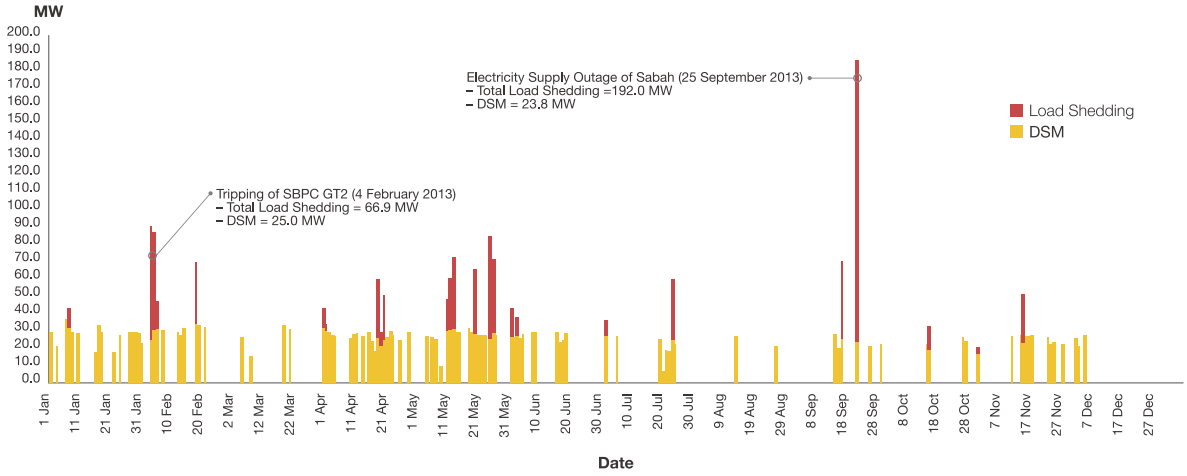
Demand Side Management - DSM and Under Frequency Load Shedding - UFLS

In 2013, Sabah faced a few incidents of generation sets forced outage which affected the electricity supply to a few districts and regions in Sabah and Labuan. The worst incident was on 25 September 2013, when nearly the whole of Sabah experienced power failures because of the tripping of the GT22 generation unit in Teluk Salut. Following the incident, other generation sets also tripped, resulting in the loss of 200.9 MW generation capacity in the grid system. The sudden loss of energy from the grid system had caused a frequency drop and eventually activated the UFLS device. At that time, load shedding was automatically done to stabilise SESB's grid system.

The Load Shedding and UFLS Manual is activated from time to time according to needs, and it usually is a follow-up measure had the preliminary step, known as the Demand Side Management – DSM, is unable to stabilise the frequency of the grid system. UFLS would be automatically activated when the frequency of the grid system drops to 49.50Hz.

DSM is an initiative taken by SESB with the approval of the customers involved. When the generation capacity is not able to accommodate the need of the consumers, SESB would first apply load shedding to the consumers who have participated in the DSM initiatives. These users would use their respective generation sets. Should this action also fail to prevent the frequency from dropping, then UFLS would have to be activated. Load shedding using the DSM and UFLS methods increased significantly between January till May 2013 with a total load shedding of 1,866.5 MW (DSM) and 490.9 MW (UFLS), compared to 1,404.1 MW (DSM) dan 169.5 MW (UFLS) in 2012. The lack of generation capacity was not only caused by the forced outage but also the planned outage of energy generators.

DSM and UFLS in Sabah, 2013



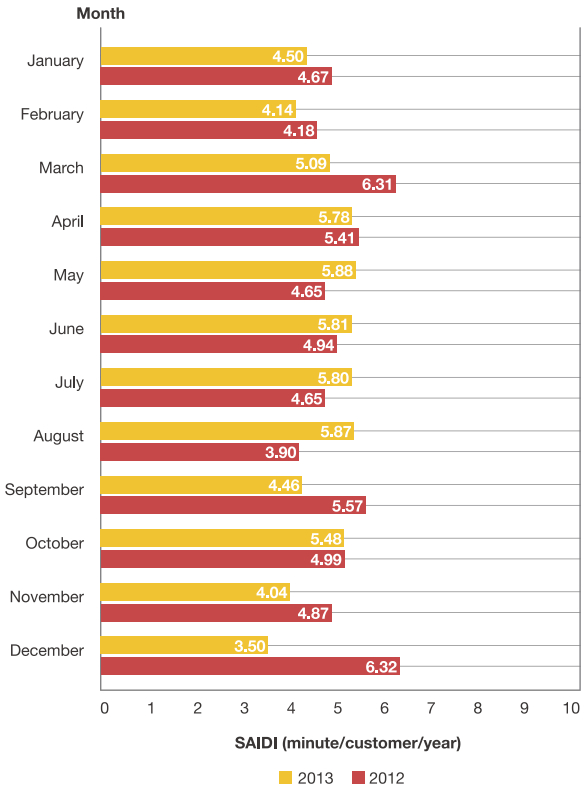
DISTRIBUTION SYSTEM PERFORMANCE

System Average Interruption Duration Index (SAIDI) Achievements

PENINSULAR MALAYSIA

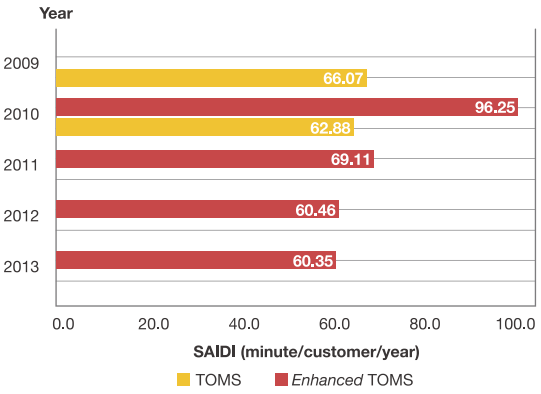
Overall, the monthly SAIDI in 2013 has decreased, except for the month of April, May, June, July, August and October which showed some increments compared to 2012. The monthly SAIDI in May was the highest compared to other months with 5.88 minutes per customer.

The Monthly SAIDI in Peninsular Malaysia, 2012 and 2013



In 2013, on average, the SAIDI performance for the electricity supplied by TNB was good and showed a descending trend compared to the SAIDI in 2012 for the same period. Overall, the SAIDI was 60.35 minutes/customer/year, below the 2013 target of 65 minutes/customer/year.

Annual SAIDI (Minutes/Customer/Year) in Peninsular Malaysia, 2009-2013



The medium voltage system was still the largest contributor to the overall SAIDI at 56.20 minutes/customer/year as compared to the low voltage and high voltage systems. The SAIDI of the medium voltage system in 2013 increased by 14.0% to 56.20 minutes/customer/year compared to 49.30 minutes/customer/year in 2012.

Since the interruptions in the medium voltage systems had a major impact on the performance of SAIDI, continuous efforts were undertaken by TNB over the existing power supply system through programmes such as preventive maintenance programmes, replacement of faulty cable joints and implementation of condition based monitoring.

The focus was given on underground cables in which more than 70% of the causes of the medium voltage outages were due to damage of the cable joints, termination and interruptions by third parties. The implementation of short-term and long-term actions to improve the medium voltage system was carried out on a continuous basis in 2013. In addition, the low voltage system interruptions caused by the damage of Insulating Piercing Connectors (IPC) was still making the highest percentage compared to other causes.

SABAH

Continuous monitoring of the Sabah's electricity supply system performance was done throughout 2013 to ensure that the targeted SAIDI was achieved. The SAIDI performance in Sabah for 2013 was as follows:

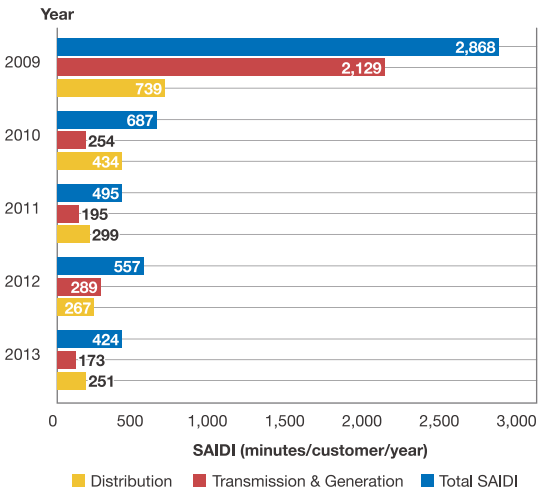
Sector	Target for 2013 (minute/ customer)	Achievement 2012 (minute/ customer)	Achievement 2013 (minute/ customer)
Sector 1	290	376.62	**273.33**
Sector 2	550	677.78	**636.84**
Sector 3	970	1,048.67	**435.50**
Total	**450**	**556.82**	**423.99**

Nonetheless, there were several issues identified as the barriers for the better SAIDI achievement, which depicted as follows:

- Frequent unplanned outages of high-capacity power generation sets.
- Weak electricity supply network system.
- Old (obsolete) equipment.
- High voltage cables damage caused by third party
- Ineffective implementation of maintenance
- A large number of uninsulated high-voltage and low voltage conductors in the electricity supply system

Untill 31 December, the state's overall SAIDI was 424 minutes/customer/year. The SAIDI for the entire state decreased by 23.9% from 557 minutes/customer/year in 2012. This was due to a drop of 40.14% in the SAIDI for the generation and transmission system in 2013 compared to 2012. There was a 6% decline of the SAIDI for the distribution system which recorded a drop from 267 minutes/customer/year in 2012 to 251 minutes/customer/year in 2013.

Annual SAIDI (Minutes/Customer/Year) in Sabah, 2009-2013



Several measures were undertaken to lessen the major cause of SAIDI in Sabah especially interruptions caused by trees on the high voltage and low voltage systems. The short-term actions taken by SESB to minimise the interruption caused by trees were as follows:

i. Replacement of bare conductor cables with Aerial Bundled Cable (ABC) for the high voltage system and PVC Insulated Conductors for the low voltage system.
ii. Installation of auto-recloser (AR) to minimise the duration of interruptions.
iii. Creation of new injection points to minimise the number of consumers affected in any interruption.
iv. Intensifying clearing activities of transmission line rentices.

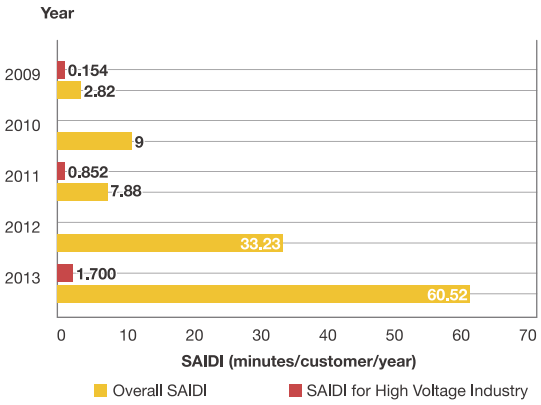
The medium-term initiatives from the Handholding Taskgroup Initiatives between TNB and SESB were still carried out in 2013, involving the VAR Management Control for Sabah's grid system, transmission line protection system scheme and intensified Condition Based Monitoring (CBM) for overhead medium voltage lines. These activities had resulted some improvement especially in the delivery division.

KULIM HI-TECH PARK (KHTP)

In 2013, the overall SAIDI of KHTP, reported by NUR Distribution Sdn. Bhd., stood at 60.52 minutes/customer/year, which was considered as a significant increase compared to 33.23 minutes/customer/year in 2012. The SAIDI for the industry (high voltage customers only) also increased to 1.70 minutes/customer/year compared to zero incidents reported in 2012 . The increase of SAIDI in the industry was caused by the breakdown of the 11,000 /110 V voltage transformers in 11 kV switchboards owned by NUR Distribution in January 2013. The damage had activated the busbar protection and interrupted half of the electricity supply to a high voltage customer for 51 minutes.

On the whole, the increase in SAIDI in 2013 was due to four unplanned events that affected the domestic/low voltage commercial (400/230 V) customers, where a loss of more than 10,000 minutes/customer was recorded. The four events contributed a total of 55 minutes/customer/year or 90.9% of the overall SAIDI in 2013.

Overall and Industrial (High Voltage Consumers) SAIDI (Minutes/Customer/Year) in KHTP, 2009-2013



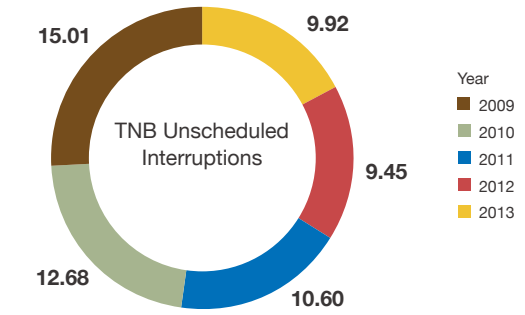
ELECTRICITY SUPPLY INTERRUPTIONS

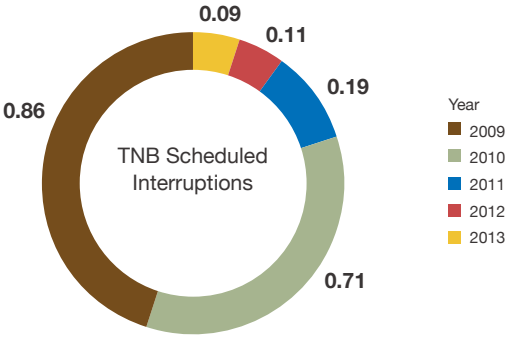
PENINSULAR MALAYSIA

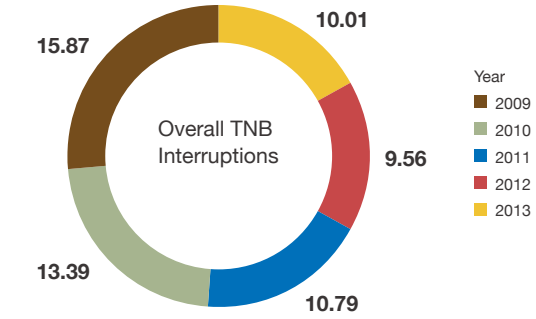
In general, the number of power outages per 1,000 consumers in 2013 in the TNB supply system increased by 4.7% to 10.01 interruptions per 1,000 consumers compared to 9.56 interruptions per 1,000 consumers in 2012.

The number of unscheduled interruptions increased by 5% at 9.92 for every 1,000 consumers rather than 9.45 per 1,000 consumers in 2012. The unplanned interruptions on the other hand reduced slightly from the previous year. However, the unscheduled interruptions recorded a high percentage of 99.1%, compared to 0.9% of scheduled interruptions the total interruptions in 2013.

Electricity Supply Interruptions for Every 1,000 TNB Consumers, 2009-2013





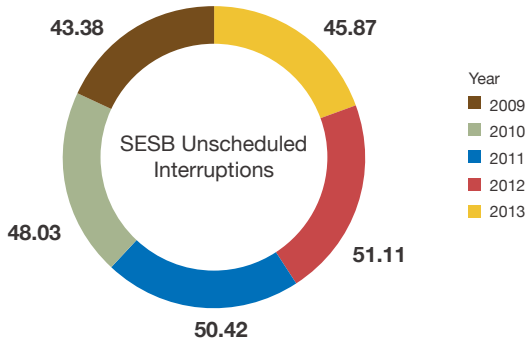


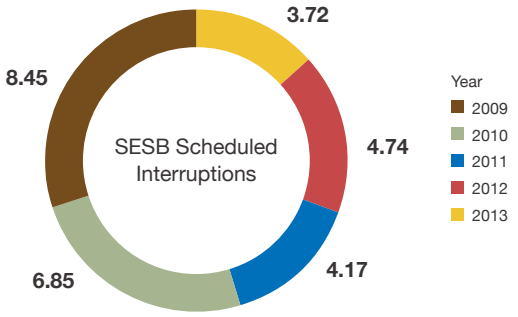
SABAH

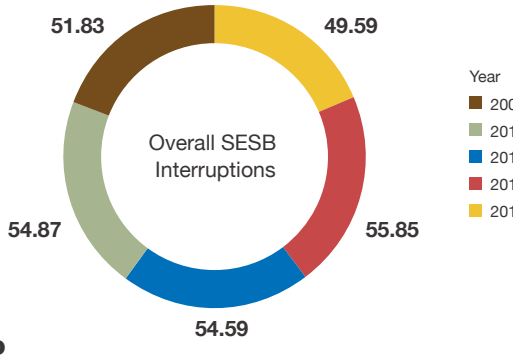
The number of power interruptions per 1,000 consumers in the SESB's supply system in Sabah in 2013 declined to 49.6 compared to 55.9 interruptions in 2012. The number of scheduled interruptions also decreased by 21.3% to 3.7 per 1,000 consumers as compared to 4.7 per 1,000 consumers in 2012.

The number of unscheduled interruptions also dropped by 10.2% to 45.9 interruptions per 1,000 consumers compared to 51.1 per 1,000 consumers in 2012. However, the unscheduled interruptions still recorded a high percentage of 92.5% of the total interruptions in 2013.

Electricity Supply Interruptions for Every 1,000 Consumers SESB, 2009-2013





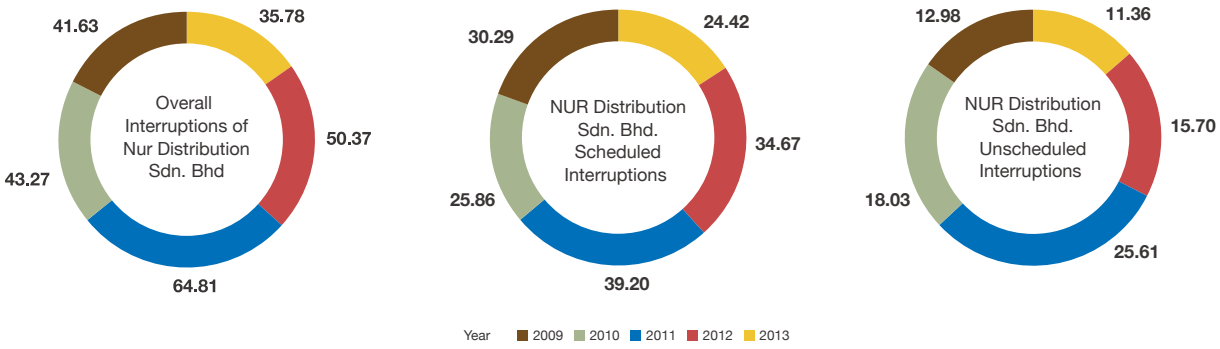


KHTP

In 2013, the total number of electricity supply interruptions per 1,000 consumers in KHTP reported by NUR Distribution Sdn. Bhd. had reduced by 28.9%, with 35.78 interruptions per 1,000 consumers against 50.37 interruptions per 1,000 consumers in 2012.

Unscheduled interruptions recorded a high percentage of 68.3%, compared to 31.7% of the total interruptions in 2013. The unscheduled interruptions and the scheduled interruptions per 1,000 consumers declined compared to 2012 which were recorded at 27.6% and 26.6% respectively.

Electricity Supply Interruptions for every 1,000 Nur Distribution Sdn. Bhd. Consumers, 2009-2013



POWER QUALITY PERFORMANCE

PENINSULAR MALAYSIA

The voltage dip incidents in the industrial areas in Peninsular Malaysia were monitored by ST through TNB's reports based on the records of 150 units of power quality recording equipment, installed in the main substations in the peninsula.

The index of power quality incidents, named SARFI, that was used to measure the performance of voltage dip incidents recorded by each recorder installed in TNB's electricity supply system, was monitored according to the voltage level of states in Peninsular Malaysia. $SARFI_{90}$ means the average number of voltage dip occurrences below 90%. A higher values of SARFI means more voltage dip incidents occurs in the electricity supply system.

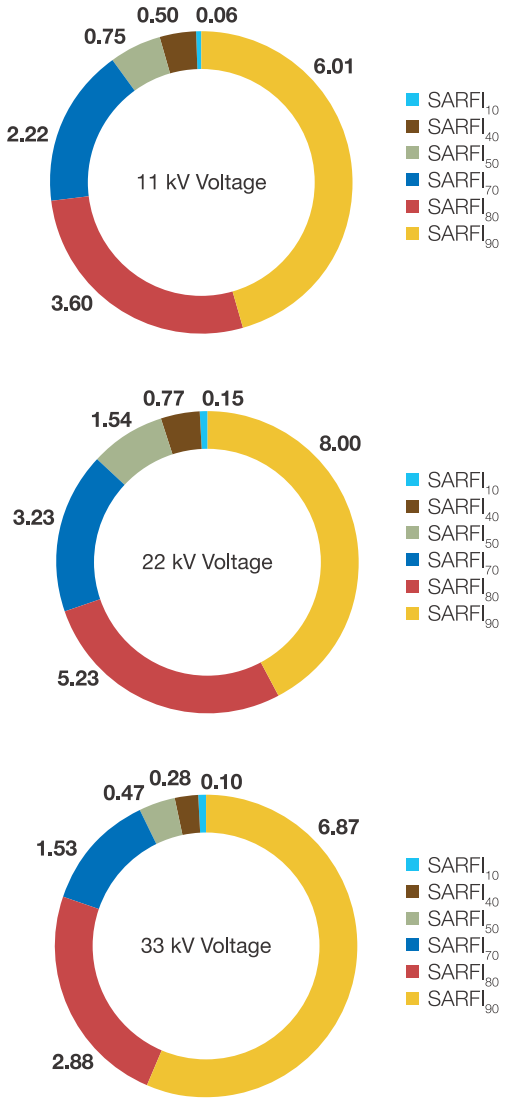
$SARFI_x$ According to Level Voltage 11 kV, 22 kV, 33 kV and the Overall System for states in Peninsular Malaysia, 2013

States	$SARFI_x$ - 11 kV System						$SARFI_x$ - 22 kV System						$SARFI_x$ - 33 kV System						$SARFI_x$ - Overall System					
	90	80	70	50	40	10	90	80	70	50	40	10	90	80	70	50	40	10	90	80	70	50	40	10
Johor	6.20	3.00	1.30	0.20	0.20	0.10	8.00	5.23	3.23	1.54	0.77	0.15	11.50	5.00	2.50	0.50	0.50	-	6.56	3.92	2.24	0.92	0.52	0.12
Kedah	10.00	3.80	2.20	0.20	0.20	-	-	-	-	-	-	-	6.14	2.86	1.43	0.29	-	-	6.31	2.69	1.38	0.23	0.08	-
Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	30.00	10.33	4.67	1.33	1.00	0.33	30.00	10.33	4.67	1.33	1.00	0.33
Melaka	4.50	3.00	1.50	0.38	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	4.50	3.00	1.50	0.38	0.13	-
Negeri Sembilan	6.22	3.78	2.33	1.00	0.78	-	-	-	-	-	-	-	14.00	3.00	1.00	-	-	-	6.00	3.40	2.10	0.90	0.70	-
Pahang	12.00	6.13	3.38	0.50	0.38	0.13	-	-	-	-	-	-	28.00	17.00	12.00	5.00	2.00	1.00	12.78	6.89	4.11	1.00	0.56	0.22
Pulau Pinang	3.75	2.75	1.75	0.50	0.25	-	-	-	-	-	-	-	3.57	1.71	0.57	0.14	-	-	3.00	1.73	0.82	0.27	0.09	-
Perak	7.22	3.78	2.22	1.11	0.67	0.22	-	-	-	-	-	-	9.71	3.43	1.43	0.14	0.14	-	7.13	3.13	1.81	0.69	0.44	0.13
Perlis	16.00	7.00	6.00	2.00	1.00	-	-	-	-	-	-	-	18.00	9.00	8.00	5.00	4.00	2.00	12.50	6.50	6.00	3.50	2.50	1.00
Selangor	9.00	-	-	-	-	-	-	-	-	-	-	-	6.67	2.71	1.50	0.38	0.21	0.08	6.40	2.60	1.44	0.36	0.20	0.08
Terengganu	9.86	6.00	5.14	2.14	1.43	-	-	-	-	-	-	-	2.00	2.00	2.00	1.00	-	-	8.88	5.50	4.75	2.00	1.25	-
Kuala Lumpur	6.33	3.33	2.33	1.00	0.67	-	-	-	-	-	-	-	5.50	2.33	1.00	0.25	0.25	0.08	4.73	2.07	1.07	0.40	0.33	0.07
Putrajaya/Cyberjaya	7.00	2.00	0.67	-	-	-	-	-	-	-	-	-	14.00	3.00	1.00	-	-	-	5.80	1.60	0.40	-	-	-
TNB	**6.01**	**3.60**	**2.22**	**0.75**	**0.50**	**0.06**	**8.00**	**5.23**	**3.23**	**1.54**	**0.77**	**0.15**	**6.87**	**2.88**	**1.53**	**0.47**	**0.28**	**0.10**	**5.91**	**3.12**	**1.86**	**0.68**	**0.41**	**0.09**

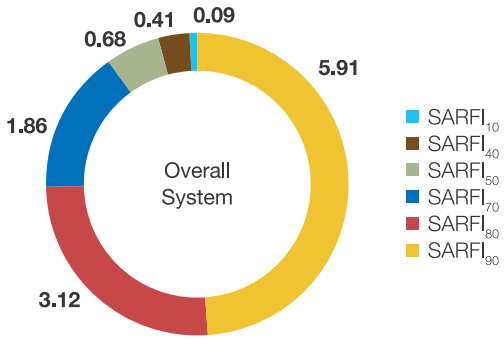
Note : $_x$ = maximum level for the number of measured cases

Based on the comparison of $SARFI_x$ according to the voltage level for 1 kV, 22 kV, 33 kV and the overall system, it shows that the 22 kV system recorded a higher $SARFI_{90}$, compared to the 11 kV and 33 kV systems. Meanwhile for the overall system, the $SARFI_{90}$ recorded the highest average incidents of 5.91.

$SARFI_x$, according to the Voltage Level of 11kV, 22kV and 33kV in Peninsular Malaysia, 2013



SARFI for the Overall System, 2013



The number of complaints pertaining to power quality in 2013 increased by 95.5% to 217 complaints involving 93 industrial users, compared to 111 complaints in 2012. In handling the issue, discussions with TNB have been held to ensure that TNB continued the effort of consulting the industrial users to find the best solution.

In 2013, 24 large power consumers in Peninsular Malaysia used the advisory services provided by TNB – Johor (4) Kelantan (1), Kuala Lumpur (1), Melaka (1), Negeri Sembilan (3), Pahang (1), Perak (2), Putrajaya/Cyberjaya (1) and Selangor (10).

Power Quality Incidents and Complaints in Peninsular Malaysia, 2013

State	Number of Voltage Dip Incidents	Complaints by Affected Users
Kuala Lumpur	71	8
Putrajaya/Cyberjaya	29	2
Selangor	160	28
Johor	164	4
Melaka	36	3
Negeri Sembilan	60	6
Kelantan	90	1
Pahang	115	7
Terengganu	71	2
Kedah	82	2
Perak	114	3
Perlis	25	-
Pulau Pinang	33	27
Total	**887**	**93**

Note : The overall number of voltage dip incidents is not the sum for every state as there were similar incidents recorded in different states.

The voltage dip incidents recorded in 2013 decreased to 887 incidents compared to 1,040 incidents in 2012. Many factors contributed to these incidents such as the weather, third party disturbance on the grid line and trippings of the lines. However, unknown factors recorded the highest percentange as opposed to the other factors.

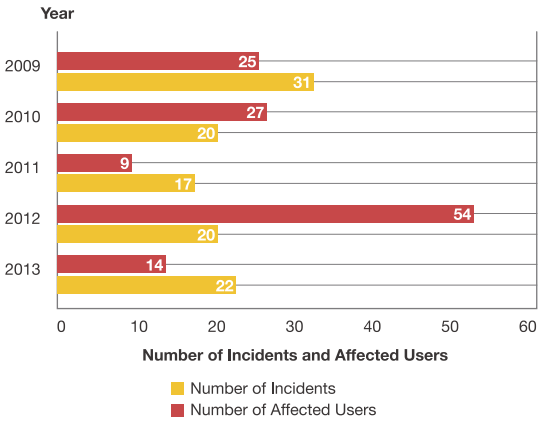
POWER QUALITY IN KHTP

There were 29 industrial companies operating in KHTP. These companies raised the issue of power quality in KHTP which was not up to statisfactory level, and affected their industrial operations and resulted in major losses.

The issue of power quality like voltage dip incidents has interrupted the electricity supply and eventually disrupted the sensitive operation processes at the industrial premises. Major factors that contributed to the voltage dip incidents include lightning, damage to the distribution system, switching activities and third party dredging activities that could have damaged the underground cables, though the activities could have been done at the lines or cables situated kilometres away from the affected areas.

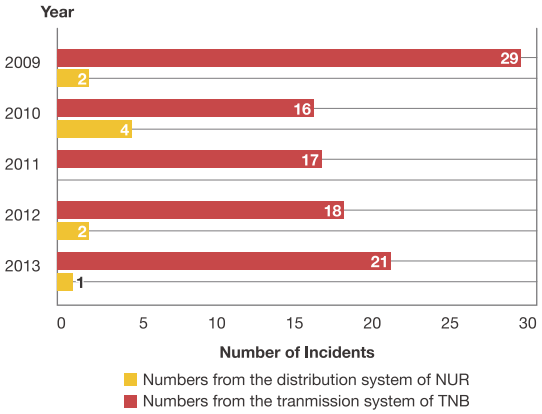
In 2013, the number of reported voltage dip incidents increased to 22 incidents compared to 20 in 2012. The number of consumers affected by the voltage dip incidents showed a decline of 74.1% to 14 consumers against 54 consumers in 2012. The highest number of affected consumers was reported in October 2013 of which the operation of six major high technology industrial users in KHTP were disrupted. The incident was caused by the tripping of the TNB-owned 275kV transmission line from Junjong to east Gurun due to lightning.

The Number of Voltage Dip Incidents in KHTP, 2009-2013



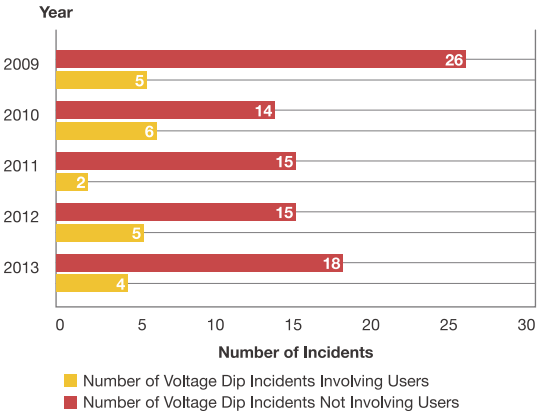
Throughout the year, 21 reported incidents were attributed to the TNB's distribution or the grid system while only one incident involved the internal system of NUR Distribution Sdn. Bhd.

