Suruhanjaya Tenaga
Energy Commission

ANNUAL REPORT 2012

ENERGY COMMISSION

Ensuring Energy for All

ANNUAL REPORT 2012

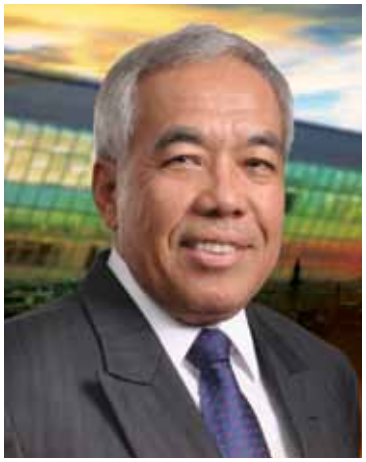
THIS ENERGY COMMISSION ANNUAL REPORT 2012 is submitted to the Ministry of Energy, Green Technology and Water in line with Section 33(3) of the Energy Commission Act 2001, which states that "the Commission shall as soon as possible send a copy of the statement of accounts certified by the auditors and a copy of the auditor's report to the minister who shall cause them to be laid before both houses of parliament, together with a report dealing with the activities of the Commission for the preceding financial year".

Published by:
ENERGY COMMISSION
No. 12, Jalan Tun Hussein, Precinct 2, 62100 Putrajaya, Malaysia
Tel: (603)8870 8500
Fax: (603)8888 8637
Email: info@st.gov.my
Website: www.st.gov.my

Publication number: ST(P) 05/07/2013

contents

chairman's message



In 2012, the Energy Commission (Suruhanjaya Tenaga - ST), as the regulatory body for the energy industry, continued with its efforts to enhance the performance of the electricity and piped gas supply industry in Peninsular Malaysia and Sabah as well as through planned initiatives to realise Government's aspirations under the national transformation agenda.

One of the major milestones in the national energy sector is the implementation of the competitive bidding process for electricity generation in Peninsular Malaysia to meet the demand for electricity by 2016 and 2017. In 2012, ST completed the first international competitive bidding process for the development of a combined cycle power generation plant in Prai (Track 1), and also a restricted tender (Track 2) for the renewal of operating licenses of first generation Independent Power Producers (IPP) and Tenaga Nasional Berhad (TNB) plants.

Under Track 1, TNB was offered to build, own and operate a combined cycle power plant with a capacity of 1,071 MW in Prai, Pulau Pinang to be commissioned on 1 March 2016. For Track 2, Genting Sanyen Power Sdn Bhd (675 MW), Segari Energy Ventures (1,303 MW) and TNB Pasir Gudang (275 MW), were offered renewal of licences to operate their existing power plants. Plants owned by Genting Sanyen Power Sdn Bhd and Segari Energy Ventures were given a 10-year extension, while TNB Pasir Gudang was given a 5-year extension.

In 2012, ST completed the first international competitive bidding process for the development of a combined cycle power generation plant in Prai (Track 1) and a restricted bidding process (Track 2) for the renewal of operating licenses of first generation Independent Power Producers (IPP) and Tenaga Nasional Berhad (TNB) plants.

For the planting up of gas power plants, In order to meet the requirements for a gas powered 4,500 MW capacity by year 2017, the Government has also agreed to implement through international competitive bidding process. Following this decision, ST floated open tenders for the development of a 1,000 MW fast track coal-fired plant and another 2,000 MW coal-fired plant at a new site. The fast track 1,000 MW plant will commence operation by October 2017, while the plant at the new site will be operating in 2018/2019.

Throughout 2012, ST continued its close monitoring of the electricity supply and demand situation in Peninsular Malaysia and Sabah. The demand for electricity in Peninsular Malaysia had increased by 4.1% from 104,220 GWh in 2011 to 108,473 GWh in 2012. The generation capacity in Peninsular Malaysia was able to meet demand, while still maintaining a reasonable reserve margin level at approximately 37.4% compared to 41% in 2011. In Sabah, although the reserve margin was sufficient to meet demand, the high frequency of unplanned outages in generation stations powered by medium fuel oil (MFO) and diesel had affected operations and the level of the state's grid system reliability.