Number of Voltage Incidents, 2009-2013



The major factors in the TNB's grid system that triggered the voltage dip incidents were the trippings of the transmission line, cable damage, switching or autoreclosing, transient damage or lightning. Meanwhile, the cause of incidents in the distribution systems of NUR Distribution Sdn. Bhd involved line trippings, cable damage and damage of switchgear or transformers. Any incident in the grid of TNB in the northern region or the distribution system of NUR Distribution Sdn. Bhd. in KHTP would also affect the electricity supply to users in KHTP, especially those with sensitive industrial equipment on processes.

Number of Voltage Dip Incidents, 2009-2013



CUSTOMER SERVICE QUALITY

TNB

TNB had recorded complaints by the consumers through the User Feedback System and TOMS. Based on statistics in 2013, the overall complaints recorded in the system was 20,861. The number of complaints recorded in TOMS reached 2,033,670.

Complaint Recorded in the User Feedback System, Financial Year 2013

Types of Complaints	Number
Consumer Account	1,225
Electricity Bill	4,197
Technical Services	2,461
Streetlights	5,059
Voltage Issues (Overload/Insufficient)	435
Tariff	50
Consumer Services	783
Estimation	3,909
Tampering of Meter Installation	1,144
Electricity Supply Disruption	1,593
Renewable Energy	5
Total	**20,861**

Complaints Recorded in the TOMS System Financial Year 2013

Type of Complaints	Number
Supply Disruption Category	1,652,055
Individual/Public Lamp Category	381,615
Total	**2,033,670**

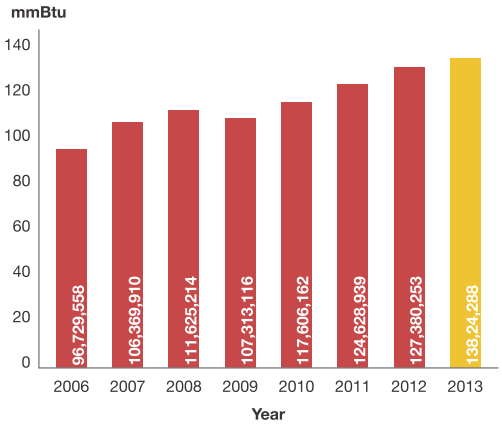
Most of the complaints received by the TOMS system were related to interrupted electricity supply and malfunctioning street lights while the complaints that went through the User Feedback System covered all services provided by TNB. Based on the statistics, the major complaints involved malfunctioning streetlights, high electricity bills and matters pertaining to meters.

NATURAL GAS AND LPG SUPPLY THROUGH PIPELINES

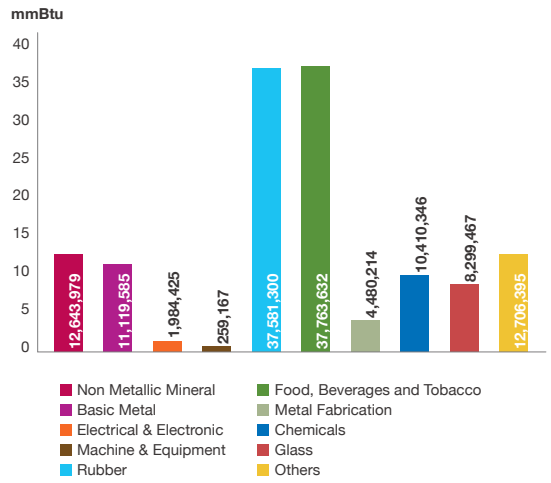
SUPPLY OF NATURAL GAS AND LPG IN PENINSULAR MALAYSIA

The quantity of natural gas supplied by GMB increased by 8.53% to 138,244,288 mmBtu in 2013 compared to 127,380,253 mmBtu in 2012. The industrial sector was the largest consumer of natural gas, consuming 137,246,099 mmBtu which was equivalent to 99.28% of the total consumption. In the meantime, the commercial sector consumed 961.562 mmBtu (0.70%) and the residential sector consumed 36,627 mmBtu (0.03%).

Total Consumption of Natural Gas in Peninsular Malaysia



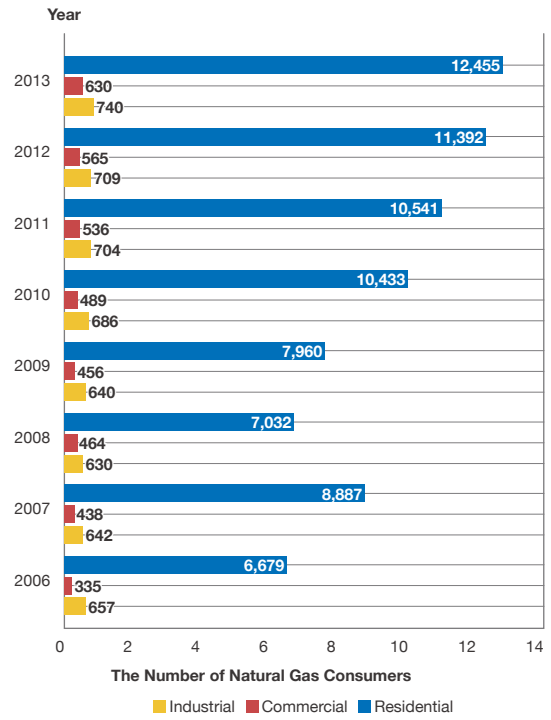
Consumption of Natural Gas based on Industry Sub-Sectors in Peninsular Malaysia, 2013



The food, beverages and tobacco sub-sector had the highest consumption of 37,763,632 mmBtu, which was 27.51% of the total consumption of natural gas by sub-sectors in the peninsula.

The number of natural gas consumers in the peninsula showed an increase in all three sectors compared to 2012. The number of industrial sector consumers increased from 709 to 740, the commercial sector also increased from 565 to 630 and the 11,392 consumers in the residential sector for 2012 also increased to 12,455 in 2013.

The Number of Natural Gas Consumers in Peninsular Malaysia

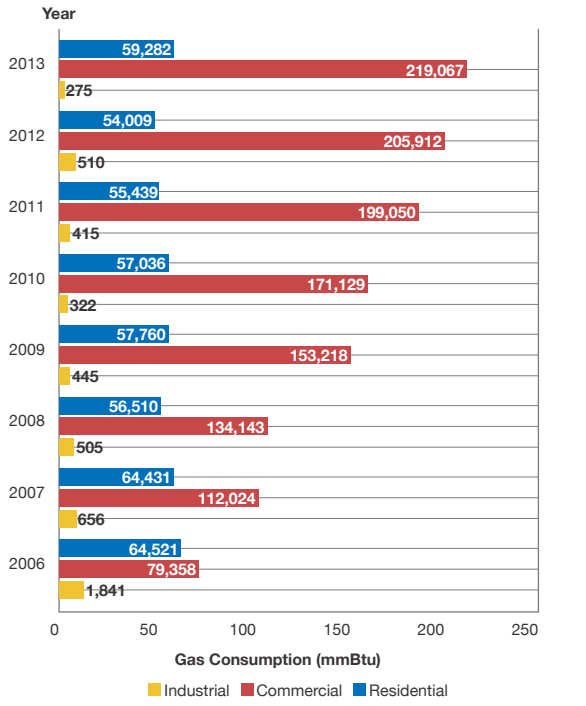


For the gas pipelines, two types of pipes were used that are steel and polyethylene (PE). The increasing volume of natural gas supply in the peninsula did not have a significant impact on the length of the pipelines as the additional natural gas supply volume was transmitted to the existing consumers' premises and the new consumers were usually located near the existing pipelines.

The length of the gas pipeline increased by 3.88% to 1,888.54 km in 2013 in comparison to 1,818.05 km in 2012.

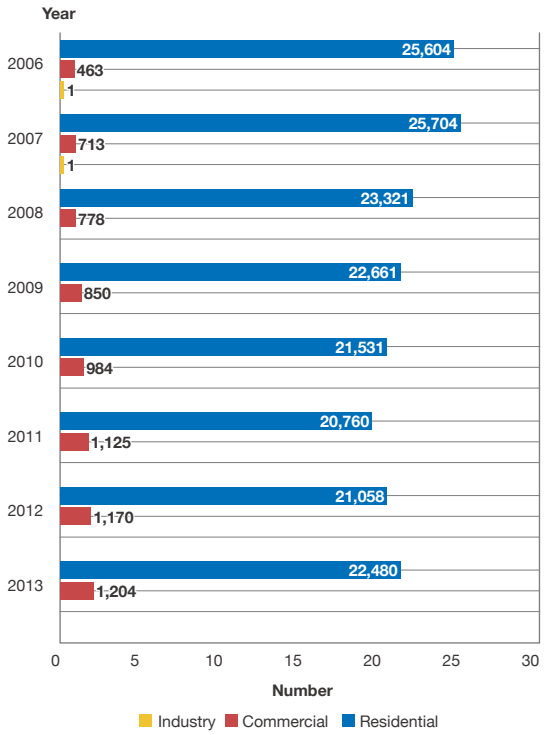
The quantity of LPG supplied by GMB was 278.624 mmBtu, which denoted an increase of 6.99% in 2013 compared to 260.431 mmBtu in 2012. The commercial sector was the major user, consuming 219.067 mmBtu which was equivalent to 78.62% of the total consumption of LPG. Other than that, the residential sector utilised 59.282 mmBtu (21.28%) and the industrial sector used 275 mmBtu (0.10%).

The Number of Natural Gas Consumers in Peninsular Malaysia



The number of LPG consumers in the residential sector in Peninsular Malaysia increased by 6.75% from 21,058 consumers in 2012 to 22.480 in 2013. The commercial sector also increased by 2.91% from 1,170 consumers in 2012 to 1,204 in 2013. However, there was no consumers using LPG in the industrial sector since 2008.

Number of LPG Consumers in Peninsular Malaysia



NATURAL GAS SUPPLY IN SABAH AND LABUAN

Natural gas in Sabah and Labuan was only used by the industrial sectors in Kota Kinabalu Industrial Park (KKIP) and Labuan. The total natural gas consumption in Sabah and Labuan showed an increase of 25.30% which was equivalent to 93.582 mmBtu in 2013 as compared to 74.684 mmBtu in 2012.

The number of natural gas consumers in Sabah and Labuan increased by 50% to 18 consumers in 2013 compared to 2012.

Natural Gas Consumption in Sabah and Labuan, 2006 - 2013

Year	Total Consumption (mmBtu)	Number of Consumers
2006	171,598	8
2007	178,551	11
2008	185,388	13
2009	52,335	11
2010	62,236	11
2011	66,795	12
2012	74,684	12
2013	**93,582**	**18**

PERFORMANCE OF GAS SUPPLY SERVICES THROUGH PIPELINES

CONTINUITY OF GAS SUPPLY

The supply continuity performance was better than 2012, in which the SAIDI of GMB declined sharply due to the lack of supply disruptions within a long period of time in 2013. The SAIDI in 2013 was 0.1480 minutes/customer/year.

Among the methods used by the licensees to improve the continuity of the supply was to improve inspection and maintenance activities besides taking immediate actions if there were problems or complaints received from the consumers.

GMB Performance Indicator, 2010 - 2013

Performance Indicator	Unit	Index			
		2010	2011	2012	2013
SAIDI	Minutes/Customer/Year	0.6299	0.3630	0.7489	**0.1480**
SAIFI	Interruptions/Customer/Year	0.0037	0.0039	0.0029	**0.0022**
CAIDI	Minutes/Interruption	169.27	90.96	260.90	**66.83**
Leak at the Gas Pipelines for every 1,000 KM	Number of Leaks/ 1,000 Km	7.47	5.43	3.74	**2.06**
Leak at station and the Consumer Premise for Every 1,000 Customers	Number of Leaks/ 1,000 Customers	6.94	6.66	4.95	**4.02**

Note:
SAIDI = System Average Interruption Duration Index (Minutes/Customer/Year)
SAIFI = System Average Interruption Frequency Index (Interruptions/Customer/Year)
CAIDI = Customer Average Interruption Duration Index (Minutes/Interruption)

CUSTOMER SERVICE QUALITY

GAS PIPELINE

In 2013, 224 complaints were received by the gas consumption licensee. The complaints on gas supply services were submitted directly to the licensee. The complaints were divided into two categories — interruptions of supply and gas leaks.

Cases of gas supply interruptions at the users' premises among others were due to closed valves and damage on the meter or the pressure regulator. The licensee has rectified the above incidents within the stipulated period. Meanwhile, the gas leaks were caused by the pipe extension especially at the union extension, meter and pressure regulator. All leaks reported were minor cases at the consumers' premises and were repaired immediately.

Complaints Received by Licensee, 2013

	Interruptions Supply			Gas Leaks			Total
	Industry	Commercial	Domestic	Industry	Commercial	Domestic	
Natural Gas	7	0	20	19	2	17	**65**
LPG	0	22	30	0	22	85	**159**
Total	**7**	**22**	**50**	**19**	**24**	**102**	**224**

In 2013, 34,497 enquiries recorded were related to gas bills, bill payments, gas prices, bill complaints, registration of new users and reconnections.

REVISION OF ELECTRICITY TARIFF IN PENINSULAR MALAYSIA, SABAH AND LABUAN

In 2013, ST was fully involved in the determination of electricity tariff in the peninsula, Sabah and Labuan. The findings and analysis from ST were presented to the Government as an input in determining the reasonable tariff rate increase for the two proposals to review the electricity tariff. As such, the Government has approved the average electricity tariff simultaneously for Peninsular Malaysia, Sabah and Labuan, effective 1Jan 2014.

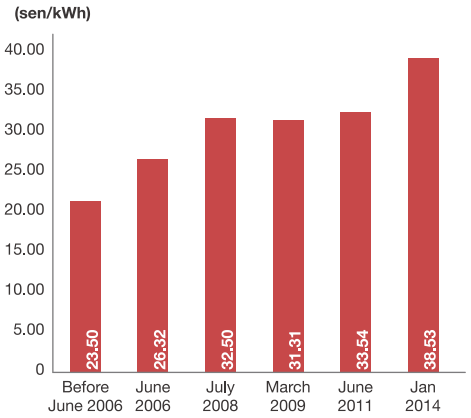
PENINSULAR MALAYSIA

For the first time, the determination of electricity tariff in Peninsular Malaysia was done through the Incentive-Based Regulation (IBR) mechanism which had been developed by ST in 2012. The objective of the IBR is to ensure that the determination of electricity tariff is carried out systematically, transparently and focus on achieving better utility efficiency. For that purpose, the concept of penalty and incentive on the targeted performance achievement of the utility distribution and transmission entities in the IBR mechanism, is one of the main indicators which is closely monitored.

Effective 1 January, 2014, the average rate of electricity tariff in the peninsula would be increased by 4.99 sen/kWh (or 14.89%) from the current average rate of 33.54 sen/kWh to 38.53 sen/kWh which involves four components:

i. The impact of streamlining the domestic gas price from RM13.70/mmBtu to RM15.20/mmBtu on the electricity tariff would be 1.52% or 0.51sen/kWh;
ii. The effect of the imported LNG price determination at RM41.68/mmBtu on the electricity tariff would be 10.17% or 3.41 sen/kWh;
iii. The effect of streamlining the coal price from USD85/tonne metric to USD87.5/tone metric on the electricity tariff would be 0.51% or 0.17 sen/kWh; and
iv. The TNB's base tariff revision which would be an increase of 2.69% or 0.90 sen/kWh against the average current tariff. The energy base tariff would be regulated through the IBR mechanism by ST.

Average Electricity Tariff in Peninsular Malaysia



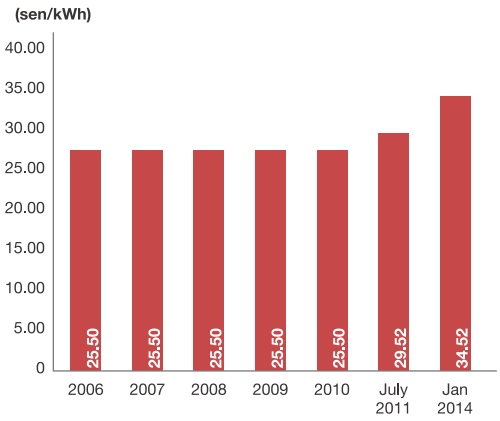
This recent revision was the third adjustment of the electricity tariff, involving the revision of TNB's base tariff rate. The first revision was done in June 2006, the second was in June 2011 and the third was scheduled for January 2014 as illustrated in the above figure. Prior to this third adjustment, the revision of the electricity tariff only involved changes in the gas price of the electricity generation sector.

SABAH AND LABUAN

For Sabah and Labuan, the average electricity tariff would be increased by 5.00 sen/kWh (or an increase of 16.9%) from the current rate of 29.52 sen/kWh to 34.52 sen/kWh, effective 1 January 2014. The restructuring of tariff was needed to balance the increasing gap between the cost of electricity supply and the existing tariff so that SESB could continue to supply reliable electricity in Sabah and Labuan.

The previous average electricity tariff, which was approved in July 2011 and priced at 29.52 sen/kWh, could only accommodate 80% of the SESB's operation costs and did not reflect SESB's real cost of supply which was 43.46 sen/kWh. The low SESB's electricity tariff was the main hurdle in the efforts to improve the level of electricity supply quality in Sabah. The following figures show the chronology of the average electricity tariff in Sabah and Labuan since 2006 until January 2014.

Average Electricity Tariff in Sabah



REVISION OF GAS TARIFF FOR GMB IN RELATION TO THE CHANGE IN GAS PRICE

In 2013, ST has been actively conducting reviews on the GMB's average natural gas tariff. This was in line with the Gas Price Subsidy Rationalisation Plan which was announced by the Government in 2011.

The proposed revision of the GMB's average natural gas tariff needed to be done to accommodate the projected increase of the cost of natural gas supplied by PETRONAS to GMB, which included domestic piped gas and LNG imported through the Regasification Terminal (RGT) in Sungai Udang, Malacca. The RGT already started its operations on 23 May 2013.

For the imported LNG price, the proposed revision of GMB's gas price had also incorporated the price of LNG sold by PETRONAS according to the LNG market price, which included the shipping, regasification and pipeline transmission cost. The selling price of LNG using the RGT facilities is based on the market price of LNG ex-Bintulu with a discount rate of 10% for non-energy sector.

A few proposals for the price of natural gas for the GMB's clients (non energy sector) have been presented in the Economic Forum which was held on 25 November 2013 and 16 December 2013. However, the proposed gas price needs to be reviewed and presented in the next Economic Forum meeting which was expected to be held in early January 2014 for the final decision on the gas price review.

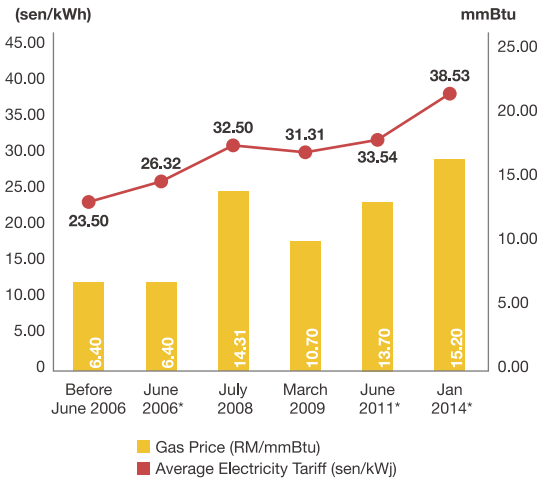
FUEL PRICE FOR THE DETERMINATION OF ELECTRICITY TARIFF IN PENINSULAR MALAYSIA

THE RELATIONSHIP BETWEEN THE FUEL GAS PRICES AND THE ELECTRICITY TARIFF IN PENINSULAR MALAYSIA

The cost-based electricity tariff price determination is imperative to ensure an efficient consumption of fuel and preserve the economic, social and environmental costs. Until now, gas continues to be the main fuel for the generation sector and in deciding the current price of electricity tariff.

From 1997 untill 2000, the Government had set the gas price at RM6.40/mmBtu which was below the real market price to protect Malaysians from the impact of gas price increase at the global level. However, this measure could not be extended as it would cause energy wastage and loss of national income. Thus, in early 2008, when the price of global crude oil escalated sharply untill it reached more than USD$130/bbl, the Government started to review the gas price for the electricity generation sector. This was because the domestic gas price was related to the changes of the global crude oil prices at that time. On 1 July 2008, the gas price was raised to RM14.31/mmBtu, an increase of 124% and inevitably caused the average electricity tariff to be reviewed and adjusted from 26.32 sen/kWh to 32.50 sen/kWh (an increase of 23%), as illustrated in the following figure.

Revised Prices for Gas and Average Electricity Tariff in the Peninsular Malaysia



*The increase included revision of TNB's basic tariff

Meanwhile, in March 2009, the global crude oil prices decreased to US$50/bbl. Thus, the gas price for the generation sector in the peninsula was reviewed and cut down to RM10.70/mmBtu from RM14.31/mmBtu. This price decline affected the average electricity tariff which was adjusted to 31.31 sen/kWh from 32.50 sen/kWh — a decrease of 5%.

The global crude oil price reached the highest value in 2012 because of the political crisis in the Gulf countries and the recession in Greece, which resulted in the worst financial impact in other European zones. In addition, natural disasters such as the earthquake in Japan also contributed to the increase of the crude oil prices. Hence, the gas price of the electricity generation sector was readjusted to RM13.70/mmBtu from RM10.70/mmBtu, while the electricity tariff rate was set at 33.54 sen/kWh starting June 2011. The revision of electricity tariff at that time incorporated the TNB's base tariff revision of 2%.

In line with the Government's efforts to rationalise the gas and fuel subsidies, the gas price would be reviewed again beginning January 2014, incorporating an increase of RM1.50/mmBtu to reach RM15.20/mmBtu. Thus, the electricity tariff rate was also revised and set at 38.53 sen/kWh which incorporated the revised price of coal, cost of LNG and TNB's base tariff revision of 2.69%.

THE PRICE OF LNG EX-BINTULU AND THE PRICE OF COAL

Besides gas, among other major fuel components in the determination of electricity tariff are coal, LNG, diesel/distillate and hydro. Beginning 2013, gas supply needs to be supported with LNG to meet the increasing demand for electricity besides the existing domestic gas supply in the generation sector. In light of this, the Government has decided that the LNG supply in the generation sector should be determined by market price. Thus, the gas price charged to the energy sector consumers is based on the LNG Weighted Average Price (WAP) ex-Bintulu, with a discount factor of 15% including the transmission costs, regasification, pipeline transmission and sales tax.

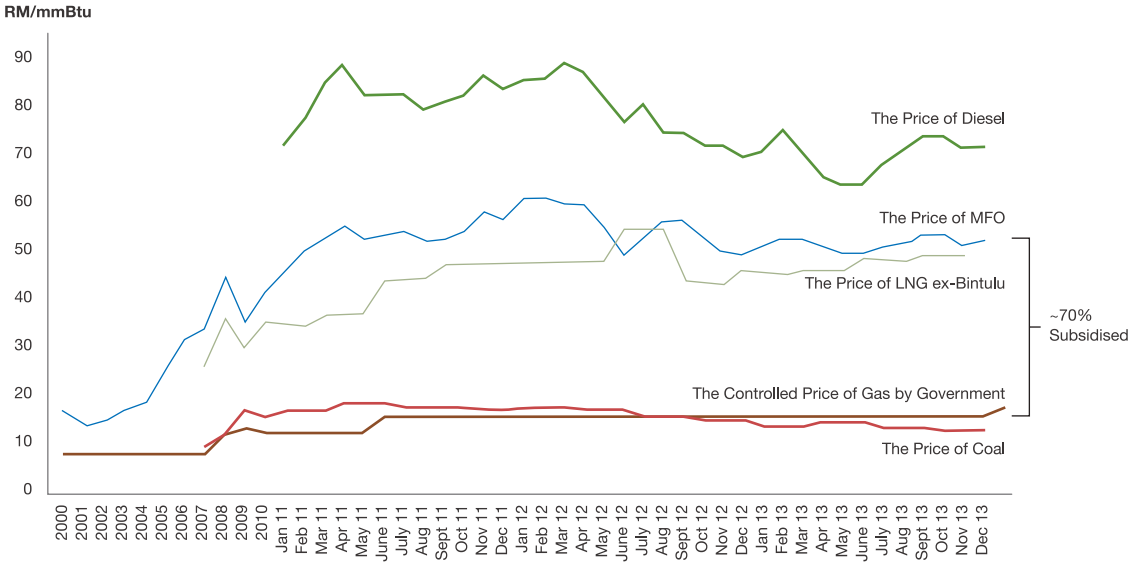
Therefore, the gas consumption in the generation sector which exceeds 1,000 mmscfd would use LNG supplied by the RGT in Sungai Udang, Malacca, using that formula. The price to be set for electricity tariff determination on 1 January 2014 should be RM41.68/mmBtu.

Coal is among the major fuel components for the energy generation sector in Peninsular Malaysia. The coal price is set using a mechanism known as Applicable Coal Price (ACP) which was introduced in 2011. This mechanism sets the price for the coal-based generators such as TNB Janamanjung, Jimah Energy Ventures, Tanjung Bin and also Kapar Energy Ventures. This mechanism is set based on the price of imported coal for transmission and is calculated quarterly. The price of coal to be used for the determination of electricity tariff on 1 January 2014 would be at USD87.50/tonne.

ST also monitors the price trends of MFO, LNG ex-Bintulu and coal, which are floated at the market price against the gas price determined by the Government. Starting January 2014, the Government has decided that the gas price for the electricity sector is to be readjusted — the price to increase to RM15.20/mmBtu, compared to RM13.70/mmBtu previously. Nevertheless, the price is still much lower than the market price of MFO which is about RM50/mmBtu. This means the Government would still bear a form of subsidy of the electricity generation sector which is already absorbed by PETRONAS by 70%.

At the same time, the price of LNG ex-Bintulu was the highest price component in the determination of electricity tariff which was about RM45/mmBtu until January 2014, while the price of coal determined through the ACP mechanism was the lowest which was about RM12/mmBtu.

The Price of MFO, LNG, Coal and Diesel Against the Gas Control Price by Government

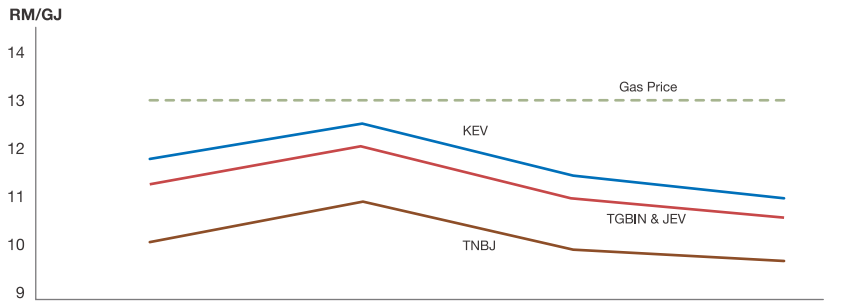


COAL PRICE BASED ON THE MECHANISM TO DETERMINE APPLICABLE COAL PRICE (ACP)

Year 2013 had a good effect on the global coal price. ST had been monitoring the price and the procurement cost of coal especially issues related to the supply, cost and the coal price determination mechanism from time to time, through the Coal Price and Cost Monitoring Committee. The coal price was lower in 2013 as compared to 2012 which was consistent with the global coal price.

From quarter two until quarter four in 2013, the coal price had declined compared to 2012 based on the stable coal price trend after the implementation of the ACP mechanism. The price of coal in 2013 was still below the global gas price of 12.99 RM/GJ.

The ACP for the year of 2013



	Quarter 1 (2013) RM/GJ	Quater 2 (2013) RM/GJ	Quater 3 (2013) RM/GJ	Quater 4 (2013) RM/GJ
TNBJ	10.23	10.99	10.04	9.84
JEV & TGBIN	11.37	12.08	11.08	10.69
KEV	11.86	12.54	11.53	11.06
Gas Price	12.99	12.99	12.99	12.99

The ACP was set based on the ratio of different types of coal in the Power Purchase Agreement as follows:

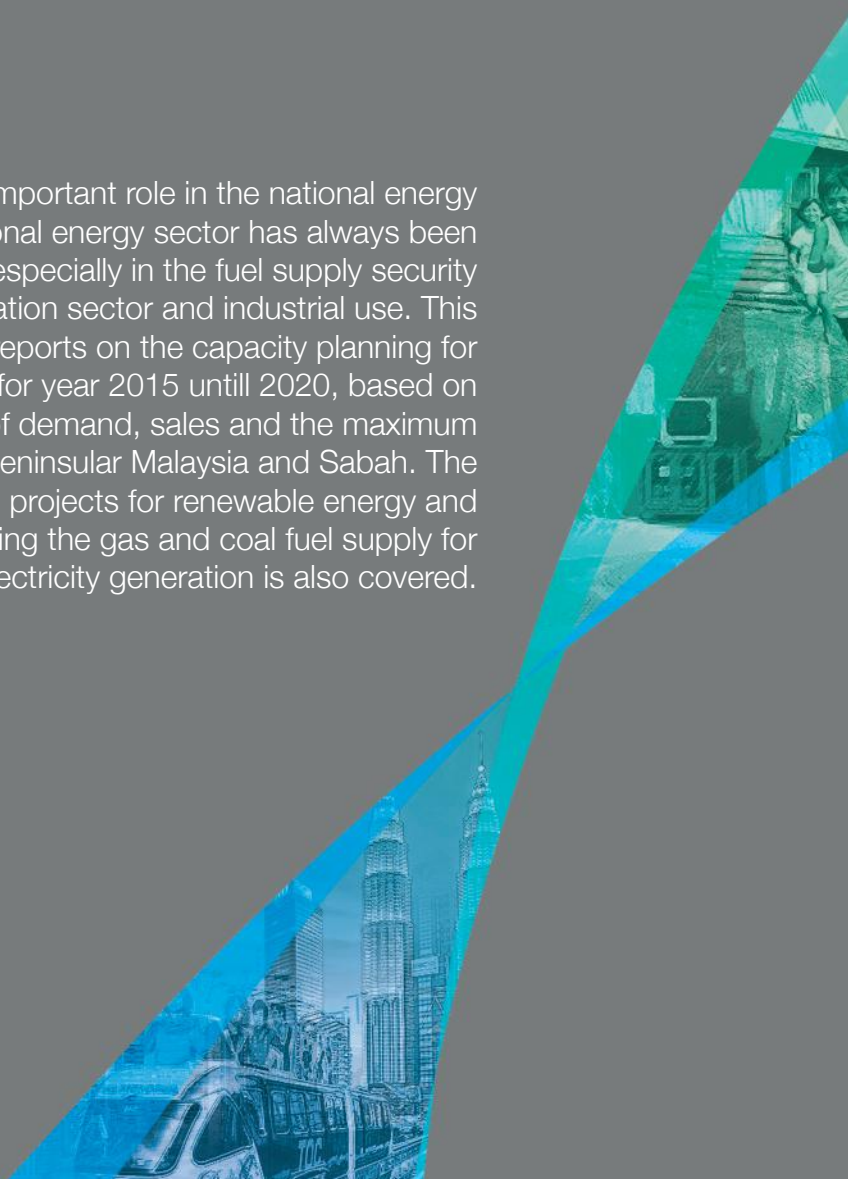
	Bituminous	*Sub-Bituminous*
Kapar Energy Venture (KEV)	100%	-
TNB Janamanjung (TNBJ)	-	100%
Tanjung Bin (TGBIN)	70%	30%
Jimah Energy Venture (JEV)	70%	30%

Until the fourth quarter of 2013, the NEWC Coal Price Index and Argus McCloskey Coal Price Index (API#4) showed a continuous decline of 9.52% and 8.08% respectively because of the imbalance of supply/demand, where there was an excess supply of coal against the low demand from the buyers. This forced the coal suppliers to offer discounts for most contracts and low price at the end of 2013 based on the passive buying demands. The situation could be seen in China, where based on the Gross Domestic Product (GDP), the weak economic growth in China reduced the buying activities of coal. The price determination was based on long-term contracts which were agreed by TNBF and coal suppliers.