Supply performance based on System Average Interruption Duration Index (SAIDI) for Sabah was at 556.82 minutes/customer/year compared to the target of 650 minutes/customer/year as determined by the Government for 2012. Nevertheless, the electricity supply performance was below the expectations of the consumers in Sabah. The inadequate generation capacity in Sabah needs serious attention and requires a more comprehensive solution, apart from the short term mitigation measures being undertaken. In this regard, on 23 April 2012, ST tabled to the Economic Council a proposal on the strategy and initiatives to enhance the electricity supply industry in Sabah and in principal the proposal was agreed to be implemented.

In the peninsula, the gas supply to the electricity sector has been experiencing constraints since 2011. Gas supply allocation decreased from 1,250 million standard cubic feet per day (mmscfd) in 2011 to 1,150 mmscfd in 2012. The gas supply constraint has prolonged with the postponement in the completion of the new Liquefied Natural Gas (LNG) Regasification Terminal (RGT) in Sungai Udang, Melaka from September 2012 to the second quarter of 2013. This new facility is expected to alleviate the supply problem when the new RGT starts operating.

The constraint in gas supply caused a marked increase in electricity generation cost because MFO and distillates was used as alternative fuels. Electricity also had to be imported from Thailand. Following this, the Economic Council decided that the equal sharing of costs between the Government, PETRONAS and TNB for alternative fuels used by TNB has to continue until the new LNG RGT in Sungai Udang, Melaka is operational.

The first alternative fuel cost differential shared among the Government, PETRONAS and TNB amounted to RM3.069 billion, for the period beginning January 2010 till October 2011. The second amount shared from November 2011 to March 2012 amounted to RM534 million, while a total of RM1.063 billion was shared for the period beginning April 2012 until July 2012.

Based on the Economic Transformation Programme (Oil, Gas and Energy Sector), an expected additional gas supply of 1,230 mmscfd will be required for Peninsular Malaysia in 2020. This is to cater for an increase of gas demand and the decline of gas production from domestic gas fields. To ensure transparency and fairness, ST was recommended to supervise activities for a competitive gas market. ST took several measures to implement the third party access (TPA) system to create a conducive, transparent and equitable environment for the gas industry. The TPA programme is in line with the Government's initiative to create an open gas market, which is expected to be implemented in Peninsular Malaysia when domestic gas prices are on par with market levels.

ST's economic regulatory programme implemented through the Incentive-Based Regulation (IBR) for TNB's tariff was executed according to plan. The review of electricity tariff in the peninsula, based on the IBR framework trial run, will commence from financial year 2013 until 2014. The IBR economic regulation regime will spearhead a transformation in the reviewing and setting of electricity tariff, which will ensure that only efficient costs are considered during a tariff review. At the same time, a reasonable rate of return will be given to all utility companies involved in order to upgrade the performance of the licensees.

4.1%

Increased demand for electricity in Peninsular Malaysia from 104.220 GWh in 2011 to 108.473 GWh in 2012.

ST is concerned with the dissatisfaction among consumers in the sectors under its supervision. There were a lot of complaints regarding the replacement of old meters with digital meters by TNB that had caused an increase in electricity bills. The issue of TNB meter integrity that had not been calibrated by an independent body was raised following complaints from consumers. In mitigating this issue, ST had taken the initiative to streamline the supervision of electricity meters by providing guidelines that set out the processes required for testing and validating the integrity of TNB's electricity meters.

On the aspect of safety, ST implements strict measures by ensuring that all electricity and piped gas competent persons abides to the regulations. As at the end of 2012, ST had fully revoked five certificates of competency and suspended two others. This is an indication of ST taking strict action against any competency certified personnel who flout the regulations.

ST does not compromise on cases involving electrical and piped gas safety, having huge implications on public safety.

Besides the regulation functions, the Malaysia Energy Information Hub (MEIH) developed by the ST in 2011 was launched in February 2012. The MEIH aims to gather energy data and act as a centre for disseminating and distributing information on national energy statistics for the industry and the general public, both local and international. The MEIH is now the point of reference for many parties and ST aims to develop MEIH as a flagship for national energy planning.

As for international networking, ST signed a Memorandum of Understanding with the California Energy Resources Conservation and Development Commission, USA on 17 May 2012. This joint cooperation programme encompasses development of competencies in forecasting of energy supply and demand, management of energy data, planning and development of energy policies, and the implementation of renewable energy and energy efficiency programmes.