KL MONORAIL
TOC

ENSURING A SECURE ENERGY SUPPLY

ST plays an important role in the national energy planning.The national energy sector has always been facing challenges especially in the fuel supply security for electricity generation sector and industrial use. This section contains reports on the capacity planning for electricity generation for year 2015 untill 2020, based on the expected growth of demand, sales and the maximum electricity demand for Peninsular Malaysia and Sabah. The report on the generation projects for renewable energy and the situation concerning the gas and coal fuel supply for electricity generation is also covered.



ELECTRICITY SUPPLY PLANNING

PENINSULAR MALAYSIA

Based on the Generation Development Plan which was prepared by ST and approved by the Committee of Planning and Implementation of Electricity Supply and Tariff, the additional generation needed is 10,924 MW for 2015 until 2020. This amount is based on the expected average growth for sales, generation and agreed maximum demand for electricity in Peninsular Malaysia, as tabulated below:

Duration	Maximum Demand (%)	Electricity Sales (%)	Electricity Generation (%)
2013 - 2015	3.3	3.9	3.4
2015 - 2020	3.2	3.5	3.4
2020 - 2030	1.7	2.0	1.8

Due to constraints in the amount of gas supply in Peninsular Malaysia, Unit 2 (64 MW) Sultan Iskandar Thermal Power Station, Pasir Gudang, Johor continued its operations for another year until 31 December 2013. The Track 3A coal plant project, which was undertaken through competitive bidding, was awarded to TNB and the plant will start operation in 2017.

The latest projection for energy demand is higher than the previous forecast, of which the implementation of the combined cycle gas power plant scheduled for 2020 is now brought forward to 2018. In 2020, only Tekai hydroelectric power station is expected to start operation.

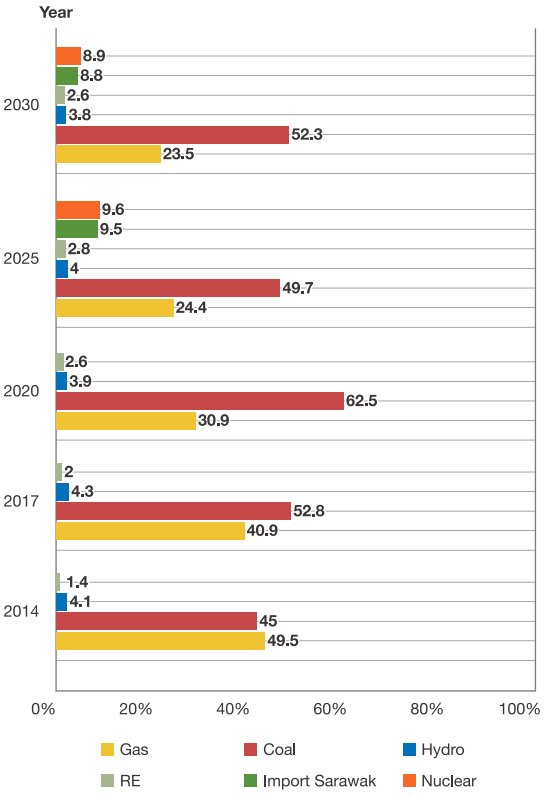
With the operationalisation of the LNG RGT in Sungai Udang, Malacca in August 2013, the supply of natural gas for power generation in the peninsula has become more secure.

To ensure a mix of generation sources is used in Peninsular Malaysia, the generation development plan was designed to take into account the Herfindahl-Hirschman Index (HHI). This initiative was introduced by MyPower to ensure the use of a balanced mix of fuel without the monopoly of any particular source. To date, the fuel mix for power generation in the peninsula comprises of natural gas, coal, hydro, co-generation and RE such as biomass, biogas and solar.

Additional Generation Capacity until 2020 for Peninsular Malaysia

Year	Generation Plant	Capacity (MW)
2015	Coal-fired Power Station Manjung 4	1,010
	Connaught Bridge (Repowering) Station	384.7
2016	TNB hydro power station Hulu Terengganu	265
	TNB hydro power station Ulu Jelai	372
	Coal-fired power station Tanjung Bin Energy	1,000
	Combined cycle power station TNB Prai Sdn. Bhd.	1,071
	Extended operation of the Kuala Langat power station	675
2017	PETRONAS Co-generation Station, Pengerang	400
	Extended operation of Segari Energy Venture combined cycle power station	1,303
	Extended operation of TNB Pasir Gudang combined cycle power station	275
	TNB Manjung Five Sdn. Bhd.	1,000
2018	Coal-fired power station through the Track 3B bidding process	1 x 1,000
	Capacity addition of Chenderoh hydro power station	12
	Gas combined cycle power station	1,000
2019	Coal-fired power station through the Track 3B bidding process	1 x 1,000
2020	Tekai hydro power station	156
Total		**10,924**

Projected Generation Mix in Peninsular Malaysia – 2014 until 2030



SABAH

The generation development plan for Sabah took into account the maximum demand which increased by 5.6% to 874.4 MW as recorded on 23 September 2013 compared to the year before.

Projected Average Annual Growth for Sales, Generation and Maximum Demand in Sabah

Duration	Electricity Sales %	Electricity Generation	Maximum Demand %
2013 - 2016	4.8	4.5	4.3
2017 - 2021	4.4	4.2	4.0
2022 - 2026	3.9	3.8	3.7

The generation sector in Sabah is divided into two sectors, West Coast and East Coast. Most of the generation activities are focused at the West Coast with the gas generation usually monopolising the fuel mix percentage. However, to ensure the continuity of supply in the East Coast of Sabah, two generation plants have commenced operations, namely, the Kubota Power Station and the Batu Sapi Power Station, at 64 MW and 20 MW capacity, respectively. The two power plants use diesel as its main fuel and only operate during peak period.

Supply Situation in Sabah

	West Coast	East Coast	Total
Peak Demand (MW)	577.1	297.3	874.4
Dependable Capacity (MW)	763.6	408.7	1172.3
Reserve Margin (%)	32.3	37.5	34.1
Existing Capacity (MW)	740.5	235.4	975.9
Operational Reserve (%)	28.3	-20.8	11.6

Note: Data as of 23 September 2013

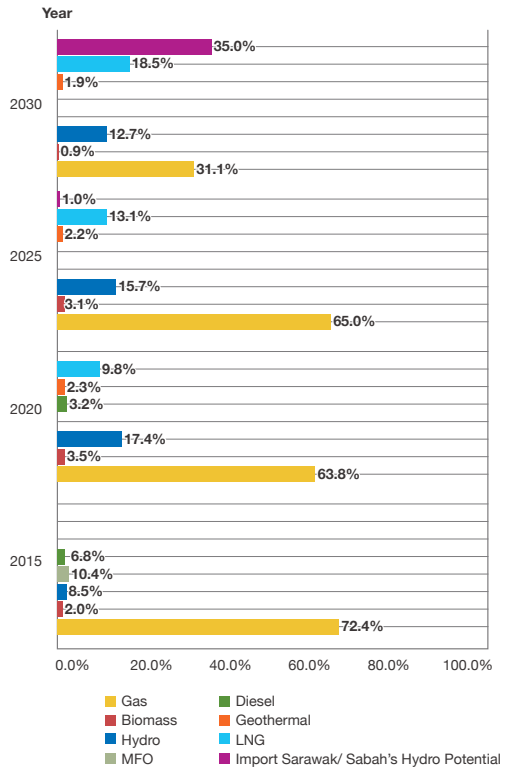
Since the implementation of the Feed-In-Tariff (FIT) in Sabah has yet to be finalised, the RE projects were delayed and behind schedule. Some of the RE generation projects had to be postponed due to financial problems faced by the developers.

Additional Generation Capacity Up to 2020 for Sabah

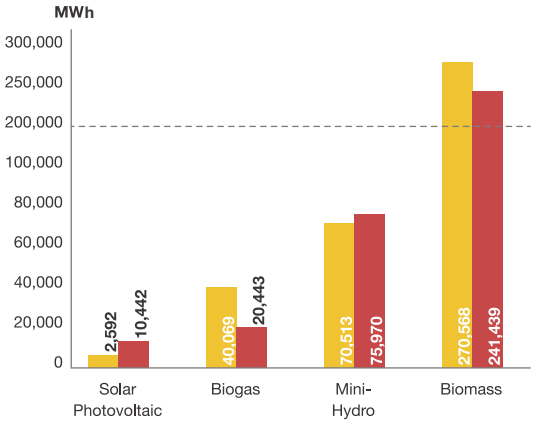
Year	Power Station	Capacity (MW)
2014	Kimanis Power	285
	SPR Energy	100
	Cash Horse	10
2015	Kalansa Energy	5
	Afie Power	8.9
	Tenom Pangi Hydroelectric (Upgrade)	8
2016	Tawau Green Energy (TGE)	30
2017	Eastern Sabah Power Corporation (ESPC)	300
2019	Upper Padas Hydroelectric	180

Since the option of constructing coal power plants received objections from the residents in Sabah, for the long run, other options like the transmission of energy from Sarawak and Indonesia (Kalimantan) are taken into account in this generation development plan. In terms of fuel mix, natural gas has been prevalent as the primary source of fuel and the trend will only decrease if the electricity was imported from Sarawak or Indonesia.

Projected Generation Mix in Sabah for 2015 until 2030



Total Electricity Generation by RE Generation Plants



In 2013, biomass fuel still recorded the highest electricity generation compared to other fuels. Although the electricity generation by solar photovoltaic system is the lowest compared to others, it showed a steep increase of 303%, due to the increase in the issuance of licences. The solar energy generation was recorded based on the licensed installations.

Generation from mini-hydro stations also increased compared to 2012 due to an increase in the generation at the Sungai Rek mini-hydro station. The hydro power station at Sungai Perting maintained its good performance with a capacity factor of 92%.

Climate plays an important role in ensuring the continuity of generation at the power stations using renewable energy source. Besides that, there were some power stations that faced financial and design problems which forced the stations to halt operations until the issues were resolved.

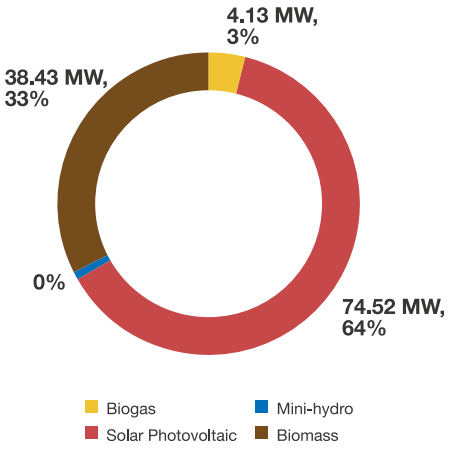
ST hopes to assist investors who have obtained approval from Sustainable Energy Development Authority (SEDA) through the award of provisional licences so that they could obtain the project financing from financial institutions. Notwithstanding this, the provisional licence holders also need to obtain the public licence for the purpose of generating and selling of electricity as stipulated under Section 9 of the Electricity Supply Act, 1990.

In 2013, ST issued 67 provisional licences to those qualified in order to assist them to obtain project financing. The total number of licences increased by 13.6% from the previous year and would continue to do so with the increase in the capacity quota by the SEDA in 2014.

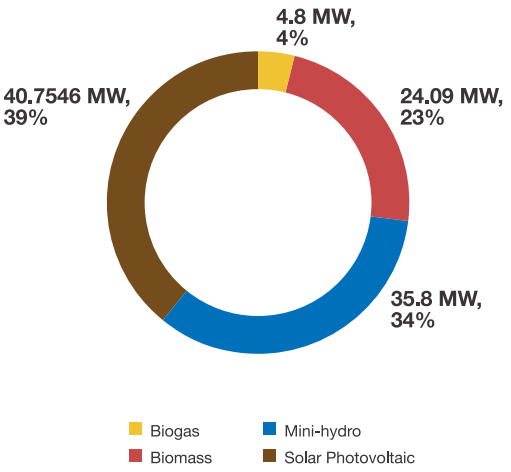
RENEWABLE ENERGY (RE) GENERATION PROJECTS

In 2013, 57 public licences for RE with an installation capacity of 117.772 MW were issued (56 licences; 105.772 MW for Peninsular Malaysia and one licence; 12 MW for Sabah).

Total Capacity of Public Licence for RE Generation



Total Capacity of Provisional Licences According to Fuel Type



Monitoring of the Generation Projects Using Fossil Fuel and RE

The generation projects in Peninsular Malaysia and Sabah were continuously monitored to ensure they are able to operate as scheduled. Monthly progress reports were obtained and consistent discussions were held with the project developers whenever necessary.

Generation Projects under Monitoring

	Peninsular Malaysia		Sabah	
	Licensed	Not yet Licensed	Licensed	Not yet Licensed
Fossil Fuel	3	2	4	1
RE	-	7	1	5
Total	**3**	**9**	**5**	**6**

In general, the implementation of the generation projects in the peninsula and Sabah was still unsatisfactory, especially the Tanjung Bin Energy, Ulu Jelai, Kimanis Power and SPR Energy. Since these projects were to start operations in the period of 2014-2016 and are now in the critical implementation phase, closer monitoring would be undertaken.

GENERATION SECTOR FUEL SUPPLY

GAS SUPPLY STATUS IN PENINSULAR MALAYSIA

Gas and coal are the major fuel sources for the generation sector. The increased percentage of gas-based power station in 2013 was attributable to the inclusion of additional gas supply from the RGT Sungai Udang, Malacca, which started supplying gas on 23 May 2013.

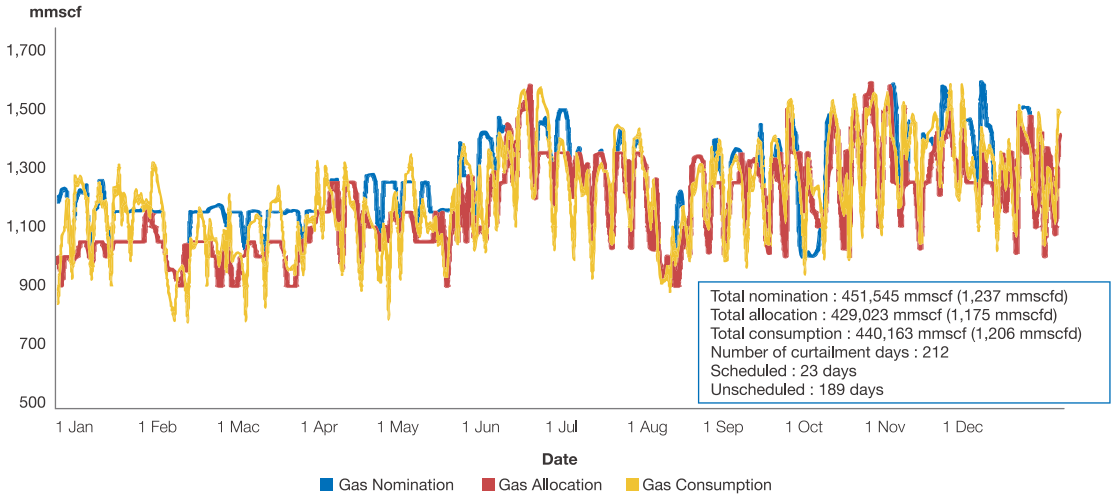
Fuel Mix for Generation in Peninsular Malaysia

Fuel	2011 %	2012 %	2013 %
Gas	42.7	45.4	**50.1**
Coal	44.7	45.7	**42.8**
Hydro	5.6	5.0	**4.8**
Others	7.0	3.9	**2.3**

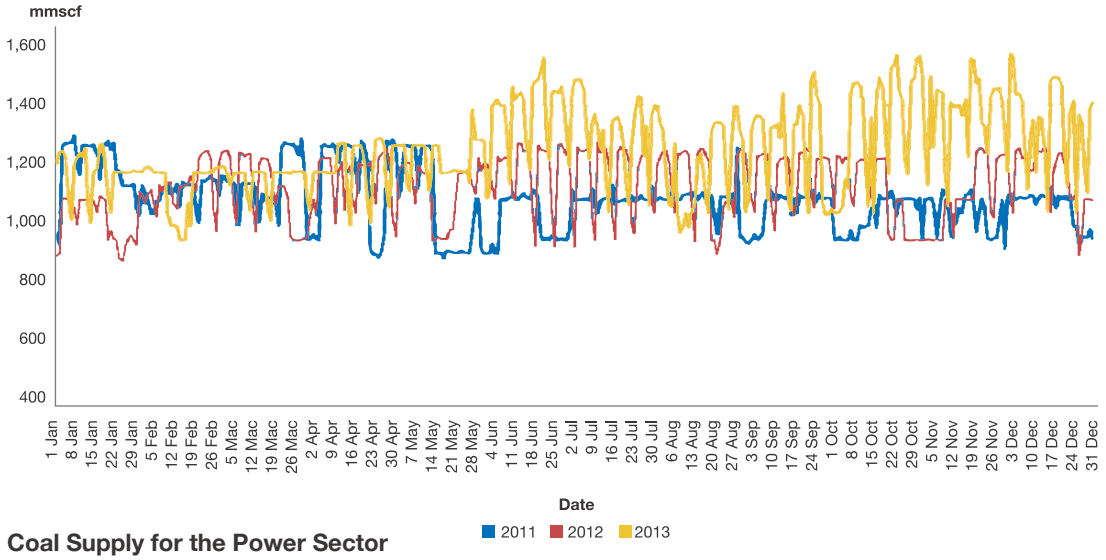
Gas supply to the power sector experienced a significant decline in 2011 and 2012 due to a fire that broke at Bekok C gas platform on 14 December 2010. The gas supply allocation was reduced from 1,250 mmscfd in 2011 to 1,150 mmscfd in 2012. The gas supply situation was worsen with the incidents of unplanned shutdowns at the offshore gas platforms in Terengganu from time to time.

Throughout 2013, the energy sector received an average supply of gas at 1,206 mmscfd from PETRONAS compared to the average daily nomination by TNB of 1,237 mmscfd. The average nomination for 2012 was 1,100 mmscfd and for 2011 was 1,050 mmscfd. The increase was due to the reduction of curtailment from 299 days in 2012 to 212 days in 2013. From that amount, 23 days were scheduled curtailment while 189 days were unscheduled.

Nomination, Allocation and Gas Consumption for the Generation Sector in Peninsular Malaysia in 2013



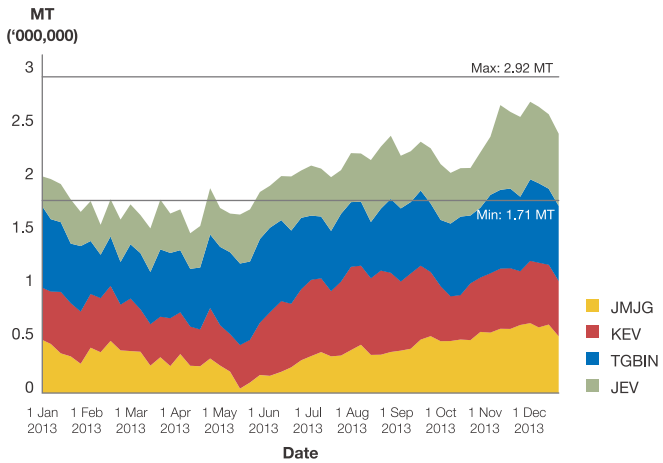
Nomination, Allocation and Gas Consumption for the Generation Sector in Peninsular Malaysia from 2011 until 2013



Coal Supply for the Power Sector

In general, the level of coal stocks for the peninsula was stable to meet the increasing demand for electricity due to lack of gas supply.

Level of Coal Stocks in 2013



A total of 22.3 million metric tonnes of coal for power stations in Peninsular Malaysia was imported from overseas. Indonesia was the highest provider with 71%, followed by Australia 16%, South Africa 11% and Russia 2%.

Coal Import, 2013

Country	KEV (million metric tonne)	JMJG (million metric tonne)	TGBIN (million metric tonne)	JEV (million metric tonne)	Total (million metric tonne)
Australia	2.96	-	0.21	0.22	3.39
Indonesia	0.07	7.89	3.61	3.71	15.28
South Africa	1.04	-	1.10	0.29	2.43
Russia	0.14	-	0.15	0.08	0.37
Total	**4.21**	**7.89**	**5.07**	**4.30**	**21.47**

COST SHARING OF REPLACEMENT FUELS

The impact of gas supply constraints due to the unscheduled and scheduled shutdown at the gas rigs had resulted a sharp increase in the electricity generation costs, because the power stations had to use MFO and distillate as replacement fuels, besides importing electricity from EGAT.

For 2013, the cost sharing of replacement fuels was agreed as follows:

i. The cost of gas supply from the Joint Development Area (JDA) for the period of 1 January to 22 May 2013, to be shared equally between the Government, TNB and PETRONAS; and
ii. The cost of LNG supply and replacement fuels for the period of 23 May to 31 December 2013 to be shared equally between TNB and PETRONAS without Government involvement.

ST would be responsible to verify the actual costs incurred by both TNB and PETRONAS prior to payment to each party involved.

For the period of 23 May 2013 to 30 September 2013, the total cost sharing for replacement fuel or alternative fuel cost differential (AFCD#7) between PETRONAS and TNB was RM138.47 million while the cost of LNG was RM2,051.65 million. Both amounts only involved equal sharing between two parties, PETRONAS and TNB. The cost of gas supply from JDA amounting to RM256.67 million for the period of January 1 to May 22, 2013 was to be shared equally between the Government, PETRONAS and TNB.

Gas Constraints, 2013

No	Upstream Gas Facilities Shutdowns	Duration of Shutdowns	Duration of Gas Constraints	Gas Reduction (mmscfd)	Allocation for the Energy Sector (mmscfd)
1	Lawit Complex (Chinese New Year)	7 days 9 – 15 February	3 days 13 – 15 February	320	900
2	Resak	7 days 16 – 22 May	7 days 16 – 22 May	340	900
3	PM3	14 days 1 – 14 July	No	380	1,200
4	TTM	10 days 15 – 24 July	No	300	1,200
5	OGT (Eidul Fitri)	19 days 27 July – 14 August	3 days 12 – 14 August	400 (8 - 9 August: 760 mmscfd)	1,100
6	*Lawit for Damar tie-in*	8 days 15 – 22 August	No	320	1,200
7	*Angsi impacting Guntong E & Berantai*	10 days 25 September – 4 October	10 days 25 September – 4 October	720	950
8	Jerneh (Christmas)	7 days 24 – 30 December	No	220	1,200

The Cost of Replacement Fuels, 2013

Total Overall Cost for JDA, LNG dan AFCD#7	RM
Total Cost of JDA to be shared under the Replacement Fuel Cost Sharing Mechanism for the period of 1 January until 22 May 2013	256,668,003.68
Total Cost of LNG to be shared under the Replacement Fuel Cost Sharing Mechanism for the period of 23 May until 31 December 2013	2,051,646,383.55
Total Alternate Fuel Cost Differential (AFCD) to be shared under the Alternative Fuel Cost Sharing Mechanism for the period of 23 May until 30 September 2013	138,469,961.37

PROMOTING A TRANSPARENT AND COMPETITIVE ENERGY INDUSTRY

ST strives to ensure the country's energy industry is transparent and highly competitive. This section contains a series of reports on the implementation of competitive bidding for new generation capacity, monitoring the financial performance of licensees such as TNB, SESB, IPP and GMB, the gas billing and reporting mechanism; as well as the sharing of information on the situation and the performance of the industry in a prompt and effective manner.

IMPLEMENTATION OF THE COMPETITIVE BIDDING PROCESS

NEW CAPACITY IN PENINSULAR MALAYSIA

In 2012, ST had successfully completed the process of international competitive bidding for new capacity in Prai (Track 1) and restricted tenders (Track 2) for the renewal of the plant's operating licence of the first generation IPPs and TNB.

Subsequently, the Government decided to launch an open competitive bidding process for the construction of the coal-fired power stations with a capacity of 3,000 MW. The Request for Qualification (RFQ) document was issued at the end of 2012 which consisted of two bid tenders of Fast Track Project 3A with a capacity of 1,000 MW and Project 3B with a capacity of 2,000 MW. Both power plants would be generating energy to meet the needs of the generation sector in the peninsula for 2017, 2018 and 2019.

In August 2013, ST awarded TNB, as the winner of the competitive bidding, the project to develop a 1,000 coal-fired power plant in Manjung, Perak at a levelised tariff of 22.78 cents/kWh. This new power plant would be fully owned by TNB Manjung Five Sdn. Bhd., where the project period is targeted for 45 months with the commercial operation date set at 1 October 2017.

Currently, the installed capacity in Manjung is 2,100 MW. A total of 1,010 MW of new capacity will be added in 2015, followed by an additional capacity of 1,000 MW by the Fast Track Project 3A, making the electricity capacity of Manjung to be at a total of 4,110 MW by 2017.

Another bidding process, Project 3B, which was conducted simultaneously with the Fast Track Project 3A, involved the tender for the construction of a coal-fired power station with a capacity of 2 x 1,000 MW. The project will operate in phases — 1 October 2018 (Unit 1) and 1 April 2019 (Unit 2) to meet the generation needs of 2018 and 2019.

Open Bidding Process for Fast Track Project 3A (1,000 MW)

Date	Activity
21 January 2013	Submission of document to ST for pre-qualification by: i. TNB ii. 1Malaysia Development Berhad-Mitsui & Co. Ltd (1MDB-Mitsui)
28 May 2013	Submission of open bidding documents to ST
2 August 2013	Issuance of Letter of Award by ST to TNB as the winner of the open bidding process

Open Bidding Process for Project 3B (2,000 MW)

Date	Activity
11 March 2013	Seven bidders submitted their documents to ST for the pre-qualification process and only five bidders passed the pre-qualification process: i. 1MDB-Mitsui ii. Malakoff Corporation Berhad-Sumitomo Corporation iii. YTL Power International Berhad-Ranhill Power iv. Formis Resources Berhad-SIPP Energy-Posco Energy-Posco E&C v. TNB-Global Power Ventures-CMC Corporation
30 October 2013	Four bidders submitted bidding documents to ST

MONITORING FINANCIAL PERFORMANCE OF KEY LICENSEES

The financial performance of major generation licensees is monitored and reviewed annually to ensure they are reliable and viable technically and financially. The analysis is conducted based on the audited financial statements submitted to ST by the generation licensees as required in the licence conditions.

TNB

In financial year (FY) 2013, TNB recorded a net profit of RM4.582 billion, an increase of 37.6% against the FY2012 (restated) of RM3.331 billion. The increase in profit was due to a higher sales volume as well as a decrease in the operating and financial costs. Thus, the TNB's recorded rate of return on ratebase (RoRB) in FY2013 was around 5.9% compared to FY2012 (restated) of 4.5%.

Note: RoRB Formula = $\frac{\text{(Sales - Cost of Operations - Depreciation - Interest on consumer deposits - Regulatory tax)}}{\text{(Assets, power plant \& equipment - Deferred revenue - Consumer deposit)}}$

In the context of debt to equity ratio, TNB recorded an increase from 0.8 in FY2012 to 0.9 in FY2013. This was due to the increase of 12.1% in total loans, amounting to RM26.98 billion in FY2013 against RM24.06 billion in FY2012.

SESB

For FY2013, SESB's financial performance was better compared to the previous years where SESB often suffered losses. SESB recorded a net profit of RM13.86 million in the FY2013, compared to a loss of RM35.71 million in FY2012 (restated).

SESB's profits in FY2013 was attributed to the 6.2% increase in electricity sales volume and the 1.1% decrease in total cost of operations, as compared to the previous financial year. In addition, the profit was also influenced by the fuel subsidy claims which should have been allocated for FY2012, but was claimed in FY2013, amounting to RM32 million. Accordingly, the recorded rate of RoRB for SeSB in FY2013 was 1.8%, compared to -1.3% in FY2012 (restated).

Although SESB recorded profits in FY2013, its equity remained in deficit due to the losses of the previous years. SESB's long-term liabilities increased by 15% in FY2013 compared to FY2012. At the same time, SESB's current assets could not accommodate its current liabilities due to a deficit in its working capital.

Independent Power Producers (IPPs)

Peninsular Malaysia

In the 2012 financial year, the first generation IPPs recorded an average rate of return on assets (ROA) of 24.8%, the second generation IPPs recorded a 6.4%, while the third generation of IPPs recorded a 1%. Overall, the IPPs financial performance in the financial year 2012 was good and stable.

Sabah

Compared to the financial performance of IPPs in the peninsula, the IPPs in Sabah recorded a different ROA and there was no separation of power purchase agreements according to the respective generation of IPPs. In FY2012, the IPPs in Sabah had ROA in the range of -7.4% to 7.2%. ARL Power Sdn. Bhd. and Stratavest Sdn. Bhd. recorded a negative ROA because they experienced a loss after tax as a result of high operation and maintenance costs. Serudong Power Sdn Bhd recorded the highest ROA of 7.2% due to stable profits in FY2012.

Gas Malaysia Berhad (GMB)

In FY2013, GMB increased its revenue collection by 9%. Similarly, its net profit increased by 4.0% to RM169.25 million in 2013 compared to RM162.02 million the previous year.

The increase in revenue was due to an increase in total demand for natural gas by 9.0% (10,866,000 mmBtu) compared to the previous year, as well as additional capital contribution from new customers for the installation of pipelines at their customers' premises.
No revision of natural gas tariff was conducted in the year of 2013 and an increase in the natural gas sales volume contributed to the increase in revenue and net profit for GMB in FY2013.

GAS BILLING MECHANISM

The implementation of the new gas billing mechanism continued in 2013. This is to address the issue of unintended gains on the part of the IPPs in generating electricity using the natural gas fuel source, to create a sustainable electricity supply industry.

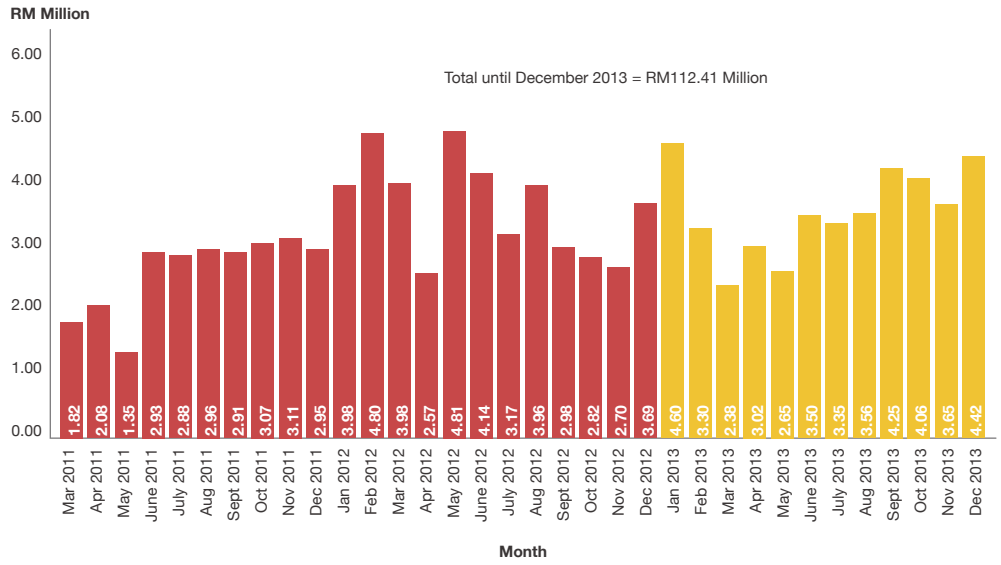
Similar to the previous years, the implementation of this mechanism was monitored and regulated by the Gas Billing Mechanism Committee chaired by ST, with the Economic Planning Unit, KeTTHA and TNB as members and MyPower as an observer.

Under the new gas billing mechanism, as a natural gas fuel source supplier to the energy sector, PETRONAS would produce two types of billing as follows:

i. Billing to the IPPs would be at RM6.40 per mmBtu based on the total quantity of gas supplied as fuel to the power stations; and
ii. Billing to TNB for the difference between the current gas prices in the power sector and the price of RM6.40 mmBtu, based on the total quantity of gas supplied to the IPPs.

The savings obtained by TNB as a result of the reduction in fuel charges to the IPPs were channeled to the Consolidated Fund at KeTTHA. The value of savings from the new gas billing mechanism as a whole had recorded savings of RM112.41 million or an average of RM3.31 million a month from March 2011 until December 2013.

Savings from the Gas Billing Mechanism



INFORMATION REPORT PERTAINING TO INDUSTRY PERFORMANCE AND SITUATION

Realising the need to disseminate information on the industry performance and situation, ST had been publishing periodic reports which can be obtained in a form of books and downloaded from the website. Among the reports are as follows:

Publication	Content
Peninsular Malaysia Electricity Supply Industry Outlook 2013	Data, information, and situation of electricity supply and the planning for future direction of the industry.
The Electricity Supply Industry Performance and Statistics Report 2012	Data and information on the electricity sector.
National Energy Balance 2012	Data and comprehensive information including on crude oil, natural gas, petroleum products, coal, solar, biomass, biogas and electricity.
Generation Performance Report	Data and information on the performance of generation plants in Peninsular Malaysia and Sabah.
Piped Gas Industry Performance 2012	Data and information on the consumption of natural gas and liquid petroleum gas in Peninsular Malaysia and Sabah.

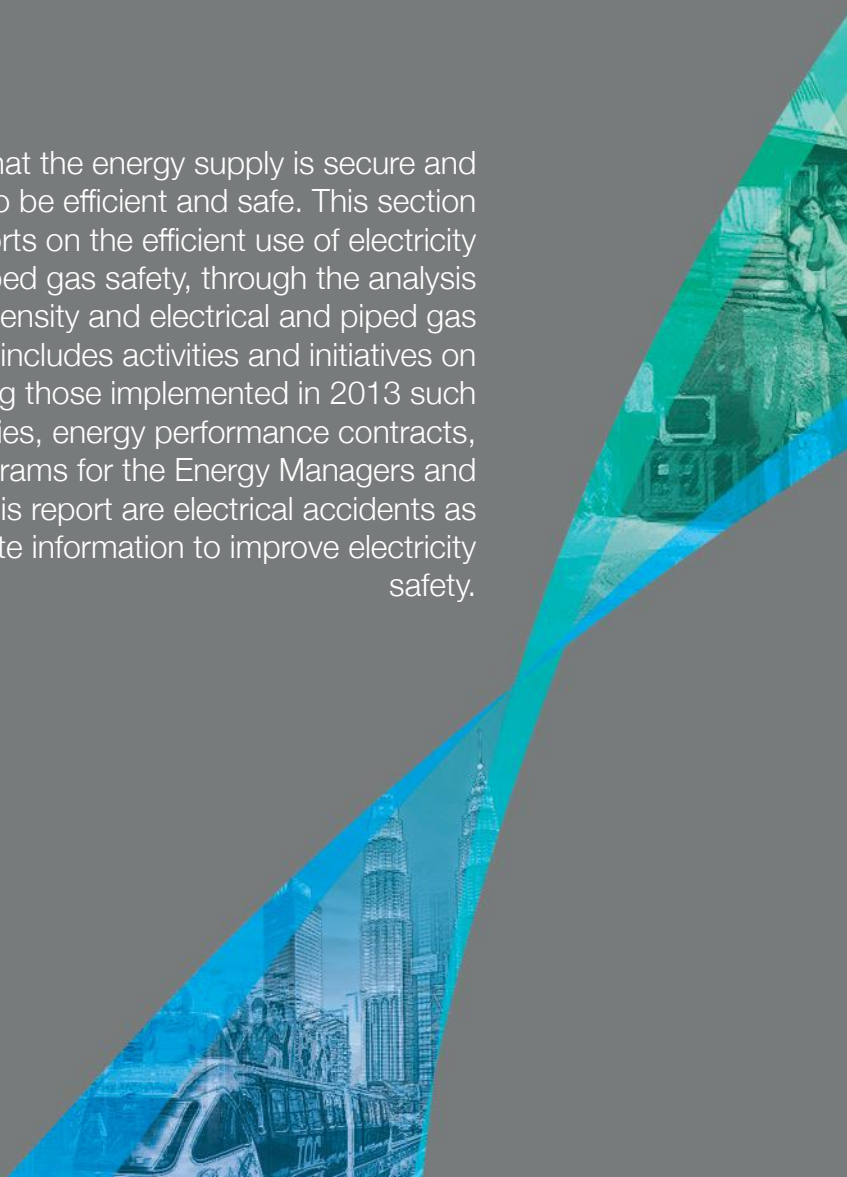
Malaysia Energy Information Hub (MEIH)

MEIH is a portal developed by ST which provides information pertaining to the national energy statistics for dissemination at the local and international level. MEIH contains various energy information and data. Besides being a medium for dissemination of information on energy statistics, MEIH is also an online transmission data centre for about 70 energy data contributors in this country. Through this portal, the data contributors can send their data directly to ST via online mode. This platform helps them to save time and reduce the errors in the data sent.

MEIH also provided information on seminars, workshops and other activities organised by ST throughout the year. ST has always strived to improve the quality of data in MEIH. In 2013, ST sent several officers to attend training at the International Energy Agency (IEA) in Paris, France. Until December 2013, the MEIH portal received encouraging response of which 96,803 visits were made by local and international internet users compared to 15,000 visits in 2012. Based on that number, 66.1% were visitors from Malaysia, followed by Singapore (6.6%), Japan (4.3%), United Kingdom (3.1%) and USA (3.1%).

ENSURING EFFICIENT AND SAFE UTILISATION OF ENERGY

ST does not only ensure that the energy supply is secure and reliable, but its use should also be efficient and safe. This section contains monitoring reports on the efficient use of electricity as well as electrical and piped gas safety, through the analysis of electricity energy intensity and electrical and piped gas accidents. This report also includes activities and initiatives on energy efficiency including those implemented in 2013 such as energy services companies, energy performance contracts, the certification training programs for the Energy Managers and MEPS. Also included in this report are electrical accidents as well as measure to disseminate information to improve electricity safety.



DEVELOPMENT OF ENERGY EFFICIENCY

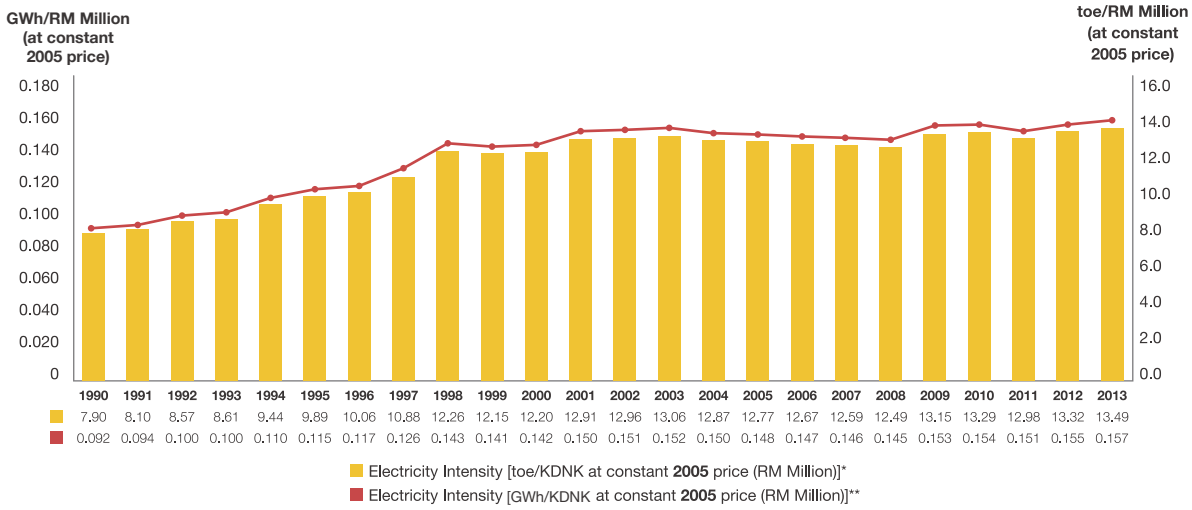
NATIONAL ELECTRICITY CONSUMPTION MONITORING

ST continues to monitor the use of electricity through analysis of the electricity intensity. From 1990 to 2001, energy consumption had increased for every million dollar of the Gross Domestic Product (GDP). The significant increase in the country was in line with the national economic activity focused on the manufacturing sector.

From 2001 to 2013, the energy intensity was at a stable level, as a result of, among others, structural shift of the economy towards the service sector which consumed less energy compared to the manufacturing sector.

For the year 2013, the country's electricity energy intensity increased by 1.3% to 0.157 GWh per million RM against 0.155 GWh per million RM in 2012. The total electricity consumption for 2013 was 122.567 GWh, an increase of 5.34% from the previous year. Meanwhile, the country's GDP grew by 4.74% in 2013 compared to 2012. The country's energy intensity increased in 2013, due to, among others, the increased use of electricity by energy-intensive industries.

The Country's Electricity Energy Intensity at Constant 2005 Price and toe/GDP at Constant 2005 Price



Note: Electricity Energy Intensity – The rate of electricity consumption to produce one unit of Gross Domestic Product. The indicators for efficient consumption of energy was done in two different units – GWh/GDP and toe/GDP.

ENFORCEMENT OF EFFICIENT MANAGEMENT OF ELECTRICAL ENERGY REGULATIONS 2008 (EMEER 2008)

ST continuously monitors the implementation of EMEER 2008 where companies that consume electrical energy equal to or more than 3 million kWh in six consecutive months must comply to EMEER 2008, which includes to appoint an Electrical Energy Manager (EEM) registered with ST.

A total of 1,682 installations were identified using electricity which exceeded 3 million kWh for a period of six consecutive months in 2013. A total of 717 installation owners have appointed EEMs until the end of 2013.

Appointment of Registered EEMs, 2012 and 2013

	2012	2013
Total installations subject to EMEER 2008	1,423	**1,682**
Total installation owners that have appointed EEMs	457	**717**

Enforcement activities and visits to the premises that have yet to appoint EEM were conducted in 2013. The activities included sending information notices and reminders to each premise or installation which is subjected to EMEER 2008. A total of 85 enforcement visits were conducted and all premise owners were informed on the need to comply with EMEER 2008.

ACCREDITATION OF THE ENERGY MANAGER TRAINING PROGRAMME

To increase the number of registered EEMs, ST has accredited two training programmes for Energy Managers:

i. ASEAN Energy Manager Accreditation Scheme (AEMAS) which is conducted by the Malaysian Green Technology Corporation (MGTC).
ii. Energy Manager Training Course which is conducted by the Malaysian Association of Energy Service Companies (MAESCO).

Both traning programmes were conducted for five days which include classroom session, examination and presentation on future energy efficiency projects. Participants need to meet all the qualifications required in the sessions prior to submission of application to be registered as EEM to ST.

These programmes however are not compulsory and interested applicants can submit their applications directly to ST. The programmes are meant to assist in increasing the number of registered EEMs as stipulated under EMEER 2008.

The number of EEMs had increased to 306 compared to 213 in 2012. With this, ST is able to monitor more effectively and ensure that the relevant installation owners submit periodic reports on their electricity usage.

IMPLEMENTATION OF THE ENERGY SERVICE COMPANY (ESCO) AND ENERGY PERFORMANCE CONTRACTING (EPC)

The Government had taken initiatives to introduce a more efficient energy management method in government buildings and agencies through EPC handled by ESCOs. ESCOs needs to register with the Ministry of Finance to allow them to apply to ST to perform energy efficiency works at the government agencies. In 2013, there were nine registered ESCOs with ST based on the terms and criteria stipulated.

ST is currently monitoring 25 ministries including the Prime Minister's Department and 105 government buildings subjected to EMEER 2008. The electrical energy consumption data at these buildings were analysed to observe the intensity and consumption pattern of electrical energy. With the implementation of this programme, the building owners are expected to be more sensitive and change their habits so that they become efficient and prudent consumers.

IMPLEMENTATION OF MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)

On 3 May 2013, the amendments to the Electricity Regulations 1994 with respect to the determination of MEPS for five domestic electrical equipment including refrigerators, air-conditioners, televisions, fans and lamps were gazetted and enforced by the Minister of Energy, Green Technology and Water. The objective is to ensure that all electrical equipment which were imported, manufactured and sold in Malaysia meet the energy efficiency criteria and standard.

Through the implementation of MEPS, ST will ensure that electrical equipment that are imported, manufactured and sold in Malaysia are energy efficient. Thus, the consumers have the advantage of choosing and owning energy efficient electrical equipment which saves on the consumption of electrical energy.

IMPLEMENTATION OF INCENTIVES FOR THE ENERGY EFFICIENCY AND CONSERVATION PROJECTS

ST had approved a total of 17 applications for Investment Tax Allowance compared to 33 projects in 2012. This was for obtaining investment tax exemption from MIDA.

DEVELOPMENT OF ELECTRICAL SAFETY

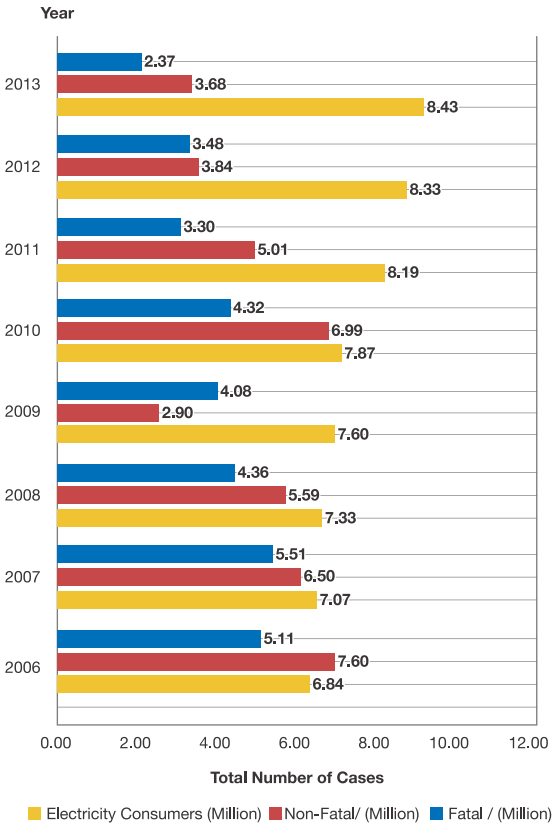
In 2013, electrical accident cases decreased by nine or 16.4% to 46, compared to 55 in 2012. Fatal electrical accident cases also declined to 19 while the total of non-fatal electrical accidents was 27. ST will continue to increase awareness for electrical safety among electrical workers and the public so that electrical accidents will be reduced year by year.

The comparison of the rate of deaths per million consumers indicated also drop by 31.89% from 3.48 in 2012 to 2.37 in 2013 while the number of non-fatal victims per million increased from 3.84 in 2012 to 3.68 in 2013. The number of electricity consumers in 2013 was 8.43 million households — an increase of 1.7% compared to 8.33 million in 2012. Based on the analysis of the location of the accident, zero accidents were recorded in schools, higher education institutions, local government, farms and mines in 2013. No electrical accidents have occured in any school since the last four years.

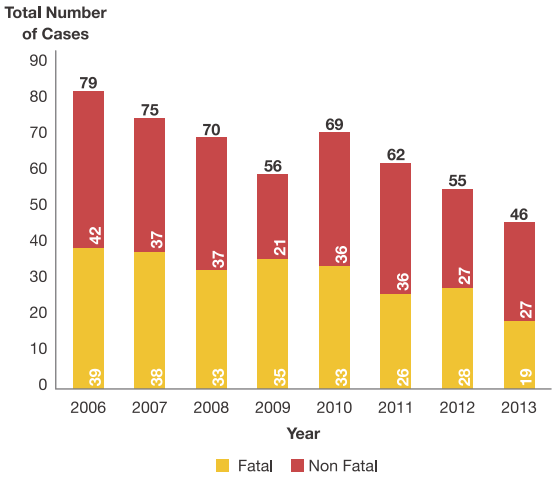
Meanwhile, the number of accidents in high voltage and low voltage line installations has increased. Among the causes included the activities near the lines such as putting up flags, crossing under the lines with elevated objects, moving goods by cranes or doing work without adhering to proper safe work procedures.

In 2013, 36.4% of the accidents were caused by improper installations while non-compliance of safe work procedures recorded the second highest percentage of electrical accidents at 30.4%.

Total Number of Accident Cases for Every Million of TNB and SESB Consumers 2006-2013



Electrical Accident Cases 2006-2013



The Location of Electricity Accident Cases 2006 – 2013

Location of Cases	2006	2007	2008	2009	2010	2011	2012	2013
Homes	9	14	11	9	8	15	6	8
Schools	0	2	1	1	0	0	0	0
Higher Education Institutions	0	1	1	0	0	2	0	0
Factory (Industry)	5	10	5	7	8	7	5	5
*Local Government	3	0	1	1	3	2	2	0
**Government Premises	4	2	2	1	0	0	2	3
Private Premises (Commercial)	4	5	7	4	10	4	4	6
Construction Sites	1	2	0	1	2	1	0	1
LV Utility Overhead Lines	15	16	10	12	10	11	13	6
HV Utility Overhead Lines	12	9	8	5	6	4	13	5
Utility Sub-Stations	21	14	22	12	17	13	7	9
Utility Underground Cables	3	0	2	1	3	2	2	3
Plantations	2	0	0	2	2	1	1	0
Mines	0	0	0	0	0	0	0	0
Total	**79**	**75**	**70**	**56**	**69**	**62**	**55**	**46**

* Example : District Council Halls, Market Sites under the supervision of the city or district council

** Example : Military camps, police quarters and fire stations

Cause of Electrical Incidents, 2006- 2013

Cause of Incident	2006	2007	2008	2009	2010	2011	2012	2013
Improper installation/maintenance	26	34	25	27	18	23	22	12
Non-compliance of safe work procedures	22	23	21	13	21	15	15	16
Intrusion at electrical installations	10	7	11	6	12	6	5	9
Work by the public near the electrical installations	7	5	6	6	9	5	5	7
Misuse of wiring systems	3	1	1	2	4	2	2	2
Damaged electrical appliances/equipment	3	1	1	0	3	4	4	0
Others	8	4	5	2	2	7	2	0
Total	**79**	**75**	**70**	**56**	**69**	**62**	**55**	**46**

ELECTRICAL ACCIDENTS

FATAL ELECTRICAL ACCIDENT INVOLVING WATER HEATER

A fatal electrical accident involving two Japanese citizens, husband and wife, on 9 September 2013 received wide coverage in the local media. When the male victim was found, he was still holding the water heater hose while his wife died when she attempted to rescue her husband.

ST's investigation found that the cause of the accident was a short circuit in the connection terminal of the water heater tank because of a loose connection wiring. The short circuit caused a leakage current to all metal parts of the water heater, pipes and hoses. The leakage current could not be detected at the early stage because the residual current device (RCD) with a sensitivity of 100 mA in the distribution board was damaged. This situation caused all the metal parts of the water heater and pipes connected to the host became live. When the victim touched a part of the metal, the leakage current continued to flow through the victim's body to earth thus causing the electric shock.

In the wake of this case, ST once again prompted the public through the mass media and Meet the Customers Day Programmes about the importance of ensuring the RCDs at homes are functioning well. The circuit for an electric water heater equipment in wet areas should be protected by an RCD with sensitivity of 10 mA, in accordance with the requirements of regulation 36 of Electricity Regulations 1994.

Leak circuit can happen to water heaters or other electrical equipment.

The malfunctioned RCD results in no protection from the leak circuit to the ground.

Dissemination of Information Regarding Automatic Circuit Breaker Switch

ST had published advertorials in major newspapers to remind the public to test the RCD or Automatic Circuit Breaker Switch once a month to ensure it is in good condition.

Investigations found that most accidents could be avoided if the RCD could detect the leak circuit from a faulty electrical equipment or wiring and disconnect the supply before the user could touch any of the metal parts.

Safe Work Procedures Guide for Electrical Works

Based on statistics of electrical accidents from 2002 to 2012, accidents which were caused by failure to properly maintain the installation and comply with safe work procedures accounted for 67% of the 654 cases reported. Among the measures that could help reduce these causes is to provide a safe working guideline as a reference in performing electrical work. ST had initiated the development of the Safe Work Procedures Handbook for Electrical Works with the support from the industry.

This guide is specifically designed for Competent Persons and personnel under the supervision of Competent Persons who are engaged in electrical work. It is also suitable for those who will be or are working on any electrical installation.

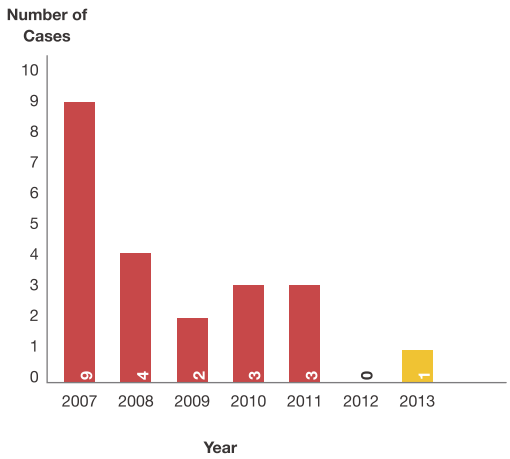
The content includes the duties and responsibilities of Competent Persons, supervision of electrical installation, safe work procedures, maintenance, testing and calibration of electrical installations.

PIPED GAS ACCIDENTS

Only one piped gas accident was reported in 2013. The incident took place in Ayer Keroh Industrial Area, Melaka due to the excavation works carried out by a public contractor to upgrade the concrete drains in the industrial area.

The accident caused a leak in the polyethylene (PE) pipes due to the dredging bucket of the bulldozer. However, the accident did not affect the supply of natural gas in the industrial area and no injuries or casualties were reported.

PIPED GAS ACCIDENT CASES




MENARA

ENSURING REGULATORY COMPLIANCE

Licensing and certification are ST's key activities in regulating the electricity and piped gas supply industries. This section contains reports on the number of licences issued, installation certifications, contractors, competency and related equipment. The monitoring activities carried out through safety and inspection audits, enforcement activities, investigations and prosecutions are also reported.

LICENSING AND ACCREDITATION

ISSUANCE OF PUBLIC AND PRIVATE LICENCES

ST had issued 178 electricity public licences in 2013, compared to 128 licences in 2012. For electricity generation licences, two new licences were issued for the generation sector in Sabah — the Kimanis Power Sdn. Bhd. (285 MW) and the SPR Energy (M) Sdn. Bhd. (100 MW). Two generation plants were granted a 10-year extension of the licence period — Indo-Energy Ventures Sdn. Bhd. and Kuala Langat Power Plant Sdn. Bhd.

For the generation of renewable energy, 57 licences were issued with a total capacity of 117,072 MW. The number of licences issued marked an increase of 159.0% compared to 2012. The majority of the licences issued were the solar-based power generation licences (50 licences), and the remaining were for biogas (4) and biomass (3).

ST also amended nine existing electricity public licences and revoked two licences. Amendment of licences would be made if there was a change in the shareholders of the company, increased or decreased installation capacity and others as required under the terms of the licence.

For electricity private licence, ST issued four independent licences for a capacity of 5 MW and above and 2,377 private licences for the capacity of less than 5 MW (1,348 in the Peninsular Malaysia and 1,029 in Sabah).

A gas private licence is granted to a person who provides and consumes the gas through a gas pipeline at his or her own premises, or property or premises of the owner or tenant. The total number of new applications and the renewal of gas private licence increased to 1,088 in 2013 compared to 988 in 2012.

Total Public and Private Licences Issued in 2012 and 2013

Type of Public Licence	2012	2013
Electricity Generation Public Licence	2	**4**
Renewable Energy Public Licence	22	**57**
Electricity Distribution Public Licence	37	**46**
Renewable Energy Provisional Licence	59	**67**
Electricity Private Licence (5 MW and above)	6	**4**
Electricity Private Licence (Less than 5 MW)	2,264	**2,377**
Piped Gas Private Licence	988	**1,088**

Electricity Generation Public Licence Issued, 2013

Licence Holder	Licensed Activities	Capacity (MW)
Kimanis Power Sdn. Bhd.	Generation	285
SPR Energy (M) Sdn. Bhd.	Generation	100
Segari Energy Ventures Sdn. Bhd. (Extension of licence period from 1 July 2017 until 30 June 2027)	Generation	1,303
Kuala Langat Power Plant Sdn. Bhd. (Extension of licence period from 23 February 2016 until 22 February 2026)	Generation	762

Issuance of Electricity Private Licences

State	2012	2013
Perlis	2	**1**
Kedah	16	**13**
Pulau Pinang	18	**25**
Perak	81	**80**
Selangor	225	**244**
Kuala Lumpur and Putrajaya	206	**278**
Negeri Sembilan	33	**31**
Melaka	40	**29**
Johor	175	**195**
Kelantan	54	**76**
Terengganu	145	**150**
Pahang	205	**226**
Sabah	1,064	**1,029**
Total	**2,264**	**2,377**

Total Number of Gas Private Licences Based on Consumer Category

User	2012	2013
Educational Institutions	210	**189**
Restaurant	246	**269**
Recreational Centre	66	**49**
Hotel	98	**142**
Hospital	119	**154**
Supermarket	100	**128**
Others	148	**157**
Total	**988**	**1,088**

Installation Approval and Registration

The total number of registered electricity installations (new and renewal) were 10,488 compared to 11,068 in 2012. The highest percentage of electricity installations were recorded in Selangor, Federal Territory of Kuala Lumpur and Putrajaya, Johor and Sabah.

For piped gas installations, ST had issued 2,083 approvals for both categories — Approval to Install (ATI) and Approval to Operate (ATO) for the installation of natural gas and LPG in 2013, compared to 1,865 in 2012.

The approvals covered the installation of metering stations, distribution stations and additional gas installations.

Registration of Electrical Installations in 2012 and 2013

State	2012	2013
Perlis	23	**36**
Kedah	370	**338**
Pulau Pinang	850	**855**
Perak	600	**640**
Selangor	2,756	**2,371**
Kuala Lumpur and Putrajaya	2,090	**1,735**
Negeri Sembilan	356	**402**
Melaka	322	**327**
Johor	1,463	**1,505**
Kelantan	178	**186**
Terengganu	252	**245**
Pahang	447	**517**
Sabah	1,361	**1,331**
Total	**11,068**	**10,488**

Approval to Install and Approval to Operate Natural Gas and LPG Installations

Approval	Category	Installation of Natural Gas		Installation of LPG	
		2012	2013	2012	2013
ATI	Industry	60	**74**	1	**1**
	Commercial	77	**61**	885	**918**
	Residential	9	**12**	20	**22**
	Total	**146**	**147**	**906**	**941**
ATO	Industry	38	**79**	1	**1**
	Commercial	58	**68**	694	**808**
	Residential	6	**11**	16	**28**
	Total	**102**	**158**	**711**	**837**

Registration of Contractors

Under the Electricity Regulations 1994, any work performed on any electrical or piped gas installations including installing, constructing or repairing must be done by contractors registered with ST. A total of 3,376 Electrical Contractors were registered by ST (611 new registration and 2,765 renewal of registration) against 3,538 in 2012.

In the context of gas contractors, 133 gas contractors were registered including 10 new contractors. The number of registered contractors showed a slight increase compared to 2012 (121 contractors including three new contractors).

Registration of Electrical Contractors

State	2012	2013
Perlis	47	**43**
Kedah	251	**198**
Pulau Pinang	260	**243**
Perak	256	**245**
Selangor	759	**795**
Kuala Lumpur and Putrajaya	355	**337**
Negeri Sembilan	153	**153**
Melaka	142	**120**
Johor	450	**356**
Kelantan	184	**199**
Terengganu	170	**150**
Pahang	208	**192**
Sabah	303	**345**
Total	**3,538**	**3,376**

Registration of Gas Contractors

Contractor	2012	2013
Class A	44	**49**
Class B	53	**55**
Class C	19	**21**
Class D	5	**8**
Total	**121**	**133**

Competency Examination and Certification

Electrical Competency

ST issues Competency Certification for Electrical Services Engineer (ESE), Competent Electrical Engineer (CEE), Electrical Supervisor, Chargeman, Wireman and Cable Jointer in line with Section 23, Electricity Supply Act 1990 which stipulates that any electrical installation must be operated by or under the supervision of a Competent Person.