To anticipate challenges and manage future issues in the national energy industry, ST drafted a long term plan that is based on the ST 2010-2020 Transformation Plan. This transformation has been planned and set as a guide for ST to be a premier and highly effective energy regulator.

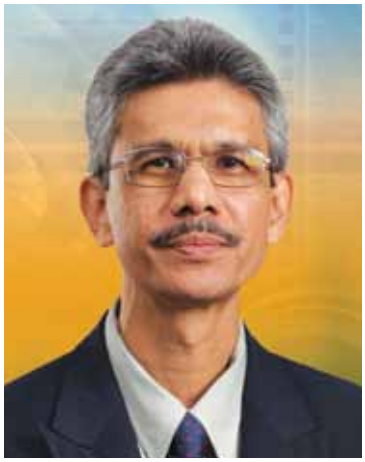
On behalf of ST, I would like to record my sincerest appreciation for the support and cooperation from YBhg. Tan Sri Peter Chin Fah Kui, the former Minister of Energy, Green Technology and Water (KeTTHA) and officers of KeTTHA, together with officers of federal agencies such as the Economic Planning Unit, PEMANDU, the Public Private Partnership Unit (UKAS), MyPOWER Corporation and other Government agencies, including industry players who have contributed to ST's achievements to date.

I would also like to thank two former ST members, YBhg. Tan Sri Dr. Ali Hamsa who was appointed as the Chief Secretary to the Government on 24 June 2012, and YBhg. Dato' Ir. Pua Shien Tick, for all the contribution, commitment, professional input given and dedication shown throughout their tenure as members of ST.

My gratitude to all members of the ST for their support, together with the management and staff of ST for their dedicated work to ensure that ST plays an exemplary and effective role as stipulated under the Energy Commission Act 2001.

TAN SRI DATUK DR. AHMAD TAJUDDIN ALI
Chairman, Energy Commission

chief executive officer report



The year 2012 had seen several positive developments in the national electricity and piped gas supply sectors in the effort to ensure safe and reliable supply at reasonable prices. On the whole, in Peninsular Malaysia, the performance of electricity supply activities in 2012 had improved with a 12.5% reduction in SAIDI to 60.46 minutes per customer per year, compared to 69.11 minutes in 2011 and the target of 70 minutes for 2012 as determined by the Government.

The total number of electricity supply interruptions in the peninsula in the TNB supply system in 2012, decreased from 10.79 for every 1,000 customers in 2011 to 9.56 for every 1,000 customers. This 11.4% decrease was, among other things, the result of a more detailed monitoring system and a number of other system enhancement initiatives implemented by TNB under the ST's supervision.

On the whole in Peninsular Malaysia, the performance of electricity supply activities in 2012 had improved with a 12.5% reduction in SAIDI to 60.46 minutes per customer per year, compared to 69.11 minutes in 2011 and the target of 70 minutes for 2012 as determined by the Government.

The decline in SAIDI performance in Sabah was due to the generation and transmission systems, which experienced a 48.2% surge in SAIDI. However, SAIDI caused by the distribution system was successfully reduced by 11% compared to the previous year. The grid system performance declined drastically, with system minutes increasing by 87.12% to 71.65 minutes compared to 38.29 minutes in 2011. Several grid system tripping incidents that involved losses of more than 50 MW load had occurred. On 30 April 2012, almost the entire Sabah experienced supply interruptions, except for areas that were off-grid. This incident was the result of an explosion and fire at the transformer of the 66 kV Penampang-Inanam line at PMU Penampang.

In this regard, efforts have been stepped up to overcome the electricity supply issue in Sabah, including engaging TNB's expertise to study the gaps in the Sabah grid system, followed by the implementation of a short and medium term action plan to close these gaps. The restoration plan produced was focused on the modification of the system's operation procedures to minimise the risk of overloading and the enhancement of the protection system for 11 kV, 33 kV and 66 kV line networks. The implementation of this restoration plan was closely monitored by ST and the KeTTHA and had shown positive changes to the grid performance at the end of the year.

In Peninsular Malaysia, the power quality issue has to be addressed more effectively. Power

quality incidents increased 10.8% from 93 complaints in 2011 to 103 complaints in 2012. Several initiatives were taken with the cooperation of the licensees to overcome this issue. This include providing technical audit services to customers and studying the baseline for power quality to be used for measuring the level of power quality in the peninsula, which in turn will become the basis for a review of national power quality standards. Measurements had been carried out in 550 industrial, commercial and residential customers' premises in the peninsula since 2011 and several workshops with industry players were held over the findings of the study.