The total number of Electrical Competency Certifications issued in 2013 was 6,036. Out of this total, 90% or 5,442 certifications were issued by 128 accredited institutions while the remaining 10% or 594 certifications were issued by ST. This is in line with ST's target to conduct the electrical competency examinations through outsourcing to the accredited institutions.

Total Electrical Competency Certification, 2007 - 2013

Year	Competency Certification Category						
	WM	CJ	CEE	CM	ES	ESE	Total
2007	3,460	2,175	29	4	6	18	5,692
2008	3,062	1,974	8	10	5	15	5,074
2009	2,946	2,191	2	15	6	22	5,182
2010	4,139	2,380	9	0	6	30	6,564
2011	2,547	1,538	83	8	7	20	4,203
2012	3,916	2,128	7	5	4	26	6,086
2013	**3,306**	**2,546**	**138**	**12**	**1**	**33**	**6,036**

Nota: WM : Wireman; CJ : Cable Jointer; CEE : Competent Electrical Engineer; CM : Chargeman; ES : Electrical Supervisor; ESE : Electrical Services Engineer

In 2013, ST conducted 12 competency examinations for the Electrical Services Engineer, Competent Electrical Engineer and the Electrical Supervisor. A total of 57 candidates were eligible to sit for the examination, of which 52 candidates have passed.

Starting from July 2012, ST has been outsourcing the competency examination for the Wireman and Low Voltage Chargeman Category A0 and A1 to the training institutes accredited by ST. Thus, the competency examination (theory) for 2013 session in ST did not involve examinations for Wireman and Low Voltage Chargeman Category A0 and A1, which were conducted at the accredited institutions only.

Total Number of Candidates for Chargeman and Wireman Competency Examination (Theory) from 2008 until 2013

2008 until 2013	Category													
	PW1	PW3	A0	A1	A4-2	A4-1	A4	B0-2	B0-1	B0 TNB	B0	B1	B4	Total
2008	212	674	1187	210	114	54	424	53	31	13	201	3	12	3188
2009	149	823	1209	191	90	40	364	41	21	197	231	1	11	3368
2010	215	676	1190	210	113	55	432	53	22	119	258	4	28	3375
2011	177	578	1137	232	148	70	460	58	24	134	327	2	10	3357
2012	115	588	1062	200	148	50	355	47	20	96	306	5	8	3000
2013	-	-	-	-	145	67	54	76	24	125	360	5	30	826

Note:
- PW1 : Single Phase
- PW3 : Three Phase
- A0 : Low voltage system (w/out aerial line & power station)
- A1 : Low voltage system (w/out power station)
- A4-2 : Low voltage system (w/out aerial line & synchronising of generators
- A4 : Low voltage system
- B0-2 : High voltage power system (w/out high voltage aerial line & high voltage power station & w/out low voltage aerial line & low voltage synchronising of generators
- B0-1 : High voltage system (w/out high voltage aerial line & high voltage power station & w/out low voltage synchronising of generators)
- B0 : High voltage system (w/out high voltage aerial line & high voltage power station)
- B1 : High voltage system (w/out high voltage power station)
- B4 : High voltage system up to 33kV

The competency examination (theory) for Chargeman besides the A0 and A1 categories for 2013 was conducted on 12 March 2013. A total of 826 private candidates sat for the exam concurrently at nine ST's regional offices. The examination papers were evaluated by ST officials in a Examination Papers Marking Workshop held from 18 to 21 March 2013. The evaluation of the examination scripts were centralised in a workshop to accelerate the release of the examination results.

In 2013, a total of 40 new approvals (including new institutions and existing accredited institutions which received new approvals to conduct new courses) were given to training institutions to conduct the competency courses and examinations. ST requires the training institutions to meet certain criterias before any authorisation is given to them. The criterias are:

a. Teaching equipment is in accordance to the ratio of students;
b. Limited number of students at any session;
c. Total amount of time to learn theory, practical and industrial training;
d. Enough number of teaching staff at all times;
e. Student admission is in accordance with the requirements of the Electricity Regulations 1994; and
f. Meeting other policies established from time to time.

List of Accredited Training Institutes, 2013

No	Institution	Category	Reason for Accreditation	Date of Accreditation
1.	PGM Tebrau	PW2 (FT)	Change of Address	21 January 2013
2.	PGM Tebrau	PW2 (PT)	New	21 January 2013
3.	IKM Johor Bahru	LVOL Module	New	21 January 2013
4.	IKM Johor Bahru	LVSG Module	New	21 January 2013
5.	IKBN Kinarut	LVOL Module	New	26 March 2013
6.	IKBN Kinarut	LVSG Module	New	26 March 2013
7.	IKBN Kinarut	A4	New	26 March 2013
8.	IKM Kuala Lumpur	PW4 (FT/PT)	Additional Number of Trainees	26 March 2013
9.	IKM Kuala Lumpur	A1 (FT/PT)	Additional Number of Trainees	26 March 2013
10.	IKM Kuala Lumpur	LVOL Module	New	26 March 2013
11.	IKM Kuala Lumpur	LVSG Module	New	26 March 2013
12.	ADTEC Shah Alam	A0 (PT)	New	26 March 2013
13.	ADTEC Shah Alam	A4 (PT)	New	26 March 2013
14.	ILP Bukit Katil	PW2 (PT)	New	26 March 2013
15.	ILP Sandakan	A0 (FT/PT)	New	26 March 2013
16.	ILP Kuala Lumpur	A0 (PT)	New	14 May 2013
17.	IKM Kuala Lumpur	A4 (FT/PT)	New	14 May 2013
18.	ABM Wilayah Sabah, Kota Kinabalu	PW2 (FT/PT)	Change of Address	14 May 2013
19.	ABM Wilayah Sabah, Kota Kinabalu	PW4 (FT/PT)	Change of Address	14 May 2013
20.	ILSAS (SESB only)	A4 (Limited)	New	14 May 2013
21.	ILSAS (SESB only)	B0 (Limited)	New	14 May 2013
22.	ILSAS (SESB only)	B1 (Limited)	New	14 May 2013
23.	ILSAS (SESB only)	B4 (Limited)	New	14 May 2013
24.	ILP Nibong Tebal	PW2 (FT/PT)	Additional number of trainees	1 August 2013
25.	ILP Nibong Tebal	PW4 (FT/PT)	Additional number of trainees	1 August 2013
26.	ILP Kepala Batas	PW4 (FT)	New	1 August 2013
27.	ILP Kepala Batas	LVOL Module	New	1 August 2013
28.	PGM Permatang Pauh	PW2 (FT/PT)	New	1 August 2013
29.	PGM Batu Kawan	PW2 (FT/PT)	New	1 August 2013
30.	IKM Jasin	PW2 (FT/PT)	Additional number of trainees	1 August 2013
31.	IKM Jasin	PW4 (FT/PT)	Additional number of trainees	1 August 2013
32.	IKM Jasin	A0 (PT)	Additional number of trainees	1 August 2013
33.	IKM Jasin	A1 (PT)	Additional number of trainees	1 August 2013
34.	ILP Jitra	PW2 (PT)	Additional number of trainees	1 August 2013
35.	INSTEP, Kuala Terengganu	B1 (FT/PT)	New	1 August 2013
36.	INSTEP, Kuala Terengganu	B4 (FT/PT)	New	1 August 2013
37.	INSTEP, Kuala Terengganu	HVOL Module	New	1 August 2013
38.	KKBN, Pontian	PW2 (PT)	New	1 August 2013
39.	IKM Besut	PW4 (FT/PT)	Additional number of trainees	6 December 2013
40.	IKBN Kinarut	A0 (PT)	New	6 December 2013

Note:
PW2 : Single Phase & Assessment Endorsement
PW4 : Three Phase & Assessment Endorsement
A0 : Low voltage system (w/out aerial line & power station)
A1 : Low voltage system (w/out power system)
A4 : Low voltage system

PK 1 : Up to 1 kV
PK 2 : Up to 11 kV
PK 3 : PK3 Up to 22 kV/33 kV
LVSG : Low Voltage Synchronous Generator
LVOL : Low Voltage Overhead Lines
HVOL : High Voltage Overhead Lines

* FT : Full time
PT : Part time

A total of 18 competency examinations by the accredited institutions were monitored in 2013. This exercise is to ensure that the implementation of the competency examination is in accordance with the stipulated procedures in order to guarantee the quality of the Certificate of Competency holders.

Related issues pertaining to the activities of competency accreditation and examination at the accredited institutions were discussed in the Institutional Level Examination Committee Meeting. It is also to ensure that all accredited institutions consistently meet and comply with the conditions of accreditation.

A total of 12 audits were conducted for the qualified institutions in 2013. The audits were to ensure that the institutions complied with the requirements determined, such as the teaching equipment, the recruitment of students, sufficient number of competent trainers and other conditions that had been determined. The audited institutions were given notice and advice to improve their respective institutions.

List of Audited Institutions, 2013

Institution Name	Category	Audit Date
IKM Johor Bharu, Johor	PW2, PW4, A0, A1, A4-1 and A4	15 January 2013
PGM Tebrau, Johor Bharu, Johor	PW2	16 January 2013
ILP Kuala Terengganu, Terengganu	PW2	28 May 2013
IKM Jasin, Jasin, Melaka	PW1, PW2, PW4, A0 and A1	02 June 2013
ITYNS Kuala Pilah, Negeri Sembilan	PW2 and PW4	12 September 2013
Kolej KEDA, Sik, Kedah	PW1 and PW2	25 September 2013
ILP Kuantan, Pahang	PW2, PW4 and A0	03 October 2013
PGM Bachok, Kelantan	PW1, PW2 and PW4	10 Oktober 2013
UniKL-BMI, Gombak, Selangor	A1 and A4	22 October 2013
ABM Wilayah Tengah, Kuala Lumpur	PW2, PW4 and A0	24 October 2013
ILP Pasir Gudang, Johor	PW1, PW2, PW4, A0 and A4	07 November 2013
PGM Keningau, Sabah	PW1 and PW2	14 November 2013

Note:
PW1 : Single Phase
PW2 : Single Phase & Assessment Endorsement
PW4 : Three Phase & Assessment Endorsement
A0 : Low voltage system (w/out aerial line & power station)
A1 : Low voltage system (w/out power station)
A4 : Low voltage system
A4-1 : Low voltage system (w/out synchronising of generators)

Gas Competency

The total certifications issued for Competent Persons in 2013 was 761 including for the categories of Gas Engineer, Gas Engineering Supervisor and Gas Fitter.

Monitoring of ongoing wireman competency examination

Monitoring of ongoing chargeman A0 competency examination

Issuance of New Accreditation for Gas Competency

Competency Category	2007	2008	2009	2010	2011	2012	2013
Gas Engineer	3	0	0	3	0	0	**1**
Gas Engineering Supervisor	6	6	5	11	9	6	**4**
Gas Fitter Class I	14	15	4	2	7	3	**11**
Gas Fitter Class II	3	2	0	1	0	0	**1**
Gas Fitter Class III	6	6	8	7	9	12	**5**
Total	**32**	**29**	**17**	**24**	**25**	**21**	**22**

New Registration and Renewal of Registration for Gas Competency

Competency Category	2007	2008	2009	2010	2011	2012	2013
Gas Engineer	38	40	35	34	32	25	**29**
Gas Engineering Supervisor	111	89	95	110	119	107	**119**
Gas Fitter Class I	121	111	112	123	113	126	**132**
Gas Fitter Class II	55	52	42	42	31	32	**38**
Gas Fitter Class III	67	11	20	17	50	30	**39**
Total	**392**	**303**	**304**	**326**	**318**	**320**	**357**

Certification of Equipment

Electrical Equipment

To ensure the electrical equipment is safe for use, ST issues Certificate of Approval for the purpose of importing, manufacturing and exhibiting 34 categories of electrical equipment controlled by ST. ST also issues Letter of Release from the custody of the Royal Malaysian Customs Department for equipment controlled and not controlled by ST, under certain conditions and purposes. In 2013, ST had issued 11,327 Certificates of Approval and Letters of Release, an increase of 20.7 percent compared to 2012.

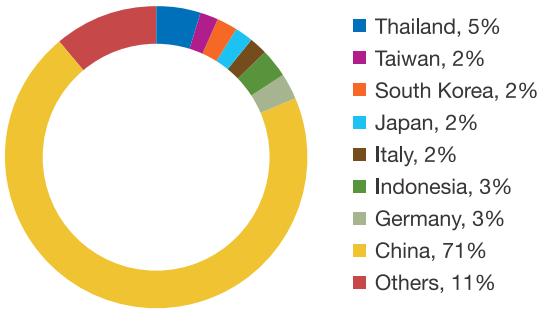
In line with the policy of outsourcing of any appropriate service, ST had appointed SIRIM QAS International (SIRIM QAS) to assess the test reports and verify the certification issued by the Certification Body (CB) on manufactured and imported electrical equipment. The scope of SIRIM QAS includes to assess the test reports or Technical Evaluation Report (TER). This sourcing out exercise was aimed to facilitate the issuance of the Certificate of Approval process, in accordance with the period stipulated in ST's Client Charter, and reduce the number of invalid CB test reports or certifications submitted by the applicant. On 12 December 2013, the e-TER system was fully implemented and SIRIM took over the task of assessing the test reports and CB certifications on behalf of ST.

The Certificate of Approval to Import increased by 28.17% in 2013 compared to 2012. Electrical equipment imported from China (71%) was more than other countries such as Thailand (5%), Indonesia (3%) and Germany (3%). The issuance of the Certificate of Approval to Manufacture declined by 16.0% in 2013 as compared to 2012. For the purpose of exhibition, the equipment approved by ST was only allowed to be displayed during the exhibition. The Certificate of Approval was given to only seven electrical equipment for the purpose of exhibition.

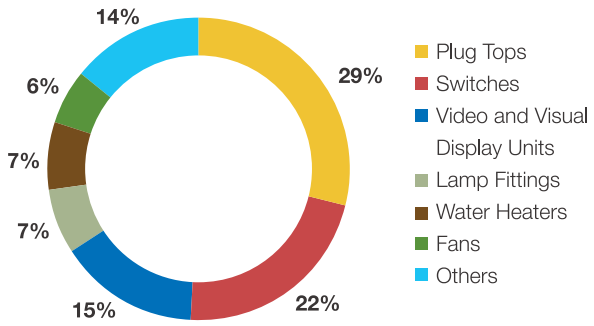
Total Number of Certificates of Approval and Letters of Release Issued

Year	Certificate of Approval			Renewal of Certificate of Approval – Import and Manufacture	Letter of Release from Custody of Customs		Total
	Import	Manufacture	Exhibit		Controlled Equipment	Non-controlled Equipment	
2006	2,813	902	29	1,757	881	115	**6,497**
2007	2,797	944	37	1,921	1,039	374	**7,112**
2008	1,913	689	37	2,263	913	321	**6,136**
2009	3,046	972	58	2,538	527	367	**7,508**
2010	2,587	693	61	2,557	570	337	**6,805**
2011	3,557	1,187	36	2664	518	341	**8,303**
2012	3,957	1,069	17	3,041	815	482	**9,381**
2013	5,509	1,272	6	2,771	908	911	**11,377**

Country of Origin - Imported Equipment (2006-2013)



Category of Manufactured Equipment, 2013



Gas Fittings, Appliances and Equipment

In 2013, 361 new applications and renewals for assemblers/manufacturers/importers of gas fittings, appliances and equipment were approved. The approved appliances include gas installation components such as polyethylene pipes and fittings, meters, ball valves, pressure regulators and gas leak detectors.

Total Number of Approval for Gas Fitting, Appliances and Equipment Assemblers/ Manufacturers/Importers

Type of Approval	2007	2008	2009	2010	2011	2012	2013
Approval to install or manufacture gas fittings, gas appliances or gas equipment	5	0	0	1	1	2	**27**
Approval to import gas fittings, gas appliances or gas equipment	3	1	14	5	5	2	**6**
Total	**8**	**1**	**14**	**6**	**6**	**4**	**33**

Number of Approvals for Gas Fittings, Appliances or Equipment

Type of Approval	2007	2008	2009	2010	2011	2012	2013
Approval for Gas Fittings, Appliances or Equipment	32	11	83	29	110	43	**27**

AUDIT IMPLEMENTATION

MANAGEMENT AND ENGINEERING AUDIT

Based on the requirements of conditions of licences issued by ST for public generation licensee, Management and Engineering Audit (M&E) should be carried out every four financial years or as specified. Among the objectives of the audit are as follows:

i. To carry out an independent and detailed assessment on the performance of the licensees;
ii. To evaluate the level of achievement of the licensee in the aspects of engineering, finance and management of power stations or licensed activity;
iii. To ensure that the licensee meets the conditions of the licence issued by ST; and
iv. To suggest improvements to the service and performance aspect of the licensee.

TNB

TNB needed to perform the audit for FY 2009/2010 until 2011/2012 in accordance with the terms of the given licence. The audit was initiated on 20 August 2013 and scheduled to complete in April 2014. PricewaterhouseCoopers (PwC) was the appointed consultant to carry out the audit. The audit covered activities of generation, transmission and distribution as well as the financial, corporate and human resource management aspects in TNB.

This audit would also review the status of implementation of recommendations based on the audit of FY 2004/2005 to 2008/2009. Based on the feedback from TNB, 97.8% of the previous audit recommendations have been incorporated in the policy and have been fully implemented.

Sabah Electricity Sdn. Bhd.

SESB conducted the audit for the financial year starting 1 September 2004 until 31 August 2008. The consultant appointed for the audit was PwC. The main scope of the audit included the aspects of engineering and human resources management.

Based on the recommendations of the audit results, ST is monitoring continuously to obtain feedback on follow-up actions to be implemented by SESB.

IPPs in Peninsular Malaysia

M & E Audit for each of the following IPPs was carried out in 2013.

The Audit Period and Status for IPP Stations

IPP Station	Audit Period	Status of Audit Conducted
Musteq Hydro Sdn. Bhd.	January 2004 – December 2012	Completed
Sepangar Bay Power Corporation Sdn. Bhd.	December 2008 – January 2012	Completed
TNB Janamanjung	September 2008 – August 2012	Ongoing
KKIP Power Sdn. Bhd.	January 2008 – December 2011	Completed
Kapar Energy Venture	September 2008 – August 2012	Ongoing
Sabah Energy Sdn. Bhd.	September 2008 – Ogos 2012	Would be conducted in 2014
Jimah Energy Ventures	January 2009 – December 2012	Completed

Centralised Utilities Fertilizer (CUF), PETRONAS

The M & E audit of CUF was completed by the consultants on 15 October 2012. The final audit report was submitted to ST on 6 December 2012. A series of discussions with the consultants and CUF were conducted to analyse the data in the final report. The results and recommendations of the consultant could be used as a benchmark in the electricity generation by the co-generation industry.

Kapar Energy Ventures (KEV)

KEV conducted the audit for the financial year of 1 September 2008 to 31 August 2012. The consultant appointed was Ernst & Young. The main scope of the audit covered the aspects of engineering and human resources management.

KKIP Power Sdn. Bhd.

KKIP Power completed the M & E Audit starting from the financial year of 2009 until the financial year of 2012. The consultant for the audit was Advance Power Solutions (Borneo) Sdn. Bhd. The scope of audit for KKIP covered both engineering and human resource management.

The final report was submitted to ST on 3 October 2013. Based on this report, KKIP had been providing safe, secure and reliable services to the customers through the provision of a system based on n-1 in the Kota Kinabalu Industrial Park. Performance data such as SAIDI, CAIDI and RFI were found to be at acceptable levels. However, there were still some aspects that need to be improved by KKIP to enable it to operate more efficiently, such as providing an extra comprehensive maintenance schedules and ensuring a more systematic record system.

TNB Janamanjung

The audit for the Sultan Azlan Shah Power Station or TNB Janamanjung was conducted at the end of 2013, i.e. for the financial period starting from September 2008 until August 2012. TNB Janamanjung appointed a consulting engineer to conduct this audit.

Musteq Hydro Sdn. Bhd. (Musteq Hydro)

The audit on Musteq Hydro commenced at the beginning of 2013 for the financial year period starting January 2004 until December 2012. The extended audit period was due to the delay in audit since 2011 because of inevitable reasons.

The audit was held from 20 February 2013 until 22 February 2013. On 21 October 2013, the consultant submitted the final report of the audit. In general, the audit revealed that Musteq Hydro operated based on the requirements of the Malaysian Grid Code and Distribution Code. The consultant also suggested some improvements that need to be acted on as references, including Generator Protection Setting and Fault at Fire Fighting Alarm Panel.

Sepangar Bay Power Corporation Sdn. Bhd.

The audit on Sepangar Bay Power Corporation Sdn. Bhd. was for the financial year starting 31 December 2008 until 31 December 2012. The power station appointed a team of consulting engineers to carry out the audit.

The consultant submitted a final report on 31 July 2013. Overall, the audit found that the station had been operating properly and complying with the requirements and conditions of the licence and PPA conditions. The consultant also suggested some improvements as references including improving the Control Room with LCD screen and conducting Residual Life Study for critical equipment.

Jimah Energy Ventures Sdn. Bhd. (JEV)

The audit of the Jimah Power Station was also successfully completed in 2013 with the receipt of final report in December 2013. The audit disclosed that the station was operating well and some suggestions for improvement should be done. Among them were to ensure that proper performance reports to be sent to ST and an Emergency Response Plan should be provided for the transport and handling of fuel at station.

ELECTRICAL SAFETY AUDIT

Safety Audit on the operations of TNB and SESB

Accidents from failure to comply with safe work procedures were the second highest factor after the failure to maintain the installation in a functional condition. The implementation of Electrical Safety Audit was to ensure that the works carried out are in accordance with the requirements of the Electricity Supply Act 1990 and the Electricity Regulations 1994, Condition 23 of the Terms and Conditions of the Licensee, as well as in compliance with the guidelines issued by related organisations such as Occupational Safety Health and Environment Unit and the Asset Maintenance Dept, TNB Distribution Division.

Throughout 2013, safety audits were carried out in four state offices of TNB — Johor, Terengganu, Perak and Negeri Sembilan. The audit programme included the scheduled maintenance inspection reports, record for issuance of permit-to-work (PTW) and monitoring ongoing electrical work on site.

The audit methodology included the assessment of the security document, the inspection of installation maintenance schedule and visits to substations to monitor ongoing work. About 8 to 11 locations were visited in each audit programme.

In general, the safety procedures for the employees were provided by the employer and adherence to safety procedures on site was also practiced. However, there was still room for improvement to ensure that the work is carried out in accordance with legal requirements and safe work procedures. There were also TNB-owned installations to be maintained to ensure they are always in good condition, or removed if they were not used anymore.

Some of the actions to be taken in order to improve the level of safety:

- The contractor appointed by the licensee should be wearing full protective clothing, such as safety shoes and gloves when working on site.
- The substations should be equipped with proper lighting sources, especially for works carried out during night time. Lack of lighting could trigger errors during switching tasks.
- The work of the appointed contractor should commence, particularly in the substation, after the issuance of PTW.
- The parts of the substation to be maintained must be isolated and earthed properly even if the supply has been disconnected.
- The indicator lights on the control panel should always be functional. Failure of the indicator function could create confusion on status of supply, either in the on or off mode.
- The cramped workspace for the rack-in and rack-out work of the Vacuum Circuit Breaker (VCB) could cause discomfort among workers when they perform switching tasks.
- The procedure to disconnect the electricity supply should be done by disconnecting the consumer supply before disconnecting the main supply, whereas the procedure for reconnection should be initiated at the main supply unit before it would gradually connect to the consumer.

Meeting with TNB's management team from Terengganu.

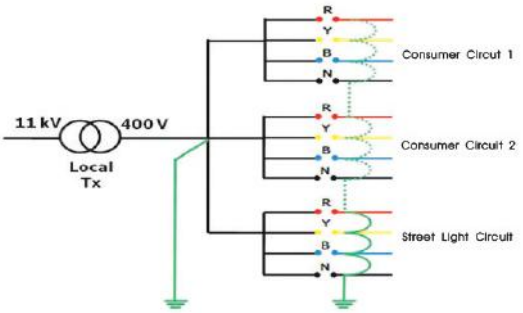
Briefing by AP to TNB staff during works at Simpang Airport Electrical Substation, Terengganu.

The external switching station must be free from creepers.

The audit team reviewing TNB's documents during the safety audit.

Works at the 33 KV H-POLE PKSJ 17 Overhead Lines, Setiu Station, Terengganu.

Repair work on the low voltage lines performed with safety control in place.



The circuit of the low voltage panel should be earthed properly, exclusive of the consumer distribution circuit for effective earthing.

The indicator and indicator lights should be properly installed and should indicate the current status of supply at the switchboard either in the on or off mode.

The safety audits carried out in 2013 discovered that most of the work procedures and the PTW work instructions were better undertaken compared to the previous year. Identified non conformance was highlighted to TNB's management to improve the safety of the electrical workers.

GAS SAFETY AUDIT

Starting in 2012, ST conducted safety audit in stages at shopping complexes across the peninsula and Sabah. The objective of the audit was to monitor the safety level following gas explosion cases in recent years.

In 2013, a total of 300 outlets in shopping centres were targeted for the audit. Nonetheless, 361 shopping centre outlets were successfully audited where the following findings were obtained and follow-up actions taken.

Compliance with Safety Control Instructions at Shopping Complexes	Implementation (%)
On/off label on kitchen appliances	29.12
Gas detector device installation	64.26
Installation of solenoid valve in the system	68.06
Operational pressure of pilot flame reduced to 0.5 psig	43.08
Installation of the flame failure device	29.28

MONITORING AND ENFORCEMENT

IMPLEMENTATION OF THE GUIDELINES FOR ELECTRICITY METER: APPROVAL, TESTING AND INITIAL VERIFICATION

To streamline the regulatory mechanism of the industry, particularly the testing and verification processes of electricity meters, ST drafted a set of guidelines known as the Guideline for Electricity Meter: Approval, Testing and Initial Verification Requirements to be adhered by the licensees. The basic principles for the development of these guidelines are to:

i. Perform regulatory responsibilities as an independent body in monitoring the electricity meter industry; and
ii. Ensure transparency in the process of testing, calibration and verification of the electricity meters by licensees, suppliers and manufacturers of the electricity meters.

ST held a series of discussions with the Ministry of Domestic Trade, Cooperatives and Consumerism, the Department of Standards Malaysia, National Metrology Laboratory (NML), SIRIM Berhad, SIRIM QAS International, TNB and manufacturing companies of the electricity meters registered with TNB to enforce the guidelines.

In line with the guidelines which became effective on 1 January 2013, starting June 2013, all new electricity meters or replacements of the old meters at the consumers' premises should be provided with an "**ST-SIRIM**" label. This was to confirm that the meter passed the test and verification in compliance with the requirements of the guidelines.

The approved meter products are expected to increase in 2014 because some products are undergoing the process of getting approval as stipulated in the guidelines.

Approved Electricity Meter Products

Electricity Meter Products	Company
Electricity Meter Single Phase – G3 LD (Metronix)	Malaysia Intelligence Meters Sdn. Bhd.
Electricity Meter Three Phase (*Whole current*) – Smart (Metronix)	Malaysia Intelligence Meters Sdn. Bhd.
Electricity Meter Single Phase – EIS LD (KMSB)	Krizik (M) Sdn. Bhd.
Electricity Meter Three Phase (*Whole current*) – E3D (Sprint)	Krizik (M) Sdn. Bhd.
Electricity Meter Single Phase – MK 29	Smart Meters Technologies Sdn. Bhd.
Electricity Meter Single Phase – Mietsro-1	MISA Sdn. Bhd.
Electricity Meter Three Phase (*Whole current*) – Miestro-3	MISA Sdn. Bhd.

An example of an electricity meter approved and labelled with ST-SIRIM label

INSPECTION AND ENFORCEMENT

ST implemented inspection and enforcement activities to ensure all the industry players adhere to the act and regulations to ensure the continuity of energy supply and to protect the rights of the consumers.

The results of the inspection and enforcement showed that there were some cases of non-compliance. Thus, various measures such as issuance of warning notices, confiscation of equipment, compound and court actions were taken to address the issues.

Inspection Activities According to States, 2013

State	Installation Inspection	Contractor Inspection	Electrical Equipment Inspection	Meter Inspection	Energy Efficiency Inspection	Gas Inspection	Total
Perlis	6	1	1	19	0	0	**27**
Kedah	9	5	12	38	0	0	**64**
Pulau Pinang	22	5	12	63	0	71	**173**
Perak	85	14	17	39	5	4	**164**
Selangor	188	1	2	109	4	31	**335**
Kuala Lumpur and Putrajaya	156	0	0	102	1	0	**259**
Negeri Sembilan	29	6	1	10	5	2	**53**
Melaka	82	4	7	16	7	3	**119**
Johor	73	7	16	35	6	4	**141**
Kelantan	44	20	6	46	4	5	**125**
Terengganu	36	1	2	35	6	5	**85**
Pahang	126	15	9	85	3	25	**263**
Sabah	213	68	12	185	5	30	**513**
Total	**1,069**	**147**	**97**	**782**	**46**	**180**	**2,321**

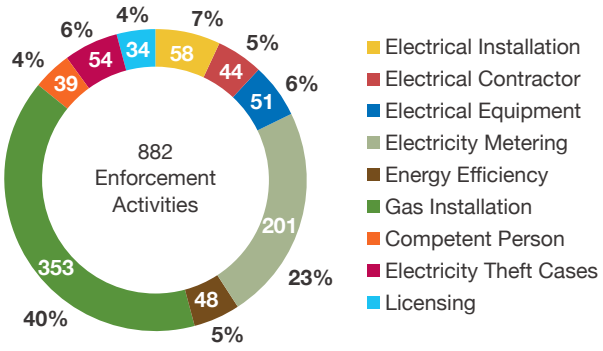
In order to carry out enforcement operations more effectively, nine task forces were formed to address current issues, as well as ensuring compliance to legal requirements and consumer interests are protected.

In 2013, a total of 882 enforcement activities have been carried out.

Task Force for the Implementation of Enforcement Operations

Task Force	Enforcement Operations
Electrical Installation	Ensures that electrical installations were registered, maintained and conducted in a safe manner.
Electrical Contractor	Ensures that electrical works were performed by electrical contractor registered with ST.
Electrical Equipment	Curbs the manufacturing, import and sales of electrical equipment without ST-SIRIM labels.
Electricity Metering	Addresses the billing issues and inaccurate readings of electricity meter.
Electrical Energy Manager	Ensures that installation owners appointed the Energy Managers.
Gas Installation	Ensures that gas installations were registered with ST, maintained and operated in a safe manner.
Competent Person	Ensures that electricity maintenance works were performed by Competent Persons registered with ST.
Electricity Theft Cases	Curbs and addresses the issue of improper use of electricity.
Licensing	Ensures that owners have valid licences.

Enforcement Activities, 2013



A poorly-managed wiring installations

TNB substation which was not well-maintained

Unsafe condition of TNB substation

Discussion and assessment among the representatives of ST and premises' representatives on compliance during EMEER 2008 at the KL Tower

Visit to the KTMB Swing Bridge Project installation Butterworth, Penang.

Inspection on one of TNB's installations

INVESTIGATION AND PROSECUTION

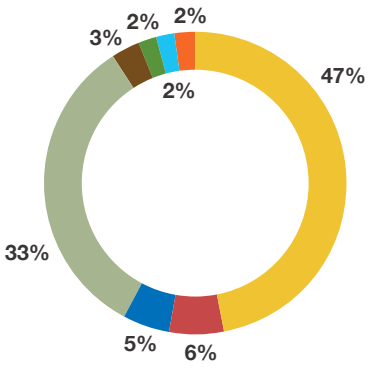
INVESTIGATION

In 2013, ST released a total of 61 investigation papers related to non-compliance cases under the Electricity Supply Act 1990, the Gas Supply Act 1993 and the subsidiary legislation thereunder. Based on this total, 33% were cases pertaining to electricity theft, 47% represented electrical accident cases and the rest were cases of electrical equipment, installations and investigations of gas accidents. The investigation of electrical accidents decreased by 16.36% compared to 2012.

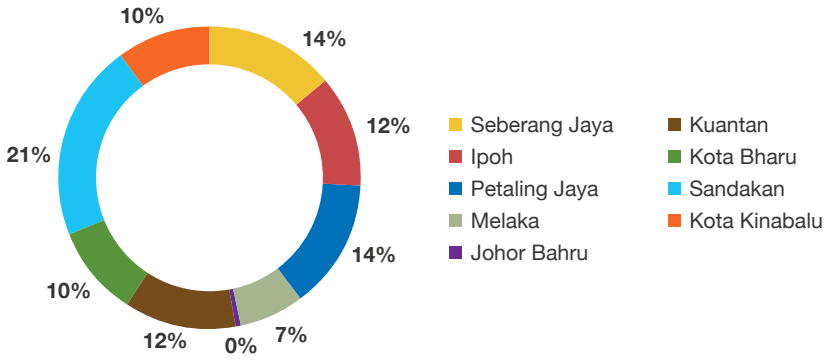
Investigation Papers , 2012 - 2013

Investigation Papers	2012	2013
Electrical accidents	39	**29**
Installations	1	**4**
Electrical equipment	2	**3**
Dishonest use of electricity	28	**20**
Interruption of electricity supply	1	**2**
Illegal gas supply		**1**
Electrical Contractor	-	**1**
Gas pipeline leak accident	-	**1**
Total	**71**	**61**

Categories of Investigation Papers Opened



Number of Electrical Accident Case Investigations According to State



PROSECUTION AND COMPOUND

In 2013, a total of three cases were sentenced by the court while four others pending trial. The penalties imposed amounted to RM58,000.00.

Six compounds amounted to RM14,500.00 which involved six accidents were issued by ST.

Companies Found Guilty by the Court

Defendant Name	Type of Offense	Decision
Perniagaan Ah-Siong	Dishonest use of Electricity Section 37(3) Electricity Supply Act 1990.	The accused pleaded guilty on 13 February 2013. The Batu Pahat Session Court imposed a fine of RM 30,000.00 or six months imprisonment.
Kilang Strillion Dyeing & Finishing Sdn. Bhd.	Careless to the extent of causing damage to an individual. Section 37(2) ABE 1990.	The accused pleaded guilty on 23 July 2013. The Sungai Petani Session Court imposed a fine of RM 10,000.00 or two months imprisonment.
Setia Ikhlas Resources Sdn. Bhd.	Illegal installation Section S37(8) ABE 1990	The accused pleaded guilty on 29 July 2013. The Kajang Sessions Court imposed a fine of RM 9,000.00 or six months imprisonment (two accusations).

CANCELLATION AND SUSPENSION OF THE CERTIFICATE OF COMPETENCY

In 2013, ST suspended the Certificate of Competency for four Competent Persons, while the Certificates of Competency for two Competent Persons were cancelled in absolute terms.

All of them were found guilty in cases of electrical accidents while on duty which caused death or injury to the victims and also damage to electrical equipment. The investigation found that all the Competent Persons violated several clauses under sub-regulation 59(4) of the Electricity Regulations 1994, and also the provisions of other laws relating to compliance to safe work procedures.

As a result, actions were taken under sub-regulation 59(8) of the Electricity Regulations 1994 against all the Competent Persons as they had engaged in serious misconduct that led to the occurrence of electrical accidents.

Fatal Electricity Accident at the CIQ Complex, Johor Bahru

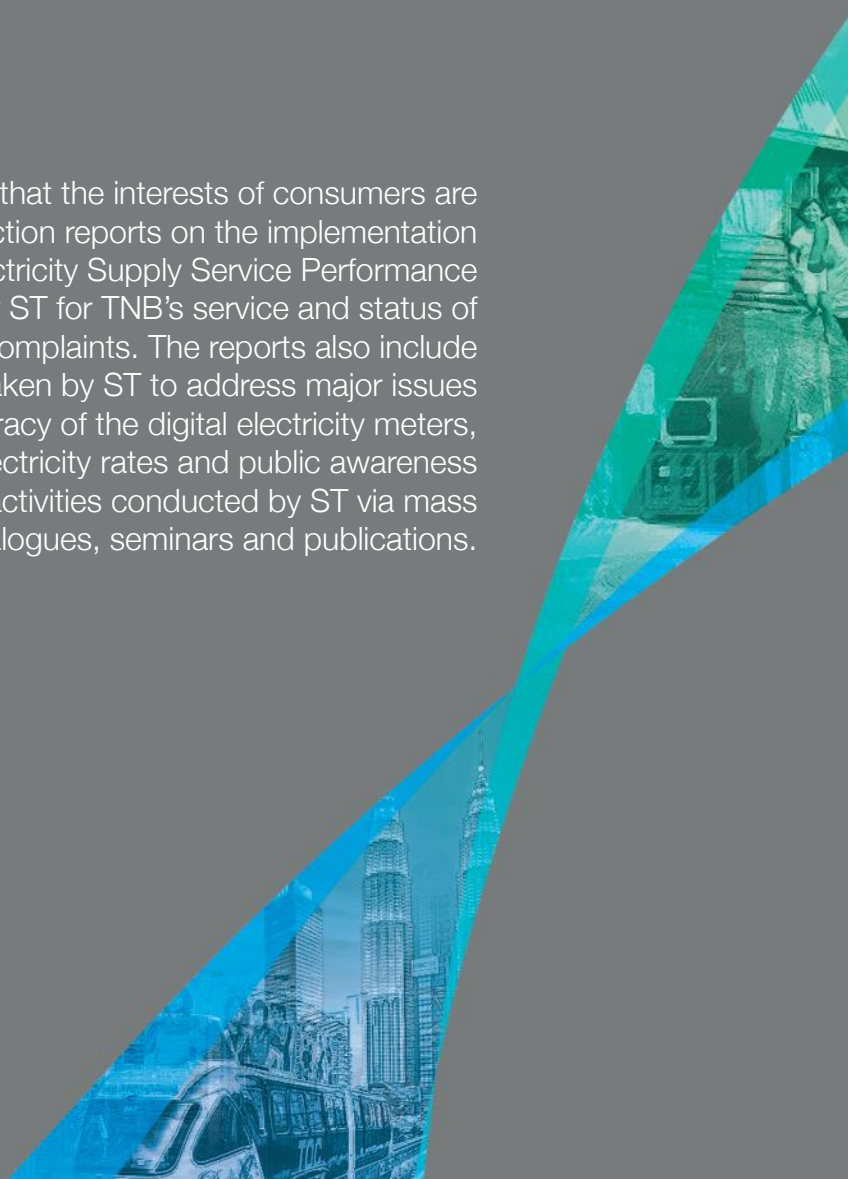
Name	Certification	Decision
Rajendran a/l Marapaie	PJ-T-6-B-0104-2008	Forfeited Absolutely

Fatal Electricity Accident at KL Sentral Main Substation, Kuala Lumpur

Name	Certification	Decision
Shaharudin B. Mohamad	PJ-T-1-B-0607-2008	Forfeited Absolutely
Zulkefli B. Mohd Saarif	PJ-T-7-B-0978-1995	Suspended for two years
Razali B. Ibrahim	PJ-T-6-B-0005-2010	Suspended for two years
Mahdani B. Ahmad	PJ-T-1-B-0575-2007	Suspended for two years
Abdul Halim B. Mohd Ali	PJ-T-32-B-0020-2010	Suspended for two years

PROTECTING CONSUMERS' INTERESTS

ST always ensures that the interests of consumers are protected. This section reports on the implementation of the Electricity Supply Service Performance Standards set by ST for TNB's service and status of resolutions of complaints. The reports also include various initiatives taken by ST to address major issues including the accuracy of the digital electricity meters, the rising of electricity rates and public awareness programmes and activities conducted by ST via mass media, dialogues, seminars and publications.



MONITORING THE IMPLEMENTATION OF THE ELECTRICITY SUPPLY SERVICE PERFORMANCE STANDARDS OF TNB

The Guaranteed Service Level (GSL) is the level of performance set by ST to ensure the quality of electricity supply by TNB. If TNB failed to comply with these service performance standards, a penalty in a form of rebate has to be paid by TNB to the consumers. The Minimum Service Level (MSL) is a prescribed minimum level of performance to measure the efficiency of TNB on consumer requirements.

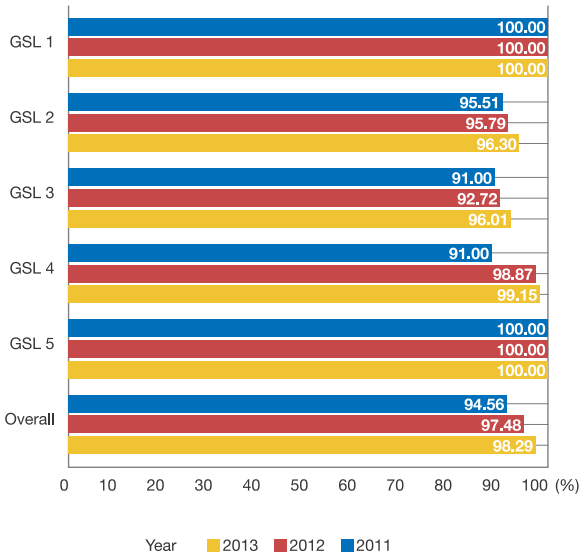
The enforcement of GSL began with GSL 3, GSL 4 and GSL 5 on 1 January 2012, of which it did not require any major changes or additions to the existing systems. GSL 3, GSL 4 and GSL 5 cover the provision of electricity supply including:

- The time taken to provide a supply line (GSL 3) — seven working days for overhead lines and 21 working days for underground lines.
- The time taken to connect a new power supply for low voltage domestic consumers (GSL 4) is five working days.

GSL 1 and GSL 2 would only commence after the TNB's Corporate Geospatial Information System is ready which is expected to complete in 2015 in the Klang Valley and 2020 in Peninsular Malaysia.

Since the Supply Service Performance Standard of TNB was enforced, the performance of GSL was found to have increased due to the utility's compliance with the pre-determined standards while the performance of MSL showed a slight decline for 2013 as compared to the previous years.

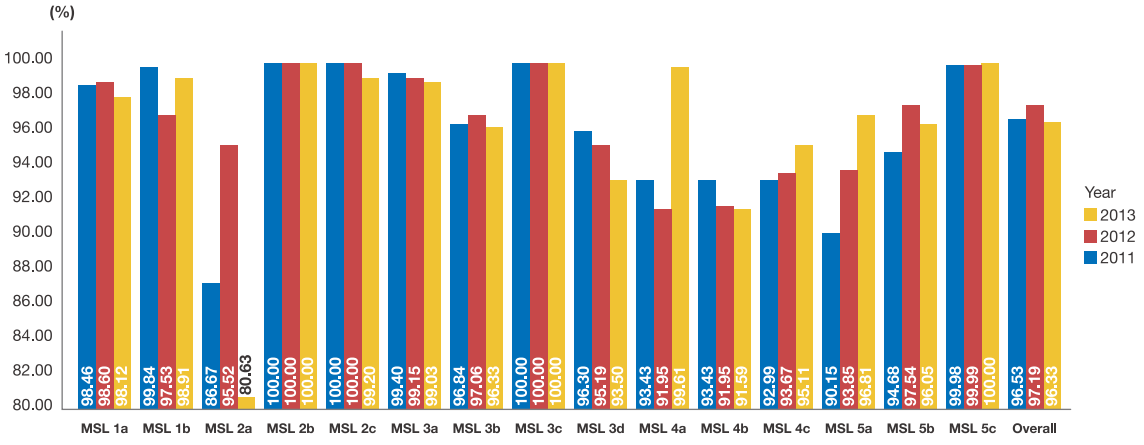
The Performance Achievement of GSL from 2011 until 2013



Five aspects of services which are emphasised in the MSL:

MSL	Services Aspect	Service Indicator	Performance Measurement
MSL 1	Continuity of supply	a. Notice period for scheduled interruption of electricity supply.	2 working days
		b. Time taken to inform the client who reported about interrupted electricity supply.	1 hour
MSL 2	Quality of supply	a. Period and time taken to investigate voltage faults.	2 working days
		b. Time taken to identify the cause of voltage faults which needs network reinforcement.	6 months
		c. Time taken for a complete investigation pertaining to over-voltages and voltage dips starting from the date of complaints.	30 working days
MSL 3	Provision of supply	a. Time taken to process the application to provide electricity supply and respond to the applicant.	14 working days
		b. Time taken to implement electrification schemes which need a new substation after the handover of substation building (up to 33kV) to TNB.	4 months
		c. Waiting time at the site for reconnection of electricity supply. (Inevitable events must be followed by a call to the complainant less than 1 hour before the meeting time).	1 hour
		d. Time taken to inform the developer about the reconnection charge which needs to be paid after receiving a complete application.	2 months
MSL 4	User Relationship	a. Time taken to respond to a written complaint.	7 working days
		b. Average queue time at the service counter.	20 minutes
		c. Time taken by the customer service officer at CMC 15454 to answer telephone calls.	All calls must be attended within 24 hours.
MSL 5	Meter	a. Time taken to officially address the complainant's meter issue (visit, test, and others).	2 working days
		b. Time taken to give a response to the issue of metering or a dispute after the formal notice by the user (change of user, transfer and others).	3 working days
		c. Time between the successive rendering of electricity bills.	1 month

The Achievement of MSL From 2011 to 2013



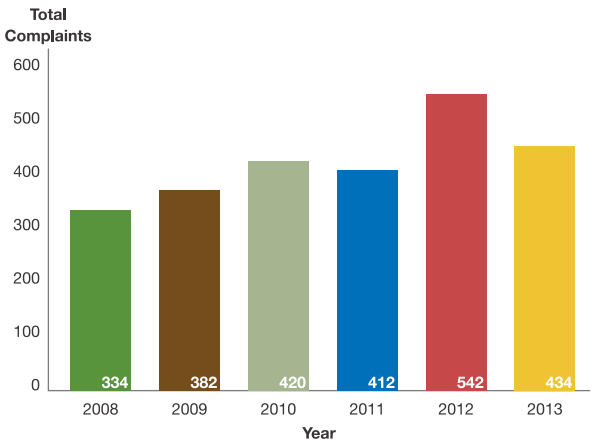
For 2013, the overall GSL performance of TNB was 98.29% while the overall MSL performance was 96.33%. Currently, there are only two claims made by consumers for non-compliance of GSL.

HANDLING CUSTOMER COMPLAINTS

In 2013, a total of 434 complaints were received. This number represented a drop of 20% compared to the 542 complaints in 2012. Based on this total, 98% of the complaints were resolved except for complaints that required further investigation.

The two highest categories of complaints were pertaining to electricity supply (53%) and electrical installations (23%). ST would conduct continuous monitoring to ensure that the consumer dissatisfaction and complaints about the services of electricity and piped gas supply would be reduced over time. ST also partnered with the utility in dealing with complaints to ensure it could be resolved in a shorter period.

Total Complaints, 2008 until 2013



Complaints According to Categories, 2013

Category	%
Electricity Supply	54
Quality of Electricity Supply	3
Electrical Installations	23
Electrical Equipment	6
Electrical Competency	7
Electrical Contractor	4
Gas Supply and Competency	2
Energy Management	1

TESTING AND INSPECTION OF DIGITAL METERS AT CONSUMERS' PREMISES

The digital electricity meter testing and inspection programme was given priority by ST to ensure that electricity meters installed at the consumers' premises are functioning well and accurate in accordance with sub-regulation 1(2) of the Licensee Supply Regulations 1990, that stipulates that the acceptable electricity meter accuracy should be in the range of ± 3%. Since 2012, ST had conducted inspection and testing of the digital electricity meters as follows:

Inspection and Test of Digital Electricity Meters, 2012 and 2013

Year	Number of Premises Inspected	Meter Accuracy in the Acceptable Range (±3%)	Meter Accuracy beyond the Acceptable Range (Exceed ±3%)		Meter Failure
			(+ve)	(-ve)	
2012	214	204	2	8	0
2013	**914**	**844**	**29**	**34**	**7**
Total	**1,128**	**1,048**	**31**	**42**	**7**

In the efforts to increase the transparency and effectiveness of the meter accuracy monitoring programme at the consumers' premises, ST also appointed SIRIM to conduct the testing of digital meters with ST at consumers' premises in Petaling Jaya, Subang Jaya and Shah Alam from 11 September 2013 until 2 October 2013. A total of 179 digital electricity meters were examined, most of them being installed for less than two years. The meters were checked for accuracy by SIRIM QAS which showed that the meters were in the acceptable accuracy range (± 3%). A total of 88.8% meters tested a positive accuracy level in the acceptable range, while the remaining 6.7% tested a negative accuracy level but still adhered to the acceptable range.

A special team set up by ST in 2012 would continue to improve the monitoring, inspection and testing of digital meters throughout the peninsula and Sabah. ST would also ensure that all digital meters outside the permissible range would be replaced immediately by the utility.

Portable Test Device used by ST for testing of electricity meters

An ST officer conducting a meter inspection at a consumers' premise

BRIEFING ON THE ELECTRICITY TARIFF INCREASE

Following the announcement by the Minister of Energy, Green Technology and Water on 2 December 2013 regarding the average electricity tariff in Peninsular Malaysia, Sabah and Labuan effective 1 January 2014, there was dissatisfaction among the consumers. The consumers claimed that no consultations were made to get their feedback.

Therefore, to explain the revised power tariff, ST organised a briefing session for the consumers on 19 December 2013. The participants consisted of representatives from various organisations, analysts from research bodies, the industry players and the Government. Among the organisations involved were the Malaysian International Chamber of Commerce and Industry, the Malaysian Iron and Steel Industry Federation, the Consumer Association of Penang, the Federation of Malaysian Consumers Association and the American Malaysian Chamber of Commerce.

The matters discussed were:

i. The Review Process and Decision to Fix Electricity Tariff in Peninsular Malaysia;
ii. The Challenges Faced in the Supply of Gas Fuel and LNG to the Generation Sector;
iii. The Challenges of Coal Fuel Supply to the Generation Sector;
iv. Initiatives Towards the Development of the Industry and Explanation on the IPPs; and
v. The Impact on Consumers and Energy Efficiency Practices.

Overall, the information sessions on the determination of the electricity tariff in the peninsula were fruitful and provided a better understanding to the parties involved.

The Chief Executive Officer of EC was interviewed during one of the briefing sessions to stakeholders on the Basic Electricity Tariff Hike in Peninsular Malaysia, Sabah and Labuan, on December 19, 2013.

INCREASING PUBLIC AWARENESS

MEET THE CUSTOMERS DAY PROGRAMMES, SEMINARS AND WORKSHOPS

For the purpose of disseminating information directly and improving the quality of services, the outreach programmes implemented by ST annually includes Meet the Customers Day sessions. This programme is an effective approach which links ST with the public. The public will also be able to obtain the services provided by ST. Groups who are less aware of the role of ST will be briefed on the scope of functions of ST and given awareness of the safe and efficient consumption of electricity and piped gas. In 2013, the programme was held in Kota Bharu, Kelantan; Penang; Langkawi, Kedah; Ayer Keroh, Melaka; Kota Kinabalu, Sabah; and Shah Alam, Selangor.

18 April 2013 – Meet the Customers Day Programme at Kompleks Perniagaan Haji Ismail, Pulau Langkawi, Kedah.

19 September 2013 - Media session in conjunction with the Meet the Customers Day programme at KB Mall, Kota Bharu, Kelantan.

ST also collaborated and interacted with various stakeholders including the local authorities and associations to increase public awareness on the safety of electricity and piped gas. A range of awareness activities including briefings, training sessions, seminars and dialogues were conducted continuously with a mixture of target groups consisting of the licensees, industry players, local authorities, associations and school students.

28 August 2013 - A Seminar on the Safety of Gas and Electrical Equipment with housewives in Johor.

15 May 2013 - A Seminar with Industry Players in Perak.

18 February 2013 - An Electrical Safety Campaign in SMK Sungai Isap, Kuantan, Pahang.

10 October 2013 - An Electrical Safety Seminar with the RMAF community in Kuala Lumpur.

18 April 2013 - A Seminar on Gas and Electrical Safety and Energy Efficiency in Langkawi, Kedah.

28 August 2013 - A Seminar on Gas and Electrical Safety and Energy Efficiency in Johor Bahru, Johor.

PUBLIC ANNOUNCEMENT AND ADVERTISING

ST also used the mass media and social media channels for public announcement and creates commercials to raise public awareness of safety and energy efficiency. ST also partnered with KeTTHA to push commercial advertising on television stations.

In addition to the extensive exposure through interview sessions in the electronic media, the print media also made a special report on the practices of energy efficiency, efficient use of electricity, GSL / MSL and the determination of electricity tariff based on IBR.

Among the topics and news angle emphasised were — energy-efficient methods and practices, the fraudulent use of electricity, the sale of electrical equipment without ST-SIRIM labels, illegal installations, unregistered contractors, contractor's failure to appoint Competent Persons, inspections on TNB's digital meters and piped gas safety.

Following rising complaints regarding the sudden increase in electricity bills, especially after the replacement of TNB's electro-mechanical electricity meter with digital meters, ST took the initiative to bring the media to several premises in Klang Valley during random inspection and testing of the electricity meters. This joint effort with SIRIM was undertaken so that the journalists and the media

representatives had a clearer picture of the role of ST to enhance transparency, especially in showcasing that the meter readings are accurate and within the specified range. This initiative received a wide coverage in the local press about efforts of ST to ensure the transparency of electricity meters installed by TNB.

Meter digital tak lonjak bil elektrik

■ Suruhanjaya Tenaga bidas dakwaan tidak berasas

Proses penetapan garis panduan berkaitan meter elektrik

Dibuat dengan telus, berintegriti

Garis panduan pemeteran

Pengeluaran bil

Program pemeriksaan meter

Media coverage on the inspection and testing of electricity digital meter accuracy by ST

In early December 2013, after the Government's announcement of the increase in the average tariff in Peninsular Malaysia, Sabah and Labuan, ST was active in making appearances in the media so that the public could understand the need and rationale for the increase. Detailed description of the IBR, GSL and MSL mechanism; the tariff increase and fuel prices were disclosed to the public. The Chief Executive Officer of ST also appeared in talk show programmes in Astro Awani, Selamat Pagi 1Malaysia in RTM, the 'Space Talk' on BERNAMA TV, 'Hello on 2' on TV2 and Equal 1News @ Bring Me , RTM.

ST also continued to publish Buletin ST as the energy industry magazine, focusing on past or ongoing initiatives and programmes of ST, to improve the efficiency, security and transparency of the energy sector in Malaysia. Buletin ST were distributed to government agencies, industry players and NGOs, embassies, public and private universities, training institutions and the public.

DEVELOPING A ROBUST REGULATORY FRAMEWORK

ST seeks to ensure that all regulatory activities carried out are based on a solid regulatory framework. This section contains reports on the implementation status of the framework for the Third Party Access system, ring-fencing control system, single buyer and ESCO. The report includes studies and assessments, the harmonisation of standards and guidelines; and of circulars issued.

REGULATING THE TPA SYSTEM

The Regasification Terminal (RGT) in Sungai Udang, Malacca started its operations in May 2013 with the input of LNG from foreign countries like Nigeria, Qatar and Brunei. Thus, the TPA system was introduced to ensure that the continuity of natural gas supply is guaranteed while promoting the growth of the gas industry in Malaysia. The TPA system would create competition among the suppliers of natural gas by allowing entities other than PETRONAS to bring in the LNG through the regasification terminal facilities. It would be then transported via the transmission or the distribution pipelines to consumer premises.

As a regulatory body that implements the regulatory activities related to competitive gas market in the TPA system, ST took steps to provide the regulatory framework by amending the Act and related regulations, and develop codes and guidelines, to ensure that the TPA system could be implemented efficiently. The measures undertaken by ST were as follows:

i. Amendment of the Gas Supply Act (GSA) 1993

ST organised several consultation sessions and obtained feedback from stakeholders to ensure that any outstanding issues including the issue of overlapping scope of regulatory were dealt with accordingly. The final draft of the amendment to the GSA 1993 was submitted to the Economic Planning Unit, Prime Minister's Department and forwarded to the Attorney General on 20 December 2013 for gazetting.

ii. Preparation of the Code, Guidelines and Tariff Structure for the Implementation of the TPA system

In the preparation of codes, guidelines and tariff structure for the implementation of the TPA system, ST also referred to and obtained feedback from the Ministry of Human Resources and the Malaysian Competition Commission to ensure the effectiveness of the regulatory mechanism for the TPA. The codes and guidelines provided are as follows:

a) Third Party Access Code for the Malaysian Regasification System;
b) Third Party Access Code for the Natural Gas Transmission System in Malaysia;
c) Third Party Access Code for the Natural Gas Distribution System in Malaysia;
d) Guidelines for Competition; and
e) The Tariff Structure for the Regasification, Transmission and Distribution System for Natural Gas in Malaysia.

In order to ensure that the TPA system can be implemented in a smooth and efficient manner, the following factors were considered and emphasised:

a) The effective management of legacy issues;
b) The effect of the implementation of the TPA system on the gas supply situation;
c) The smooth implementation of the TPA system;
d) To increase the level of investor confidence in the implementation of the TPA system;
e) Capacity building and capability of the entities involved in the implementation of the TPA system;
f) Infrastructure readiness for TPA;
g) The development of the gas industry in the future; and
h) Implementation in line with international practices.

OPERATIONALISATION OF THE RING-FENCED SYSTEM OPERATOR AND SINGLE BUYER

The implementations of the Single Buyer Framework and the Single Buyer Rules (SBR) were approved by the Minister of Energy, Green Technology and Water on 24 June 2013. The memorandum on the Ring-Fenced Grid System Operator was submitted for the consideration and the approval of the Minister of Energy, Green Technology and Water on 28 November 2013. The implementation of Ring-Fenced Single Buyer would be on 1 January 2014 and the Ring-Fenced Grid System operator would be on 1 February 2014. Overall, the implementation of ring-fencing operations for both two entities proceeded smoothly.

The Single Buyer Rules would help reduce the procurement cost of electricity supply, promote the practice of transparency in the procurement of electricity supply, increase competition in the electricity generation sector, and eventually ensure the security of electricity supply for medium and long term. The Ring-Fenced System Operator would be carried out in phases as described in the Guidelines for Ring Fencing the Grid System Operator

document and expected to take 12 months for full implementation.
ST organised a briefing on the Single Buyer Rules and Guidelines for Ring Fencing the Grid System Operator on 18 December 2013 for the implementation of Ring-Fenced Single Buyer and Ring-Fenced Grid System Operator for all parties directly involved in the electricity supply market.

An Oversight Panel was established to oversee the Ring-Fenced Single Buyer and compliance to the Single Buyer Rules and it was also mandated to monitor the performance of GSO in the aspect of Ring-Fenced System Operator. The technical aspects would be referred to the Grid Code and monitored by the existing Grid Code Committee.

The Framework for the Rule Change Panel was developed to ensure that both Single Buyer Grid System Operator Rules and Guidelines would be the documents which are constantly updated. Any suggestions and additions would be sent to the ST Management before the review by the Rule Change Panel, and then submitted for consideration and approval of ST. If the proposed amendments involved policy matters, it would be submitted for approval by the Minister of KeTTHA.

The measurement of the performance of both entities would be monitored by ST, in line with the implementation of IBR in January 2014.

LEGAL FRAMEWORK FOR REGISTRATION OF ESCOs

One of the efforts to save electricity in government buildings is through the implementation of the Energy Performance Contracting (EPC) by ESCO. EPC was approved by the Cabinet on 23 January 2013, and ST was responsible for overseeing the implementation of EPC through the accreditation process of ESCO.

The Ministry of Finance decided that if the ESCO is interested to implement EPC in government buildings, it must first register with ST before it proceeds to register with the Ministry of Finance under the scope of Code 801222: Technology Services.

Until 30 December 2013, nine ESCOs were registered with ST. The proposed registration for ESCO is an initiative to improve the energy efficiency and spur the industry in order to achieve the objectives of energy conservation and energy efficiency in the government buildings.

The Government will benefit through the implementation of EPC by ESCOs through:

i. Expenditure savings in terms of capital investment to implement the energy saving activities in the government buildings;
ii. Annual savings on electricity bill expenditure and achieving the goal of energy conservation;
iii. Improved energy efficiency management competencies among the owners and users at government buildings;
iv. Improved drive and viability of the energy efficiency services industry in the future with the involvement of ESCO; and
v. More comprehensive and sustainable maintenance of the government buildings.

RESEARCH AND ASSESSMENT

PROPOSED DEVELOPMENT MECHANISM FOR THE CONSUMER TARIFF

Based on the recommendations of the Study of Consumer Electricity Tariff Structure by MyPower implemented in 2013, the consumer tariff structure model was developed based on the cost of supply with options to create the time-of-use (ToU) structure. Currently, the tariff structure has an element of cross-subsidy between the categories of users, which do not reflect the actual cost of supply.

The study also outlined the implementation strategies for the transformation of the current consumer rate structure, based on the cost of supply according to the category of users. However, to implement these strategies, consultation sessions with stakeholders and the analysis of the impact of the changes on the tariff structure according to the cost of supply imposed on consumers should be conducted.

Besides that, the proposed components of ToU rates in the tariff structure is one of the alternatives that would be introduced to the industrial and commercial customers, as an option to replace the Special Industry Rates which is expected to be phased out by 2016. However, the introduction of ToU tariff is not only subject to the Special industrial Tariff category of consumers, but is applicable to all categories of the industrial and commercial consumers, if they are interested.