ST also introduced the IBR mechanism to determine the electricity tariff rate in Peninsular Malaysia. IBR aims to enhance efficiency within the electricity supply industry by determining tariff based on the projections of operational costs and assets, in which ST ensures that there is a reasonable rate of return that takes into account the interests of consumers and the industry. Any cost saving by the licensee that does not affect its quality of service will be shared between the licensee concerned and consumers, and to be reflected in the next tariff review. On the other hand, a level of performance that does not meet the service quality target will be penalised with a reduction in allowable return in the next tariff implemented. In line with that, ST issued the Regulatory Implementation Guidelines (RIGs) to TNB in January 2012, which details 11 IBR elements to be complied with.

For the financial year 2012, the rate of return on TNB assets being regulated was 5.5% compared to 1% in 2011, while in Sabah, a loss amounting to RM50 million was indicated in 2012 by Sabah Electricity Sdn Bhd (SESB), compared to a RM102 million loss recorded in 2011. The loss experienced by SESB was reduced following the implementation of a tariff review in July 2011 and an operational costs reduction initiative. However, the supply cost recorded was still at a higher level than the returns gained through SESB's latest tariff.

The implementation of a new billing mechanism for natural gas supplied to the energy sector has been running smoothly since it was introduced in 2011. This mechanism was introduced by the Government to enable any returns gained by Independent Power Producers (IPP) as a result of current gas prices being different from the price of gas allocated in the Power Purchase Agreement (PPA), to be channelled to the consumers. In relation to this, the Gas Billing Mechanism Committee chaired by ST audited the use of gas by gas-fired generation plants and endorsed a saving of RM69.7 million or a monthly average of RM3.167 million from March 2011 to December 2012, to be credited into the Consolidated Fund.

In terms of demand for electricity, a 2.3% increase in maximum demand was recorded for the grid system in Peninsular Malaysia at 15,826 MW in 2012 compared to 15,476 MW in 2011. The overall annual demand for energy increased 4.1% from 104,220 GWh in 2011, to 108,473 GWh in 2012. The sale of energy also increased 3.8% to 97,243 GWh compared to 93,640 GWh in 2011.

Based on the rising trend of the maximum demand in the peninsula grid system, the additional capacity that will be required to meet projected increases in demand and to compensate for the operational shutdown of some existing plants, will amount to 10,882 MW for 2015 until 2020 and 12,213 MW for 2021 until 2030. In this regard, in 2012, ST initiated a bidding process for 3,000 MW additional generation capacity, which will meet the demand in 2017, 2018 and 2019. To meet the demand after 2020, an option to import electricity from Sarawak at 2,000 MW capacity commencing in 2021 is being considered. The overall implementation of development projects for new plants in the peninsula was progressing as planned.

To ensure gas supply security, ST led the National Gas Task Force (NGT), which monitors the operational shutdowns of upstream gas facilities and coordinates the implementation of an action plan to ensure that energy and non-energy sectors in the peninsula will not be affected. ST also published online reports regarding the daily situation of energy supply constraints and the action being taken by all agencies and industry players involved to prevent power supply interruptions in Peninsular Malaysia and Sabah.

In Sabah, several immediate measures were taken to ensure that the insufficient generation capacity issue did not affect supply

security. However, an incident involving the hijack of barges carrying gas turbines from Teluk Ewa in Langkawi to the Kubota Power Generation Station in Tawau had caused the project implementation to be postponed to 2013. On a positive note, the situation is expected to improve with two gas-fired power stations in Kimanis and one plant in Lahad Datu coming online with a total capacity of 700 MW, besides the development of renewable energy generation projects in the period starting from 2013 until 2016. During this period too, power generation plants in Sabah using diesel and MFO that are aging and of reduced reliability will be decommissioned.

In terms of energy efficiency, the national electric intensity increased slightly by 0.7%, from 0.151 GWh per RM million GDP in 2011 to 0.152 GWh per RM million GDP in 2012. As part of its activities to encourage energy efficiency, ST approved 82 applications for labeling eight types of energy efficient equipment, which covers 1,652 models compared to 1,365 models in 2011. Additionally, a total of 33 energy efficiency projects with electricity saving potential of 47 GWh annually, were approved by ST to receive energy efficiency incentives by the Malaysian Industrial Development Authority (MIDA).