REVIEW OF TNB'S CONNECTION CHARGES

Connection charges are charges imposed by TNB to collect the portion of the cost of supply lines and electrical installations provided by TNB. This charge represents the costs that can be collected by TNB under the Electricity Supply Act 1990, if it cannot be recovered through the electricity tariff levied on the consumers. The reconnection fee is charged based on 25% of the cost of supply lines and electrical installations to connect the supply to consumers, and the remaining 75% is charged through the tariff levied on consumers.

TNB's connection charge was introduced in 1995. Since then, the criteria and the rate charged had not been revised even though costs of cables, transformers, metal materials, labour and other costs have increased over the years. TNB has submitted a few applications to revise the rates of connection charges in 1998, 2000, 2004 and 2009 respectively. However, the applications were rejected in favour of the revised tariff. In 2012, TNB re-submitted an application to revise the connection charges.

Consequently, a series of discussions and workshops were conducted between ST and TNB to review and finalise connection charges. On 9 September 2013, TNB proposed a final review on the connection charges based on the feedback and agreed on the recommendations of ST. Based on the latest study findings, a consultation session with government agencies and associations such as the Real Estate and Housing Developers' Association Malaysia (REHDA) was held on 30 September 2013. The consultation was intended to provide notice to the affected consumers on the terms of the new TNB connection charge and gather relevant feedback.

In December 2013, ST prepared a proposal for the review of TNB's connection charges and forwarded it to the Ministry of Energy, Green Technology and Water for consideration and approval.

FEASIBILITY STUDIES OF BIO-DIESEL AT POWER GENERATION PLANTS

ST had conducted a study on the implementation status of the bio-diesel used in the electricity generation sector in Malaysia following the recommendation by the Minister of Energy, Green Technology and Water, which proposed the use of B5 bio-diesel in power stations owned by SeSB as an alternative source of electricity generation in Sabah.

At the end of 2012, the Government agreed that the use of palm olein and diesel mix in the electricity generation sector in Sabah be implemented with a determination of the threshold price according to crude palm oil prices. The main goal of the palm olein blend with diesel as fuel in the electricity generation sector was to stabilise the price of crude palm oil by reducing the current stock and also providing an alternative fuel source to reduce the dependency on the petroleum diesel, particularly in Sabah.

In the Economic Council Meeting (EC) No. 27/2012 on 3 December 2012, the EC agreed on the implementation of the use of palm olein in the electricity generation sector in Sabah, in line with the resolution of the threshold price for crude palm oil.

HARMONISATION OF STANDARD AT REGIONAL LEVEL

THE 16th JOINT SECTORAL COMMITTEE MEETING FOR ELECTRICAL AND ELECTRONIC EQUIPMENT (JSC EEE), KUALA LUMPUR, MALAYSIA.

Malaysia hosted the 16th meeting of JSC EEE and ST as the regulatory body of a member country, helped to organise the meeting. The JSC EEE ASEAN Meeting is held twice a year where the host country is rotated among the ASEAN countries.The meeting of JSC EEE began in 2005, which comprises the Member States' Regulatory Authorities. The members of the JSC EEE played an important role in sealing the two agreements signed by the Economic Ministers of the ASEAN countries for electrical and electronic equipment.

The meeting discussion covered the legal aspects, the guidelines and the procedures related to electrical and electronic equipment within the member countries as well as to reach mutual agreements or consensus among the member countries. The delegates represented Cambodia, Indonesia, Myanmar, Philippines, Singapore, Thailand, Vietnam and Malaysia. 37 observers were also present as representatives of the relevant agencies in Malaysia —KeTTHA, EIU (Sarawak), Standards Malaysia, SIRIM Berhad, Construction Industry Development Board Malaysia (CIDB), MITI, the Electrical and Electronics Association of Malaysia (TEEAM) and MEADA.

The meeting agreed that with the acceptance of the Certificate of Conformity (CoC) in the ASEAN region, it would eventually no longer need the repetitive assessment and certification among the member countries. In light of this, the assessment costs would be lower and the period to bring new products to the market could be shortened.

The procedures to update the status of implementation of ASEAN EE MRA, comprising the proposed listing of the new and renewed testing laboratories and the certification recognised at the ASEAN level, were also discussed in detail. Meanwhile, the acceptance status of the AHEEERR agreement in the legal framework of each member state and status of preparation of the documents such as the Info Booklet on AHEEERR and Conformity Assessment Procedure were also presented during the meeting.

GUIDELINES AND CIRCULAR PREPARATION

In 2013, a set of guidelines and a circular were prepared to strengthen the regulatory and enhance the security of the energy sector.

GUIDELINES FOR THE APPLICATION OF PROVISIONAL LICENCES

Provisional licences are issued to facilitate the applicants to initiate the development of electricity generation projects from renewable energy sources and to obtain the project financing from financial institutions. This licence is issued only for a short while before the commencement of the operation of the plant and needs to be replaced with a permanent licence when the plant is fully operational. These Guidelines are intended to inform the applicants about the requirements and procedures of the provisional licence application for the electricity generation from the renewable energy sources.

The provisional licence is granted to the Feed-In Approval Holder (FIAH) which operates a public installation that generates renewable energy using fuel sources such as biogas, biomass, solar photovoltaic and mini-hydro.

In addition to meeting the legal requirements and objectives of the Government, ST also outlined the key requirements that must be adhered to especially in determining the needs for an activity to be licensed.

CIRCULAR ON ELECTRICAL SAFETY

ST issued a circular entitled "The Training Conditions To Replace The Work Experience of the Chargeman" which was aimed to inform all accredited institutions and holders of Certificates of Competency for Chargeman about the training modules that they can pursue in lieu of the work experience requirements, before they are eligible to be considered for the competency examination in order to upgrade to a higher competency category of Chargeman.

According to current practice, the holders of Chargeman Certificate of Competency who wish to upgrade to a higher competency must meet the requirements of work experience.

Until now, the competency candidates of the High Voltage Chargeman, who do not have work experience as stated, are not able to raise the level of competence to the higher category.

Therefore, in accordance with regulations 45(2) of Electricity Regulations 1994, ST stipulates that the training modules available can be used to replace the work experience that allows the holder of the Chargeman Certificate of Competency to sit for a private examination administered by ST, or enroll in competency courses conducted by accredited institutions to upgrade to a higher category.

These guidelines were made mandatory by ST Circular No 1/2013 dated 22 February 2013. However, candidates who are eligible to participate in the training modules are still subjected to the conditions set by ST.

AMENDMENT OF REGULATIONS

The Amendments of the Electricity Regulations 1994 and Licensee Supply Regulations 1990 were implemented since the beginning of 2013. These amendments were intended to coordinate and strengthen the Electricity Supply Act 1990 (Act 447) which is currently in the process of amendment.

THE AMENDMENT OF ELECTRICITY REGULATIONS 1994

The amendment of the Electricity Regulations 1994 were done in 2013 and was made effective starting 3 May 2013. The regulations incorporated new provisions, inter alia, the registration of importers and domestic manufacturers of low voltage electrical equipment and the recognition of Conformity Assessment Body (CAB) for both foreign and local registration. The recognised foreign CAB may issue a Certificate of Conformity (CoC) for the electrical equipment imported from foreign countries into Malaysia and the equipment do not need to be tested again before being distributed in the market. For the local CAB which is registered with ST and recognised by the foreign country, it may issue a CoC for the electrical equipment manufactured in the country for export to foreign countries, so that the equipment does not need to be tested prior to shipping. A foreign country means a country that has entered into an agreement relating to the relevant EEEMRA.

This amendment is intended, first, to align the legislation with the provisions of the ASEAN Electrical and Electronic Equipment Mutual Recognition Agreement (EEEMRA) which is already signed by Malaysia. The new provision also applies to similar agreements with other countries in the future.

Second, the amendment of the Regulations is to implement the efficient use of electricity by domestic low voltage electrical equipment and the enforcement of efficiency rating label on a number of electrical equipment. In addition, any person who manufactures, imports, sells or offers to sell or lease the equipment is required to ensure that the equipment meets the test standard of energy performance, the minimum energy performance standards and the efficiency ratings as specified. For enforcement purposes, if any of the domestic low voltage electrical equipment is found to not meet the efficient use of electricity requirements, ST may prohibit the manufacturing, import, sale offers or leasing the equipment, and can also direct to withdraw the equipment, and if necessary, seize and remove the equipment from the market. In addition, ST is also authorised to carry out market surveillances to ensure that the electrical equipment is safe to use and labelled as prescribed, and related offences will be filed against any offender.

Third, amendments were made to the definition and some relevant provisions in the Electricity Regulations 1994 as a response to the amendments referred above.

Among other, included in the amendments are that of Regulation 97 on the approval requirement of the domestic low voltage electrical equipment, requiring the manufacturers and the importers to be registered; the manufacturers need to submit the test reports and the CoC from the local CAB; the importers also need to submit the test reports and the CoC test report from a foreign CAB; and storage of technical files for the electrical equipment involved. In addition, follow-up amendments were also made to the provisions concerning the renewal, transfer, cancellation and deletion from the Register of a certificate of registration to include the registration of manufacturers and importers.

THE AMENDMENT OF LICENSEE SUPPLY REGULATIONS 1990

Generally, the main purpose for ST to review the Licensee Supply Regulations 1990 since the beginning of 2013 is to ensure that the supply of electricity would always be reliable and comply with standards that had been set, aside from protecting the rights and interests of consumers. The regulations which are being improved include the following:

i) Recovering the charges for the supply line, fittings;
ii) Billing of electricity;
iii) Deposits;
iv) Electricity metering;
v) Testing of the electricity meter; and
vi) Licensee installations;

In addition, several new regulations are included to clarify the procedures for the supply of electricity and technical requirements, including;

i) The supply system;
ii) The application for supply;
iii) The duty of licensees to supply and ensure the safety of the installation;
iv) The time period to provide the supply by the licensee; and
v) Pre-paid meters.

The amendment to the Licensee Supply Regulations 1990 is expected to be completed in 2014.

Amendment of the Electricity Regulations 1994 to increase fees

To further promote the activities of the regulatory and financing studies that should be undertaken to improve the safety and interests of consumers, ST is amending the Electricity Regulations 1994 in respect of fees. The fees involved in the amendment would be increased by

10% and types of fees affected were the public licence fee other than generation fees, the processing fees for competency examinations and the competency certificate fees; the registration fees of electrical contractors and installations, the processing fees, the fees for the certificate of approval of electrical equipment and the renewal fees for the certifications. This was embodied in the proposed amendments of Regulation 54, 97 and in the Second Schedule of the Regulations.

In addition, the amendments proposed are as follows:

i) general amendments to replace the word "telecommunications line" to "lines that transmit communication" so that it will be in tune with the latest developments and legislation for existing communications;
ii) Regulation 2 related to the definition of "low voltage", "medium voltage" and "high voltage" according to the current voltage levels and as practised at the international level; and
iii) Regulation 10(2) by incorporating biomass and biogas as renewable energy sources and replace the aggregate power consumption from 10 MW to 5 MW.

The amendment is expected to be completed in early 2014.

MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)

The Minimum Energy Performance Standards started with the introduction of energy efficiency criteria for home appliances under the exemption of import tax and sales tax for energy-efficient equipment in 2009. Eight different types of electrical equipment that were introduced with the qualifying criteria for energy efficiency equipment which would receive exemption of import tax and sales tax, are as follows:

	Material/ Equipment	Energy Performance Indicator, Rating System
1	Insulating material	Thermal Conductivity, k-value,(W/mK)
2	High Efficiency Motor	Type EFF 1 based on the European Committee of Manufacturers of Electrical Machinery and Power Electronics
3	Lamp (CFL, fluorescent tube, LED)	Efficacy (Lumen/Watt)
4	Ballasts for fluorescent light	Energy Losses (Watt)
	Material/ Equipment	**Energy Performance Indicator, Rating System**
5	Domestic Air Conditioner	Ratio of Energy Efficiency (Btu/h/W) - STAR Rating
6	Domestic Refrigerator	Energy Efficiency Factor (EEF), (Litre/kWh)) - STAR Rating
7	Domestic Fan	Coefficient of Performance (COP) (m3/min/W)): - STAR Rating
8	Television	Energy Efficiency Index (cm2/ kWh)) - STAR Rating

Meanwhile, the MEPS for eight electrical equipment was determined as follows

	Material/ Equipment	Energy Performance Criteria
1	Insulating Material	< 0.069 W/mK which is tested at 38°C
2	High Efficiency Motor	At least of EFF 1 based on the European Committee of Manufacturers of Electrical Machinery and Power Electronics
3	Lamp (CFL, fluorescent tube, LED)	Value of Efficacy (Lumen/ Watt) depends on the type of lamp as stipulated by ST
4	Ballasts for fluorescent lamp	Electronic ballasts and conventional ballasts with energy losses not exceeding 6W for 18/20W and 36/40W lamps approved by ST
5	Domestic Air Conditioner	At least 2 STAR
6	Domestic Refrigerator	At least 2 STAR
7	Domestic Fan	At least 2 STAR
8	Television	At least 2 STAR

The incentives for the exemption of import tax and sales tax started from year 2010 until 2012. Out of the eight types of electrical equipment listed under this incentive scheme, four types of equipment were introduced with energy efficiency labels. The four types of equipment are the air conditioners, refrigerators, televisions and domestic fans. During the implementation period, the total number of electrical equipment which successfully received such incentives were as follows:

Product Type	Number of Approved Models		
	2010	2011	2012
Air Conditioners	272	282	340
Refrigerators	23	51	45
Fans	314	254	362
Televisions	288	430	592
Insulators	25	27	17
Ballasts	33	23	44
High Efficiency Motors	136	287	215
LED	6	11	37
Total	**1,097**	**1,365**	**1,652**

After the sales tax and import duties exemption for the eight types of equipments expired, ST took the initiative to make the efficiency of electrical energy as a mandatory requirement. Therefore, the amendments to the Electricity Regulations 1994 included the criteria on energy efficiency of electrical equipment under Minimum Energy Performance Standards (MEPS). The electrical equipment made mandatory under MEPS are domestic electrical equipment consisting of air conditioners, refrigerators, domestic fans, televisions and lamps.

The amendment of Electricity Regulations 1994 was gazetted on 3 May 2013, and the MEPS regulations will come into full force on 4 May 2014. Statistics of the certificate of approval of electrical equipment under the MEPS are as follows:

Type of Electrical Equipment under MEPS	Issuance of Certificate of Approval (CoA) in 2013
Air conditioners	673
Refrigerators	600
Domestic Fans	1,012
Televisions	616
Lamps	87

STRENGTHENING THE ORGANISATIONAL CAPABILITIES

ST always ensures that the organisational capabilities are upgraded from time to time. This section contains reports on strategies to develop organisational sustainability, human capital, improve the service delivery and increase the security of ICT. Besides that, collaborations were established at the international level while strengthening the branding of the organisation through corporate social responsibility programmes and internal communications programmes.

HUMAN CAPITAL DEVELOPMENT

STRENGTHENING THE CAPACITY AND CAPABILITY OF THE ORGANISATION

Efficient and effective services depend on the quality of human capital to perform the entrusted tasks. The quality of human capital can also affect the service delivery quality to the clients and stakeholders. It is critical to ensure that a professional human resource management can support and mobilise its programmes and activities. Thus, the ability to attract, develop and retain the desired talent through systematic appointment, appropriate placement, according to the competencies and structured career management was implemented in line with the Human Capital Development Framework of ST developed since 2012.

Like the previous years, the recruitment process continued in 2013. 23 new employees were approved for appointment, comprising talents from various fields and levels of experience, ranging from high-potential graduates to talents that have extensive experience in the electricity supply and piped gas industries. At the same time, in line with the amendments of ST's Terms and Conditions of Service, the principle of remuneration for external candidates was reviewed and improved, aiming to attract the talent needed to serve and contribute to the achievement of the vision and mission of ST.

STAFF SKILLS AND COMPETENCY DEVELOPMENT

In accordance with ST's Training Policies, the focus on human capital development in ST for 2013 was to increase the basic competencies needed by staff to perform their duties and responsibilities effectively. To further enhance the abilities and capabilities of ST, employees of all categories were sent to participate in development programmes conducted either in-house or at external courses covering the fields of legal, regulatory processes, technical and effectiveness of personal skills. This included conducting courses on topics related to the procedures and techniques of enforcement and investigation, report writing and paperwork, customer service, complaint handling, analysis techniques, and understanding of the financial statements.

CAPACITY DEVELOPMENT PROGRAMME WITH CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION (CEC)

In line with the programme under the Memorandum of Understanding between ST and the CEC, a two-week study visit to CEC, Sacramento, California was organised in June 2013. The programme, which focused on two main topics — the energy demand forecasts and the energy information management, was attended by the Director of Energy Management and Industry Development and the Head of Capacity Planning, Department of Electricity Supply and Market Regulation. The knowledge acquired by the employees who attended the programme was shared with other staff in ST through knowledge sharing sessions which were held on a monthly basis.

In 2013, a repository of knowledge was established to be used by all staff through the development of ST's Knowledge Dashboard in the intranet website of ST. This repository contains information on a range of topics that can be used by staff as a reference in implementing their respective duties and responsibilities, as well as a source of information for the process of continuous learning.

CAPACITY DEVELOPMENT PROGRAMME FOR IMPLEMENTATION OF THIRD PARTY ACCESS SYSTEM

In preparation for ST to regulate the implementation of the TPA system for regasification terminal facilities, the transmission pipelines and the gas distribution pipeline, capacity building programmes were initiated and implemented in modular form in 2013. This programme will be continued in 2014. The programmes conducted are as follows:

i. A Technical Visit to the Regasification Terminal, Sungai Udang, Malacca for an exposure to the LNG regasification process and control systems as well as the scope of the applicable regulatory requirements that apply to the regasification terminals.
ii. A comprehensive training programme was developed for ST's officials, aimed at strengthening the capacity in terms of economic regulation for the regasification terminal facilities and the gas transmission pipelines. The training programme

also covered the technical and economic regulation of the gas distribution pipelines. Hence, ST invited experienced trainers in the oil and gas industry in Malaysia and the selected topics covered every segment in the gas supply chain.

ENHANCING THE HIGH PERFORMANCE WORK CULTURE

The high performance work culture among staff can increase the productivity and the performance of the organisation in achieving its goals. In an effort to continue creating a performance-based work culture, the annual performance appraisals of staff continued to be based on the achievement of Key Performance Indicators (KPI) of ST every year. Starting in 2013, all staff of ST adopted an online performance management system (PMS) in ST to monitor the achievement of their KPIs. This system was used not only to monitor their KPI performance throughout the year, but also to carry out the assessment of each employee based on the KPI and Behavioural Competencies. At the end of 2013, 55 of the 74 KPIs set for ST's performance recorded an achievement of 80% and above, and directly demonstrated the high performance of the employees.

PROVIDING COMPETITIVE SERVICE PACKAGE

To ensure that the package of services provided by ST is able to attract competent, skilled and positive talents, as well as to retain the high-performance internal staff, effective 1 January 2013, the Minister KeTTHA approved the amendments to ST's Terms and Conditions of Service. This amended package consists of the improvements to the facilities and amendment of the grade and the salary structure of ST. The review of the package of services will be conducted every five years to ensure that the service scheme of ST is always competitive, relevant and robust in order to attract the talent needed to achieve the mission and vision of ST.

IMPROVEMENT OF THE SERVICE DELIVERY

Certificate of Approval (CoA) for the Electrical Equipment

To improve the services to its customers, ST upgraded the online application system for importers and manufacturers of electrical equipment. This revised procedure was imposed on the payment of fees and the migration of the Certificate of Approval evaluation process to the new electronic system.

a) ePermit Online Payment (eOP).

Before the eOP was implemented, payment had been made via cheques, internet banking, and the proof of payment, such as receipts or payment slips should be attached. ST upgraded the online payment system with the introduction of eOP at the end of January 2013 where payment of fees from the account of the applicants were credited directly into ST's account without the need for receipt or payment slip. eOP facilitated the applicants to make payments via online banking and expedited the transaction fee at the e-Permit payment portal.

b) Outsourcing of Assessment Report and Validation of CB Certification for manufactured and imported Electrical Equipment.

SIRIM QAS International (SIRIM QAS) was appointed by ST to carry out the assessment of the test report or Technical Evaluation Report (TER). The implementation involved the integration of ST e-equipment with the SIRIM QAS system.

Outsourcing the test report assessment/CB Certification in the CoA application process to SIRIM QAS was aimed at accelerating the process of producing CoA on time, as stipulated in the Client Charter and reduce the invalidity of a test report or CB Certification submitted by the applicant.

ST is still the authority to approve and issue the CoA for electrical equipments under the Electricity Regulations 1994. On 12 December 2013, the e-TER system was fully implemented and SIRIM QAS commenced the task of assessing test reports on behalf of ST.

c) Additional Client Charter report module in the online application system of ST

The Client Charter is a written commitment of ST which outlines the promises made to its customers and its stakeholders in order to deliver the services in accordance with the set standards.

Beginning 2013, the Charter has been monitored consistently by ST. In line with the need to comply with the Charter, the online application system of ST involving e-Equipment, e-Gas, e-Electricity and e-Complaint was improved by incorporating the Client Charter report module. The enhanced module was able to monitor the process of preparing and

calculating the applications from the manual mode to the production of report with a mere checking through the system.

d) Implementation of the Online System

- e-Payment
  The Online Payment System (e-payment) was developed to facilitate the payment of fees or licences online for applications to register or obtain the certificate through e-Gas Systems, e-Electricity, Central Contractor Registration, Registration of Competent Person, Installation Registration, Registration of Personal Licence, Application for the Electrical Competency Certification examination and Registration of the Electrical Energy Manager at ST.

  The payment for processing the fees and the certificates of approval can be done easily with the relevant systems. The online payment facility can be made using the credit card facility either with Mastercard or Visa or direct deposit to the account (direct debit) via the Financial Process Exchange (FPX). E-Payment is expected to be fully utilised in the second quarter of 2014.

- Electronic Fund Transfer (EFT)
  The method of payment through Electronic Fund Transfer module (EFT) has been fully utilised in the headquarters and is to be implemented in all regional offices of ST. The transmission of payments into the accounts via Internet banking is more convenient and saves resources compared to payments made manually.

  In addition to EFT, the payment methods related to electrical equipment permits were also extended with the implementation of the Business to Consumer (B2C) payment mode. ST's customers now have more options to make payment using a wide range of modes of payment.

- e-Submission of Electricity and Gas
  ST implemented an e-Submission system involving two modules — Electricity and Gas. e-Submission Electricity is a system that collects and delivers monthly reports and quarterly data of the Public Licensee, Private Licensee (over 5 MW and above) and the Utility Licensee. The suppliers of data that use the e-Submission system consists of independent generators, SESB and TNB. The e-Submission of Gas is the system of collection and delivery of monthly reports from the Gas Utility Licensee - GMB. The report contains status of the gas supply and distribution system, the call centre, the number of customers and the consumption of gas, the gas supply disruptions and gas leakage and others.

ENHANCEMENT OF THE INTERNAL PROCESS

IMPROVEMENT IN THE PROCUREMENT PROCESS

All procurement matters are centralised based on the purchase of goods, services and works in the head office, as well as the purchase of assets for ST's regional offices.

In 2013, ST improved the existing procedures to expedite the procurement process without compromising the principles of cost in terms of public accountability, transparency in the management and assessment of the best benefits.

Among the initiatives undertaken were:

i. The amendment of the limit for approval, the process and the officer who approves the procurement process. These changes were approved by the Minister of KeTTHA on 18 October 2013 and will be adopted in 2014.
ii. Creation of a new acquisition manual based on the new approved procurement process.

IMPLEMENTING INTERNAL AUDIT

ST improved the internal risk management through the implementation of internal audit on the internal policies and procedures, the effectiveness of internal control systems and other matters. ST adopted the General Circular No. 3 of 1998 - Guidelines on the Role and Responsibilities of the Ministry, the Board of Directors and the Chief Executive Officers in the Management of Federal Statutory Bodies with close monitoring by the Audit Committee at ST level.

For 2013, six internal audits were carried out in ST covering the units at headquarters and the regional offices of ST. Continuous monitoring of the response to the received audit comments was carried out by the officers in each unit and regional office.

ENHANCEMENT OF THE BILATERAL RELATIONSHIP AND COLLABORATION NETWORK

ENERGY SECTOR EXCELLENCE AWARD

The KeTTHA Industry Awards (KIA) was initiated to recognise outstanding achievement in the energy, green technology and water industry as well as to promote the industry to continue adopting a culture of excellence in service delivery.

The award was given at the KIA Dinner 2013 which was held on 21 November 2013.

The award was based on the service delivery performance, the efficient use of resources, the quality of service and the importance of these categories to the industry and the country. The Evaluation of the Technical Committee and the ST's Energy Sector Working Committee agreed to give away the following awards:

Energy Sector Category	Award Recipient of KIA 2013
Energy Efficiency Management Excellence Award - Industry Category	Intel Technology Sdn. Bhd.
Energy Efficiency Management Excellence Award - Building Category	Politeknik Merlimau Melaka
Power Producer Excellence Awards – Combined Cycle Power Plant Category	Teknologi Tenaga Perlis Consortium
Power Producer Excellence Awards – Open Cycle Power Plant Category	Port Dickson Power Berhad
Power Producer Excellence Awards – Coal Power Plant Category	Sejingkat Power Corporation (Sarawak Energy Berhad)
Training Institution Excellence Award – Electrical Category	Institut Kemahiran MARA Lumut
Contractor Excellence Award – Electrical Category	Infrakomas Sdn. Bhd.
Training Institution Excellence Award – Gas Category	UTM – MPRC Institute for Oil and Gas
Contractor Excellence Award – Gas Category	Misi Setia Oil and Gas Sdn. Bhd.

FOREIGN AGENCY VISITS

In 2013, ST received visits from the international public and private organisations that intended to obtain knowledge on the internal approach to the regulatory framework of the energy industry in Malaysia, as well as inspecting the energy efficient building elements at the Diamond Building of ST. Among the foreign visits received were from the Japan Economic and Trade Industry Authority, Bhutan Electricity Authority, Petrobangla Bangladesh, the regulatory body of the Republic of Vietnam, the delegation of the Ministry of Economic Development, Italy and others.

Seminars jointly organised by the local agencies and overseas parties are as follows:

i) **5th Malaysian National Energy Forum**

Since 2009, ST has jointly organised the National Energy Forum with Malaysian Gas Association (MGA), Energy Council of Malaysia (ECOM) and supported by KeTTHA.

The 5th National Energy Forum was held in Subang Jaya, Selangor, on 3 September 2013. The Forum, which was attended by 350 participants, was officiated by the Minister of KeTTHA, YB Datuk Seri Panglima Dr. Maximus Ongkili. Among the topics discussed during the forum were:

- Delivering a Sustainable Energy Future for the World,
- Securing a Sustainable Energy Future for Malaysia,
- Is a Sustainable Energy Future Achievable in Korea?
- Policy and Energy Security,
- Delivering a Sustainable Energy Future – Industry Perspective, and
- Taking on Tomorrow's Energy Challenges Today.

ii) **Asia-Pacific Economic Cooperation (APEC), Energy Outlook Workshop 2013**

On 17 April 2013, the Asia Pacific Energy Research Centre (APERC) partnered with KeTTHA and ST to

host the APEC Energy Outlook 2013 Workshop, to discuss the APEC Energy Outlook 5th Edition which was published in February 2013.

The workshop was also designed to:

- Disseminate the key findings in the 5th Edition Outlook report at APEC Energy Outlook workshop held in Asia Pacific region,
- Share knowledge and building regional capacity to design more energy-efficient models, and policy formulation, and
- Strengthen relationships with member countries, and to encourage participation in the activities that are designed and implemented by APERC.

ENERGY EFFICIENCY (EE) RUN 2013

The EE Run 2013 was the second run organised by ST since Energy Run in 2011, which was held in conjunction of ST's 10 years celebration. The programme was held on 7 December 2013 at ST's headquarters office area.

The theme for the EE Run 2013 was in line with the efforts implemented by ST to promote efficient and effective energy consumption. The run was organised as a platform to inform the public about the importance of energy efficiency culture in everyday life.

Among the promotion of energy efficiency featured during the EE Run 2013 were:

- Mini Exhibition with buntings displaying the messages of efficient utilisation of energy in homes and offices.
- Interactive information session related to energy efficiency that offered prizes to the winners of the quiz.
- Campaigns prior to the event to encourage the public to replace two used bulbs with a new energy efficient Compact Fluorescent Light bulbs (CFL)
- Giving away stickers, fridge magnets and bookmarks with messages on efficient utilisation of energy in homes and offices in the participants' kit.
- Objectives and advices on the importance of using energy efficiently in ST's CEO speech.

More than 1,000 participants enrolled in the EE Run 2013 programme, for the 7 km and 5 km categories. The programme was organised in collaboration with the Federal Territory Amateur Athletics Association (FTKLAA), Putrajaya Corporation and the Royal Malaysian Police (PDRM).

ENERGY INDUSTRY GOLF INVITATIONAL 2013

The Energy Industry Golf Invitational 2013 was held on Sunday, 1 December 2013 at the Impian Golf and Country Club, Shah Alam, Selangor. The programme was graced by the Minister of KeTTHA, YB Datuk Seri Panglima Dr. Maximus Ongkili.

The Energy Industry Golf Invitational in 2013 programme was aimed to build relationships between ST and its stakeholders in the country's energy sector while indulging in sports and recreational activities. 64 participants attended the programme.

The attendees comprised of energy sector stakeholders from various ministries including the KeTTHA, the Ministry of Science, Technology and Innovation, Malaysia Nuclear Agency, the utility companies, the independent power producers and the guest of honour, HE Byungjae Cho, Ambassador of the Republic of Korea in Malaysia.

CORPORATE SOCIAL RESPONSIBILITY

THE TOUCH POINT PROGRAMME

To fulfill its corporate social responsibility, ST did not miss providing advice in line with its functions and roles. To widen the scope of consumers who could benefit from this programme, ST selected and identified a number of premises which acted as the focal point for the community, including:-

i. Budget hotels and private small industries.
ii. Welfare homes and houses of worship.

The method of the programme was to reach out directly to the consumers via free inspection of wiring at the premises, to ensure that the electrical installation was in good condition. In addition, ST also offered advice on the following matters:

i. Promoting matters related to energy efficiency;
ii. Checking the installation condition as well as describing the inherent defects; and
iii. Explaining the need to appoint a Competent Person or registered contractor to repair or install new wiring.

The following is a list of installations involved in the touch point programmes:

i. 51 installations of budget hotels in Langkawi, Kedah.
ii. 50 installations of premises of small and medium industries (SMIs) around Malacca.
iii. 30 religious places of worship and welfare premises in Kelantan and Terengganu.
iv. 50 religious places of worship and welfare homes in Selangor and the Federal Territory of Kuala Lumpur.
v. 15 premises of budget hotels in Ranau, Sabah.

Donations and Charity

In the effort to improve ST's CSR, priority was given to development programmes such as the 5th National Forum themed Delivering a Sustainable Energy Future for Malaysia - Taking on Tomorrow's Challenges Today. The programme, which was jointly organised by ST, the MGA and ECOM, proved to be a significant event as it reached its fifth year.

In line with the functions and roles of ST to promote the efficient use of energy, ST supported the Lighting Quality & Energy Efficiency Conference 2014. Organised by the International Commission on Illumination (CIE), the objective was to promote lighting systems that save on energy consumption.

In addition to developing the energy industry in general, ST also considered contributions to educational institutions, agencies, non-profit organisations (NGOs) and charitable organisations to ensure the success of the planned programmes as well as in helping those who are less fortunate.

ST's largest charitable donations in 2013 were focused on helping out the flood victims, especially in the east coast of Peninsular Malaysia through the collection from nonprofit organisations (NGOs) such as the Malaysian Veteran Fire and Rescue Association, Malaysian Volunteer Welfare Organisation, Medical Volunteers Squad and Malay Students Education Foundation. The anguish of the flood victims was most felt by ST especially when ST's staff in Kuantan, Pahang were also hit by the disaster.

Besides that, ST also emphatised with the suffering of the families of soldiers during the invasion in Lahad Datu, Sabah and donated through the Media Prima Lahad Datu Heroes Fund.

IMPROVING THE TEAMWORK SPIRIT AMONG EMPLOYEES

The Lobby Decorating Contest is held each year in conjunction with the Aidilfitri celebrations which intends to hone the creativity and enhance a sense of belonging among the employees of ST.

IMPLEMENTING ST'S TRANSFORMATION PLAN 2010-2020

ACHIEVEMENT STATUS OF ST'S TRANSFORMATION PLAN

The ST's Transformation Plan 2010-2020 is now in its third year of implementation. This plan outlines the key initiatives and programmes to be undertaken by ST within a period of 10 years starting in 2010. It consists of three sub-plans:

i. The Enhancement of Economic, Technical and Safety Regulation Plan;
ii. The Rationalisation of the Regulatory Framework Plan; and
iii. The Corporate Development Plan.

THE ACHIEVEMENT OF THE ECONOMIC, TECHNICAL AND SAFETY REGULATION PLAN

The objective of the Economic, Technical and Safety Regulation Plan is to achieve market liberalisation. This plan contains the initiatives and programmes that were scheduled to begin in 2010 and expected to continue until 2020. It covers various aspects of the regulation and implementation of high-impact initiatives relating to activities of industries regulated by ST.

36 key initiatives were incorporated in the plan and by the end of 2013, 18 initiatives were completed and 14 initiatives are still ongoing and will be completed in 2014. The remaining four initiatives will be implemented from 2014 to 2019.

Year	Initiative	Status
2010	Competitive bidding for new capacity	✓
	Account unbundling under Incentive-Based Regulation (IBR) - electricity	✓
	Financial and technical benchmarking	✓
	Analysis of proposed review of electricity tariff	✓
	Transparency in dispatching	✓
2011	Industry Award Programme	✓
	MEIH Energy Database	✓
	Industry performance monitoring programme	✓
	Implementation of Applicable Coal Price (ACP) new mechanism	✓
	Industry guidelines and code development	✓
	Enforcement of Grid Code and Distribution Code	✓
2012	Monitoring implementation of the service standards	✓
	Development of the Regulatory Implementation Guidelines (RIGs) - Electricity	✓
	Single Buyer (SB) and Grid System Operator Framework (GSO) - Electricity	✓
	Operationalising a more transparent and systematic gas and electricity market	✓
	Implementing a new framework for the supply and safety of electricity and gas	↑
	Initiating a collaborative framework with agencies or associations related to the regulatory activities	↑
	Legal and regulation framework for open access to the gas network	↑
	Development of the regulatory framework for electricity metering	✓
	Implementation of initiatives to upgrade the sustainability of electricity supply industry in Sabah	↑

Year	Initiative	Status
2013	Operationalisation of regulatory framework for open access to the gas network	↑
	Trial Implementation of the iBR - gas	↑
	Trial Implementation of the IBR - electricity	↑
	SB Regulation and the fencing of the functions of SB and GSO	✓
	Competitive bidding for new capacity	↑
	The National Electricity Supply and Demand Forecast Framework	✓
	Continous development of industry codes of practice and guidelines	↑
	Development of basic framework and legislation	↑
	Implementation of industry studies	↑
2014	Implementation of competitive bidding and development plan by ring-fenced SB	↑
	The first period of operationalisation of regulation for IBR - electricity	↑
2014 - 2015	Development of Limited Wholesale Competition	●
2015	Implementation of IBR - gas	↑
2016 - 2019	Development of regulatory and legal framework for a competitive energy market	●
	Establishment of electricity market authority	●
2020	Operationalisation of a liberalised market	●

Indicator Note:

✓ Completed

↑ Ongoing

● Yet to commence

THE ACHIEVEMENT OF THE RATIONALISATION OF THE REGULATORY FRAMEWORK PLAN

The objective of this Plan is to optimise the use of ST's resources, including human capital. This plan contains the initiatives and programmes that involve the outsourcing activities and the coordination of the regulatory activities with the relevant regulatory agencies or parties.

18 key initiatives were inserted in the plan and until the end of 2013, 13 initiatives were developed and the remaining five initiatives are ongoing.

Functions implemented by the institution/industry under the purview of ST	
Electrical competency examination conducted by institutions	✓
Verification of the Electrical Equipment Report Assessment	✓
Monitoring of electrical equipment market	✓
Processing of Approval to Install (ATI) and Approval to Operate (ATO) for the gas pipeline	●
Promotional activities	✓
Functions that were streamlined with relevant regulatory agencies	
Processing of incentives for energy efficiency and renewable energy	✓
Renewable energy activities	↑
Contractor Registration	↑

Terminated functions	
Exemption for the registration of licensed installations	✓
New functions implemented by ST	
Competitive bidding	✓
IBR – electricity and gas	✓
Malaysia Energy Information Hub (MEIH)	✓
Third Party Access regulation – gas	↑
Registration of Energy Service Companies (ESCO)	✓
Promotions and legislation related to energy efficiency (MEPS)	↑
Review and approval of electricity meters	✓
National Gas Task Force Operation	✓
Registration of test labs, electrical equipment manufacturers and importers	✓

Indicator Note:

✓ Complete

↑ Ongoing

● Yet to commence

THE ACHIEVEMENT OF THE CORPORATE DEVELOPMENT PLAN

The objective of this Plan is to increase ST's capability and capacity to perform its role. This plan covers the human resource development aspects, improved financial sustainability and turning around the work processes.

29 key initiatives were incorporated in the plan and until the end of 2013, 15 initiatives were developed and the remaining initiatives are still ongoing.

Year	Initiative	Status
Human Resource Development		
2010	Organisation restructuring	✓
2011	Development of the Capacity Building Framework	✓
	Review of Terms and Conditions of Service	✓
	Implementation of online performance management	✓
2012	Development of Capacity Building Plan	↑
	Redistribution of workforce according to priority	✓
2013	Development of Succession Planning Programme	↑
	Development of information management system	↑
	Development of ST's Learning Centre Plan	↑
2014	The Establishment of ST's Learning Centre	●
2015	Review of Terms and Conditions of Service	●

Year	Initiative	Status
Process Re-engineering		
2011	Rationalisation of the headquarters and regional office functions	✓
	Computerising Processes	✓
	Review of the Client Charter	✓
	Centralised procurement process	✓
	Outsourcing of event management	✓
2012	Implementation of online banking and payment	↑
	Outsourcing of payroll processing	✓
	Development of the ICT Master Development Plan	↑
	Monitoring of Client Charter Compliance	✓
	Outsourcing of legal services	↑
	Upgrading of ICT security system	↑
2013	Review of complaint management	✓
	Virtualisation of database centre	↑
	Development of Strategic Communication Framework	↑
	Implementation of online payment	↑
2014	Review of organisational structure and human resource needs	●
Upgrading of Financial Sustainability		
2011	Review of Financial Plan	✓
2012	Review of fees and charges for licensing and certification	✓

Indicator Note:

✓ Completed

↑ Ongoing

● Yet to commence

FINANCIAL STATEMENT

LAPORAN KETUA AUDIT NEGARA
MENGENAI PENYATA KEWANGAN
SURUHANJAYA TENAGA
BAGI TAHUN BERAKHIR 31 DISEMBER 2013

Laporan Mengenai Penyata Kewangan

Penyata Kewangan Suruhanjaya Tenaga telah diaudit oleh wakil saya yang merangkumi Lembaran Imbangan pada 31 Disember 2013 dan Penyata Pendapatan, Penyata Perubahan Ekuiti dan Penyata Aliran Tunai bagi tahun berakhir pada tarikh tersebut, ringkasan polisi perakaunan yang signifikan dan nota penjelasan lain.

Tanggungjawab Ahli Suruhanjaya Terhadap Penyata Kewangan

Ahli Suruhanjaya bertanggungjawab terhadap penyediaan dan persembahan penyata kewangan tersebut yang saksama selaras dengan piawaian pelaporan kewangan yang diluluskan di Malaysia dan Akta Lembaga Pelabuhan 1963 (Akta 488). Ahli Suruhanjaya juga bertanggungjawab terhadap kawalan dalaman yang ditetapkan perlu oleh pengurusan bagi membolehkan penyediaan penyata kewangan yang bebas daripada salah nyata yang ketara sama ada disebabkan oleh fraud atau kesilapan.

Tanggungjawab Juruaudit

Tanggungjawab saya adalah memberi pendapat terhadap penyata kewangan tersebut berdasarkan pengauditan yang dijalankan. Pengauditan telah dilaksanakan mengikut Akta Audit 1957 dan piawaian pengauditan yang diluluskan di Malaysia. Piawaian tersebut menghendaki saya mematuhi keperluan etika serta merancang dan melaksanakan pengauditan untuk memperoleh jaminan yang munasabah sama ada penyata kewangan tersebut bebas daripada salah nyata yang ketara.

Pengauditan meliputi pelaksanaan prosedur untuk memperoleh bukti audit mengenai amaun dan pendedahan dalam penyata kewangan. Prosedur yang dipilih bergantung kepada pertimbangan juruaudit, termasuk penilaian risiko salah nyata yang ketara pada penyata kewangan sama ada disebabkan oleh fraud atau kesilapan. Dalam membuat penilaian risiko tersebut, juruaudit mempertimbangkan kawalan dalaman yang bersesuaian dengan entiti dalam penyediaan dan persembahan penyata kewangan yang memberi gambaran yang benar dan saksama bagi tujuan merangka prosedur pengauditan yang bersesuaian tetapi bukan untuk menyatakan pendapat mengenai keberkesanan kawalan dalaman entiti tersebut. Pengauditan juga termasuk menilai kesesuaian polisi perakaunan yang diguna pakai dan kemunasabahan anggaran perakaunan yang dibuat oleh pengurusan serta persembahan penyata kewangan secara menyeluruh.

Saya percaya bahawa bukti audit yang saya peroleh adalah mencukupi dan bersesuaian untuk dijadikan asas bagi pendapat audit saya.

Pendapat

Pada pendapat saya, penyata kewangan ini memberikan gambaran yang benar dan saksama mengenai kedudukan kewangan Suruhanjaya Tenaga pada 31 Disember 2013 dan prestasi kewangan serta aliran tunainya bagi tahun berakhir pada tarikh tersebut selaras dengan piawaian pelaporan kewangan yang diluluskan di Malaysia.

(FARIZAH BINTI HARMAN)
b.p. KETUA AUDIT NEGARA
MALAYSIA

PUTRAJAYA
10 JULAI 2014

DECLARATION BY THE OFFICER PRIMARILY RESPONSIBLE FOR THE FINANCIAL MANAGEMENT OF ENERGY COMMISSION

I, Asma Aini Binti Mohd Nadzri, Director of Corporate Services Department reponsible for the financial management and accounting records of the Energy Commission, do solemnly and sincerely declare that the Financial Statements comprising the Balance Sheet, Statement of Income and Expenditure, Statement of Changes in Equity and Statements of Cash Flows and notes to the Financial Statements, are to the best of my knowledge and belief, correct and I make this solemn declaration conscientiously believing the same to be true and by virtue of the provisions of Statutory Declaration Act, 1960.

Subscribed and solemnly declared)
by the abovenamed)
in BANGI SELANGOR)
at 10 JUL 2014)

.....

Di hadapan saya,

PESURUHJAYA SUMPAH MALAYSIA
No : B424
Nama: RAJA HABIBAH BINTI RAJA SAIDIN

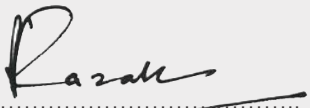
No. 23-1, Tingkat 1, Jalan 7/7A,
Seksyen 7, 43650 Bandar Baru Bangi,
Selangor Darul Ehsan.

PESURUHJAYA SUMPAH

STATEMENT BY THE CHAIRMAN AND THE CHIEF EXECUTIVE OFFICER OF THE ENERGY COMMISSION

We, Dato' Abdul Razak Bin Abdul Majid and Datuk Ir. Ahmad Fauzi Bin Hasan, being the Chairman and the Chief Executive Officer of Energy Commission repectively, do hereby state that in the opinion of the Members of the Energy Commission, the Financial Statements comprising of the Balance Sheet, Statement of Income and Expenditure, Statement of Changes in Equity and Statement of Cash Flows and the notes to the Financial Accounts have been properly drawn up to give a true and fair view of state of affairs of Energy Commission as at 31 December 2013 and of its result and changes in financial position for the year then ended on that date.

Chairman,



.....

Dato' Abdul Razak Bin Abdul Majid
Chairman

Date : 10 JUL 2014

Place : Energy Commission
Presint 2, Putrajaya

Chief Executive Officer,

.....

Datuk Ir. Ahmad Fauzi Bin Hasan
Chief Executive Officer

Date : 10 JUL 2014

Place : Energy Commission
Presint 2, Putrajaya

BALANCE SHEET
AS AT 31 DECEMBER 2013

	Note	2013	2012
		RM	RM
Property, Fittings and Equipment	3	**97,263,499**	93,860,092
Investment	4	**5,040,916**	-
Current Assets			
Other Receivables	5	**2,013,066**	1,749,009
Cash and Cash Equivalents	6	**222,169,390**	210,703,788
		224,182,456	212,452,797
Current Liabilities			
Other Payables	7	**7,822,991**	7,472,847
Tax Payable		**1,688,885**	1,443,825
		9,511,876	8,916,672
Net Current Assets		**214,670,580**	203,536,125
		316,974,995	297,396,217
Financed by :-			
Accumulated Funds		**316,405,659**	296,234,774
Trust Accounts	8	**569,336**	1,161,443
		316,974,995	297,396,217

STATEMENT OF INCOME AND EXPENDITURE
FOR THE YEAR ENDED 31 DECEMBER 2013

	Note	2013	2012
		RM	RM
Income			
Fees and charges	9	**65,620,876**	63,378,691
Interest income		**6,540,616**	5,917,193
Other income		**362,171**	582,243
		72,523,663	69,878,127
Expenditure			
Staff costs	10	**32,622,603**	29,154,368
Administration costs		**16,131,764**	17,765,069
Depreciation of Property, Fitting and Equipment		**2,423,589**	839,392
Other operating cost		**734,851**	270,576
		51,912,807	48,029,405
Surplus Before Taxation	11	**20,610,856**	21,848,722
Taxation	12	**(1,771,855)**	(1,442,955)
Surplus For The Year		**18,839,001**	20,405,767

Energy Commission has no profit and losses besides surplus of net income for the current year.

STATEMENT OF CHANGES IN EQUITY
FOR THE YEAR ENDED 31 DECEMBER 2013

	2013	2012
	RM	RM
As at 1 January	**296,234,774**	275,829,007
Adjustment of the accumulated fund statements	**1,331,884**	-
	297,566,658	275,829,007
Surplus before taxation for the current year	**20,610,856**	21,848,722
Taxation for the year	**(1,771,855)**	(1,442,955)
As at 31 December	**316,405,659**	296,234,774

STATEMENT OF CASH FLOW
FOR THE YEAR ENDED 31 DECEMBER 2013

	2013	2012
	RM	RM
Cash Flows From Operating Activities		
Surplus before taxation	**20,610,856**	21,848,722
Adjustments for:-		
Prior year adjustment	**1,331,884**	-
Interest income	**(6,540,616)**	(5,917,193)
Depreciation	**2,423,589**	839,392
Operating Surplus before working capital changes	**17,825,713**	16,770,921
Working capital changes :		
Other receivables	**(264,057)**	(147,421)
Other payables	**(241,963)**	2,091,850
Cash generated from operating activities	**17,319,693**	18,715,350
Income Tax paid	**(1,526,795)**	(1,279,310)
Net Cash From Operating Activities	**15,792,898**	17,436,040
Cash Flows From Investing Activities		
Investment	**(5,040,916)**	-
Purchase of property, fitting and equipment	**(5,826,996)**	(366,867)
Interest income received	**6,540,616**	5,917,193
Net cash from investing activities	**(4,327,296)**	5,550,326
Net increase/(Decrease) in cash and cash equivalents	**11,465,602**	22,986,366
Cash and cash equivalents at the beginning of the year	**210,703,788**	187,717,422
Cash and cash equivalents at the end of the year	**222,169,390**	210,703,788
Cash and cash equivalents consists of:		
Cash and bank balances	**11,922,621**	9,036,058
Deposit with licensed banks	**210,246,769**	201,667,730
	222,169,390	210,703,788

NOTES TO THE FINANCIAL STATEMENT

1. PRINCIPAL ACTIVITIES

The Commission is a statutory body operating at No.12, Jalan Tun Hussein Onn, Precinct 2, 62100 Putrajaya.

The Energy Commission is the sole regulatory agency for the regulation and development of the energy sector. The Energy Commission is directly responsible for supervising and monitoring energy generation activities, which includes regulating each licensed person under the Energy Commission Act 2001.

The financial statements were approved and resolution had been sought for issuance by the Energy Commission on July 10, 2014.

2. SIGNIFICANT ACCOUNTING POLICIES

The following accounting policies were adopted by the Energy Commission and are consistent those with policies adopted in the previous year.

(a) Basis of accounting

Energy Commission's financial statements prepared in conformity with the Private Entity Reporting Standards (PERS) approved by the Malaysian Accounting Standards Board (MASB) and based on the historical cost convention.

(b) Property, fittings and equipment

Property, fittings and equipment are stated at cost less accumulated depreciation and impairment, if any.

Depreciation of property, plant and equipment is calculated on a straight-line basis over the estimated useful life of the asset.

The annual rates of depreciation of assets are as follows:

*Land and Buildings	2%
Office Equipment	15%
Application systems and computers	33 1/3%
Motor vehicles	20%
Furniture, fittings and renovations	20%

*Land and buildings are recorded separately after ownership transfer fully completed in 2014 and an adjustment for the recording, if any, are included in the year 2014.

The residual values, useful lives and depreciation method are reviewed at each financial year end to ensure that the amount, method and period of depreciation are consistent with previous estimates and the expected pattern of economic benefits of the use of property and equipment.

(c) Investment

Syariah Energy Commission Investment is the kind of 'special product' bank invested in money market deposit with a syariah compliant and based on unit trust. Returns received or capital appreciation and reinvested it is recognised as revenue when the investment is redeemed. Return on investment is tax exempted.

2. SIGNIFICANT ACCOUNTING POLICIES (Continued)

(c) Investment

Investment is the allocation of funds for the payment of gratuities to the staff of the Energy Commission, who is retiring.

(d) Receivables

Other receivables are stated at cost less provision for doubtful debts, if any.

(e) Cash and cash equivalents

Cash and cash equivalents comprise cash and bank balances, including fixed deposits at licensed banks with high liquidity levels have an insignificant risk of changes in value.

(f) Payables

Other payables are stated at fair value of the consideration to be paid for goods and services received.

(g) Impairment

The carrying amount for the Energy Commission's assets and financial assets are reviewed at each balance sheet date to determine whether there is any indication of impairment. If any such indication of exist, the asset's recoverable amount is estimated. An impairment loss is recognised whenever the carrying amount of an asset or the cash generating unit to which it belongs exceeds its recoverable amount. Impairment losses are recognised in the income statement unless the asset is carried at revalued amounts in which case the impairment loss is charged to equity.

Recoverable amount is the greater of the asset's net selling price and its value in use. In assesing value in use, estimated future cash flows are discounted to the present value using a pre-tax discount rate that reflects current market assessment of the time value of money and the risks to the asset. For an asset that does not generate largely independent cash flows, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

In respect of other assets, an impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount.

An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised. The reversal is recognised in the income statement, unless it reverses and impairment loss on to a revalue asset, in which case it is taken to equity.

(h) Income Tax

Income tax on the profit or loss for the year is current tax. Current tax is the expected amount of income taxes payable on taxable profit for the year and its measured using the tax rates that apply to the balance sheet date

2. SIGNIFICANT ACCOUNTING POLICIES (Continued)

(h) Income Tax (Continued)

Deferred tax is provided, using the liability method, on temporary differences araising between the tax rate bases of assets and liabilities and their carrying amounts in the financial statements. Temporary differences are not recognised for goodwill not deductible for tax purposes, and the initial recognition of assets or liabilities that at the time of transaction, affects either accounting nor taxable profit. The amount deferred tax provided is based on the expected manner of realisation or settlement of the carrying amount of assets and liabilities, using tax rate enacted or substantially enacted at the balance sheet date.

A deferred tax asset is recognised only to the extent that is probable that future taxable profits will be available against which the asset can be utilised.

(i) Employee benefits

i) Short term employee benefits

Wages, salaries and bonuses are recognised as an expense in the year in which the associated services are rendered by the employees of the Energy Commission. Short term accumulating compensated absences such as paid annual leave are recognised when service are rendered by employees that increases their entitlement for future compensated absenses, and short term non-accumulating compensated absences such as sick leave are recognised when the leave occur.

ii) Defined contribution plan

According to the law, qualified employers in Malaysia are obliged to contribute Employee Provident Fund. The obligations for contributions to defined contribution plans are recognised as an expenses in the income statement. Liability for the defined contribution plan is recognised as current expenses in the income statement.

(j) Recognition of income and expenditure

Income from fees and charges are calculated on cash basis which are considered cash in view of license holder's responsibilities to make annual payments. Interest income and all expenses are recognised on accrual basis.

3. PROPERTY, FITTINGS AND EQUIPMENT

For the year ended 31 December 2013

	Work In Progress	Land And Building	Motor Vehicles	Furniture, Fittings And Renovations	Office Equipment (Electrical)	Application Systems And Computer	Fixture And Fittings	**Total**
Cost								
At 1 January 2013	92,009,585	-	3,252,814	441,655	1,109,012	2,875,546	-	**99,688,612**
Addition / Transfer	3,177,011	87,380,832	1,065,272	4,414,704	3,199,157	228,506	1,548,114	**101,013,596**
Disposal / Transfer	(95,186,596)	-	(104,392)	-	(19,960)	-	-	**(95,310,948)**
At 31 December 2013	-	87,380,832	4,213,694	4,856,359	4,288,209	3,104,052	1,548,114	**105,391,260**
Accumulated Depreciation								
At 1 January 2013	-	-	2,138,462	274,390	943,869	2,471,799	-	**5,828,520**
Current year depreciation	-	873,808	379,564	488,187	281,991	245,227	154,812	**2,423,589**
Disposals	-	-	(104,392)	-	(19,956)	-	-	**(124,348)**
At 31 December 2013	-	873,808	2,413,634	762,577	1,205,904	2,717,026	154,812	**8,127,761**
Net Book Value								
At 31 December 2013	-	86,507,024	1,800,060	4,093,782	3,082,305	387,026	1,393,302	**97,263,499**
At 31 December 2012	92,009,585	-	1,114,352	167,265	165,143	403,747	-	**93,860,092**

NOTES TO THE FINANCIAL STATEMENT

3. Property, Plant And Equipment (Continued)

For The Year Ended 31 December 2012

	Work In Progress	Motor Vehicles	Furniture, Fittings And Renovations	Office Equipment (Electrical)	Application Systems And Computer	**Total**
Cost						
At 1 January 2012	92,034,758	3,351,485	373,434	1,086,617	2,679,540	**99,525,834**
Addition / Transfer	-	105,418	68,221	22,395	196,006	**392,040**
Disposal / Transfer	(25,173)	(204,089)	-	-	-	**(229,262)**
At 31 December 2012	92,009,585	3,252,814	441,655	1,109,012	2,875,546	**99,688,612**
Accumulated Depreciation						
At 1 January 2012	-	1,959,952	237,934	897,056	2,098,275	**5,193,217**
Current year depreciation	-	382,599	36,456	46,813	373,524	**839,392**
Disposals	-	(204,089)	-	-	-	**(204,089)**
At 31 December 2012	-	2,138,462	274,390	943,869	2,471,799	**5,828,520**
Net Book Value						
At 31 December 2012	92,009,585	1,114,352	167,265	165,143	403,747	**93,860,092**
At 31 December 2011	92,034,758	1,391,533	135,500	189,561	581,265	**94,332,617**

NOTES TO THE FINANCIAL STATEMENT

4. INVESTMENT

	2013	2012
	RM	RM
Affin Fund 4-i Wholesale	**5,040,916**	-
TOTAL	**5,040,916**	**-**

Affin Fund Wholesale 4-i is a fund under Affin Fund Management Berhad which invests in syariah-compliant money market deposit, characterised by trust and is intended for the payment of gratuities to the staff of the Energy Commission.

5. OTHER RECEIVABLES

	2013	2012
	RM	RM
Staff advances	**15,600**	8,800
Accrued Interest	**1,664,202**	1,421,850
Rental and Parking Deposits	**242,264**	227,359
Deposit Club Membership	**91,000**	91,000
TOTAL	**2,013,066**	1,749,009

6. CASH AND CASH EQUIVALENTS

	2013	2012
	RM	RM
Cash and Bank Balances	**11,922,621**	9,036,058
Deposits with Licensed Banks	**210,246,769**	201,667,730
TOTAL	**222,169,390**	210,703,788

NOTES TO THE FINANCIAL STATEMENT

7. OTHER PAYABLES

	2013	2012
	RM	RM
Operating Payables	**6,866,462**	6,745,311
Cash Award in lieu of leave (GCR)	**891,093**	692,886
Compound Consolidated Fund under KeTTHA	**4,500**	-
Receivables Investment Income (4-i Affin Investment Wholesale)	**40,916**	-
Audit Fees	**20,020**	34,650
TOTAL	**7,822,991**	7,472,847

8. TRUST ACCOUNT

	2013	2012
	RM	RM
Trust Account	**569,336**	1,161,443
TOTAL	**569,336**	1,161,443

Trust Account is a fund from the Malaysian Electricity Supply Industry Trust Account (MESITA) allocated and given by the Ministry of Energy, Green Technology and Water (KeTHHA) to the Energy Commission for the purpose of financing the purchase of equipment 'data logger' and consultancy services of 'Power Quality Baseline Study' in Peninsular Malaysia and Grid Code programme.

9. FEES AND CHARGES

	2013	2012
	RM	RM
Licensing Public and Private	**47,050,555**	46,167,057
Registration/ Renewal of Operating Fi	**15,906,030**	14,813,305
Others Operating Fi	**2,664,291**	2,398,329
	65,620,876	63,378,691

10. STAFF COSTS

	2013	2012
	RM	RM
Salaries, Allowances and Other Financial Benefits	**26,764,523**	23,448,092
Statutory Contributions	**3,687,891**	3,225,455
Travel and Subsistence Costs	**2,170,189**	2,480,821
	32,622,603	29,154,368

Included in staff cost is contribution to the Employee's Provident Fund of RM3,547,085 (2012: RM3,090,737) and contributions to PERKESO RM140,806 (2012: RM134,718). The number of employees of the Energy Commission at 31 December 2013 was 287 people (2012: 274 people).

11. SURPLUS BEFORE TAX

The following is included to obtain the amount of surplus income before tax:-

	2013	2012
	RM	RM
Fees and Charges (Note 9)	**65,620,876**	63,378,691
Others Income	**6,902,787**	6,499,436
Staff Costs (Note 10)	**32,622,603**	29,154,368
Audit fees	**20,020**	18,150
Professional and Consultant Fees	**4,901,079**	8,664,916
Association Membership	**16,083**	18,259
Competence Development Costs and Performance Management	**525,745**	384,039
Hospitality, Transportation and Utilities	**3,259,704**	1,951,071
Maintenance and System Development	**1,712,523**	1,755,716
Office Equipment and Building Maintenance	**1,680,996**	1,955,815
Printing and Office Supplies	**1,464,677**	901,036
Office Buildings and Equipment Rentals	**2,184,838**	1,985,040
Depreciation of Property, Fitting and Equipment (Note 3)	**2,423,589**	839,392
Research Contributions, Sponsorship and Development	**734,851**	270,576
Other Expenses	**366,099**	131,027
	20,610,856	21,848,722

12. TAXATION

	2013	2012
	RM	RM
Tax Expenses		
- Current Year	**1,688,885**	1,443,825
- Under/(Over) provision from prior years	**82,970**	(870)
TOTAL	**1,771,855**	1,442,955
Reconciliation of effective tax rate		
Surplus before tax	**20,610,856**	21,848,722
Tax at 26%	**5,358,823**	5,680,668
Tax exemption income	**(3,669,938)**	(4,236,843)
	1,688,885	1,443,825
Under/(Over) provision from prior years	**82,970**	(870)
Tax Expenses	**1,771,855**	1,442,955

The Energy Commission has obtained tax exemption under Section 127(3)b, Income Tax Act 1967, which was given by the Ministry of Finance on October 19, 2004. The exemption applies on statutory income as follows:

i. income received from Federal Government or State Government in the forms of grant or subsidies;

ii. income received in connection with any amount chargeable or collectible from any body or person under the Act, which governs statutory body; and

iii. donations or contributions received.

13. CAPITAL COMMITMENTS

	2013	2012
	RM	RM
Approved and contracted		
Property, plant and equipment	**247,173**	261,783
Office Supplies	**100,500**	-
Maintenance	**150,000**	-
Professional Services	**1,645,993**	-
	2,143,666	261,783

Capital commitments for the Year Ended December 31, 2012 amounted to RM261,783 including the purchase of laptops and cameras worth RM29,000.00 for the purposes of Enforcement and Investigation Unit and, RM232,783.00 for the installation of 'workstation' in the Energy Commission Headquarters building was approved and the purchase order has been issued in 2012, however, the asset is acquired in early 2013. As a result, these assets have been registered in the records of the Register of Fixed Assets in 2013.

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SURUHANJAYA TENAGA
(Energy Commission)
No.12 Jalan Tun Hussein,
Presint 2, 62100 Putrajaya

Tel : 03 - 8870 8500 Fax : 03 - 8888 8637
Toll Free : 1 800 2222 78 (ST)