By the end of 2012, a total of 212 Electrical Energy Managers were registered compared to 168 as of 2011, while 457 electrical installations had appointed these managers compared to 249 installations as at the end of 2011. ST also prepared a draft amendment to the Electricity Regulations 1994 to introduce Minimum Energy Performance Standard (MEPS), to ensure that only domestic electrical appliances that fulfill the criteria and standard for energy efficiency are manufactured and sold in the country. In line with the introduction of MEPS, ST with SIRIM's cooperation, are currently developing Malaysian Standards for a number of domestic electrical appliances. ST was also tasked by the Government to register Energy Services Companies (ESCOs) as a step to materialise the concept of implementing Energy Performance Contracts (EPC) in Government buildings.

As an effort to tackle the issue of the accuracy of new digital meters used by TNB to replace the old meters at customers' premises, ST equipped itself with meter testing devices calibrated and certified by SIRIM's National Metrology Laboratory, which will become the working standard for conducting inspection and testing at customers' premises. Random meter tests conducted by ST until the end of 2012 in Klang Valley had indicated that the new digital meters complied with the accuracy standards being set namely, not exceeding ±3%. Nevertheless, ST will continue to expand its monitoring and testing programme for meters at customers' premises in response to public complaints on the accuracy of TNB meters.

Additionally, ST also developed a structured mechanism for supervising the manufacturing, testing and calibration of electricity meters. Among others, a "Guideline for Electricity Meter: Testing and Initial Verification Requirements" was issued as a regulatory mechanism for electricity meters being used by electricity supply licensees. Elements of the mechanism cover the requirements for obtaining patent approval, accreditation by the manufacturer's laboratory, audit process, issuance of approval certificate, introduction of product certification scheme and the use of an ST-SIRIM label for electricity meters.

In terms of electrical safety, the number of electrical accidents in 2012 decreased by seven cases compared to 2011, from 62 to 55 cases. The number of fatalities for every one million users had also decreased from 3.42 in 2011 to 3.0 in 2012. In the effort to enhance the level of electrical safety, ST implemented safety audits at utility installations, with TNB Pulau Pinang becoming the first location to be audited. ST also conducted a domestic user awareness survey on the legal requirements of electrical safety, which involved 1,000 users in Klang Valley. The survey showed that only 60% of users were aware of electrical safety regulations that need to be complied with. As such, ST needs to improve the implementation of public awareness programmes on electrical safety regulation and practices.

With regards to regulation of the piped gas supply industry, ST has focused on efforts to strengthen the industry's regulatory framework. A draft amendment to the Gas Supply Act was prepared, which would allow implementation of economic regulation on TPA to the importation of gas via the LNG terminal in Peninsular Malaysia. The volume of gas supply remained at 382 mmscfd and is expected to increase after the LNG terminal

becomes operational, following a situation of high latent demand. Although 2012 was a challenging year for the gas supply situation, with good coordination at the NGT, gas supplies for consumers distributed by the Peninsular Malaysia's gas utility licensee were well undertaken.

To ensure that the electrical installations in the country are safe and reliable in line with regulations, it has become a main priority to certify there are sufficient numbers of competent persons. The total electrical competency certifications issued by ST in 2012 was 6,281 compared to 4,418 in 2011. Of this total, 84.2% or 5,286 certifications were issued by accredited institutions while the remaining 15.8% or 995 certifications were issued by ST. The issuance of gas competent person certifications had increased by 51 compared to the previous year.

Meanwhile, six cases were filed in the courts and three persons found guilty were fined a total of RM71,000.00. Thirty seven compounds amounting to RM60,000.00 had also been issued by ST for offences committed by contractors.

Enforcement activities were focused on electricity theft cases and investigation into complaints pertaining to the accuracy of electricity meters at consumers' premises. Focus was also given to increase monitoring and issuance of warning notices on premises of manufacturers, importers and sellers of electrical appliances who failed to obtain the required approval or to label their equipments.

ST will continue to enhance its enforcement activities to ensure compliance with electricity and piped gas supply laws by all parties concerned.

As in previous years, ST conducted thorough investigations in solving electrical accident cases. The focus of enforcement in 2012 was more towards protection of consumers' interests. ST also conducted meter inspections at 328 consumers' premises following billing issues that were said to be caused by the change to new TNB digital meters.

Emphasis was also on the raising of piped gas safety performance following gas-related accidents in 2011. A task force that was formed, carried out audits at about 500 outlets in 15 shopping malls around the Klang Valley in 2012, which covered aspects of the effectiveness of the persons in charge, daily inspection programmes and the use of gas safety devices within the premises audited. ST is also conducting a study on the effectiveness of the gas odorisation system in the gas delivery pipeline network for the commercial and domestic sectors in the Klang Valley. It is hoped that the findings of this study will contribute to the increase of safety levels for piped gas consumers especially in high-rise buildings. In relation to this, ST will continue to enhance its enforcement activities to ensure compliance with electricity and piped gas supply laws by all parties concerned.

ST continued to organise promotions and information dissemination programmes aimed at industry players, students, the mass media and the general public. The channel for information dissemination was also expanded. Apart from extensive coverage via interviews on electronic media programs, a number of the print media had also featured specific coverage on topics such as the international bidding process, fraudulent energy saving devices, electrical safety measures and energy efficiency promotion. For the first time, ST published BULETIN ST in June and December 2012, as an energy industry magazine that focuses on ST's major initiatives and programmes implemented. Furthermore, 107 seminars and 63 dialogues were jointly organised by ST and other parties such as TNB, SESB, KPDNKK, SIRIM, NGOs and local authorities.

In line with ST's effort to enhance its organisational capability to be in line with the latest developments, a service delivery enhancement initiative was implemented through the development of an Online Application System, which offers the e-Gas and e-Electricity systems for convenience in licence application and application for competency certification.

Last but not least, I take this opportunity to convey my utmost appreciation for the commitment and support from the Minister and Deputy Minister of Energy, Green Technology and Water and the Secretary General and staff of KeTTHA. My appreciation as well to all ST Members for their guidance and support. Thank you also to all ST staff for their hard work. The achievements of ST in 2012 as reported here would not have been possible without their

cooperation and full support. I hope all the efforts that we have strived for will be raised to a new level in the future so that we may together achieve the vision of ST becoming an effective and capable regulatory body in energy matters.

Thank you.

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

Corporate Information

ST is a statutory body responsible for regulating the energy sector particularly the electricity and piped gas supply industries in Peninsular Malaysia and Sabah. ST ensures safe and reliable supply of electricity and piped gas to consumers at reasonable prices.

corporate information

BACKGROUND

In its efforts to further enhance the performance of the energy supply industry, the Malaysian Government had established ST under the Energy Commission Act 2001 on 1 May 2001. The Commission became fully operational on 1 January 2002 and assumed all the responsibilities of the Department of Electricity and Gas Supply which was dissolved on the same date.

The energy sector in Malaysia had undergone significant changes since the 1990s, driven by the Government's aim to enhance energy supply security, improve efficiency and quality in utility services and increase the private sector's participation in infrastructure development.

The Commission's responsibilities are outlined in the Energy Commission Act 2001 and other acts and regulations as follows:

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

Suruhanjaya Tenaga
Energy Commission

LOGO RATIONALE

The logo of the Energy Commission (ST) was created from the alphabets 'S' and 'T' modified and pictured as a dominant logo type. The swift curves of the combined alphabets represent the dynamic and critical role of the ST in the industry and the national economy.

The semi-circle shape of 'S' and 'T' symbolises readiness of ST to control and protect the industry and consumers towards achieving a level of quality as envisioned by the ST. The chosen colour of rusty red portrays natural resource that produces energy, strength and determination of excellence. The chosen cobalt blue represents the trust and confidence towards ST.

VISION, MISSION AND CORE VALUES

ST strives to be a highly effective energy regulator as well as the authority on energy matters.

ST 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 environmentally sustainable manner.

Core values that are being upheld in all our operations and activities are:

- Excellence.
- Reliability.
- Sense of fairness and fairplay.

THE ENERGY COMMISSION FUNCTIONS

- 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 (namely the Electricity Supply Act 1990 and the 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.

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.

Licensing and Accreditation Activity

ST issues the following licence and accreditation to the electricity and piped gas supply industry:

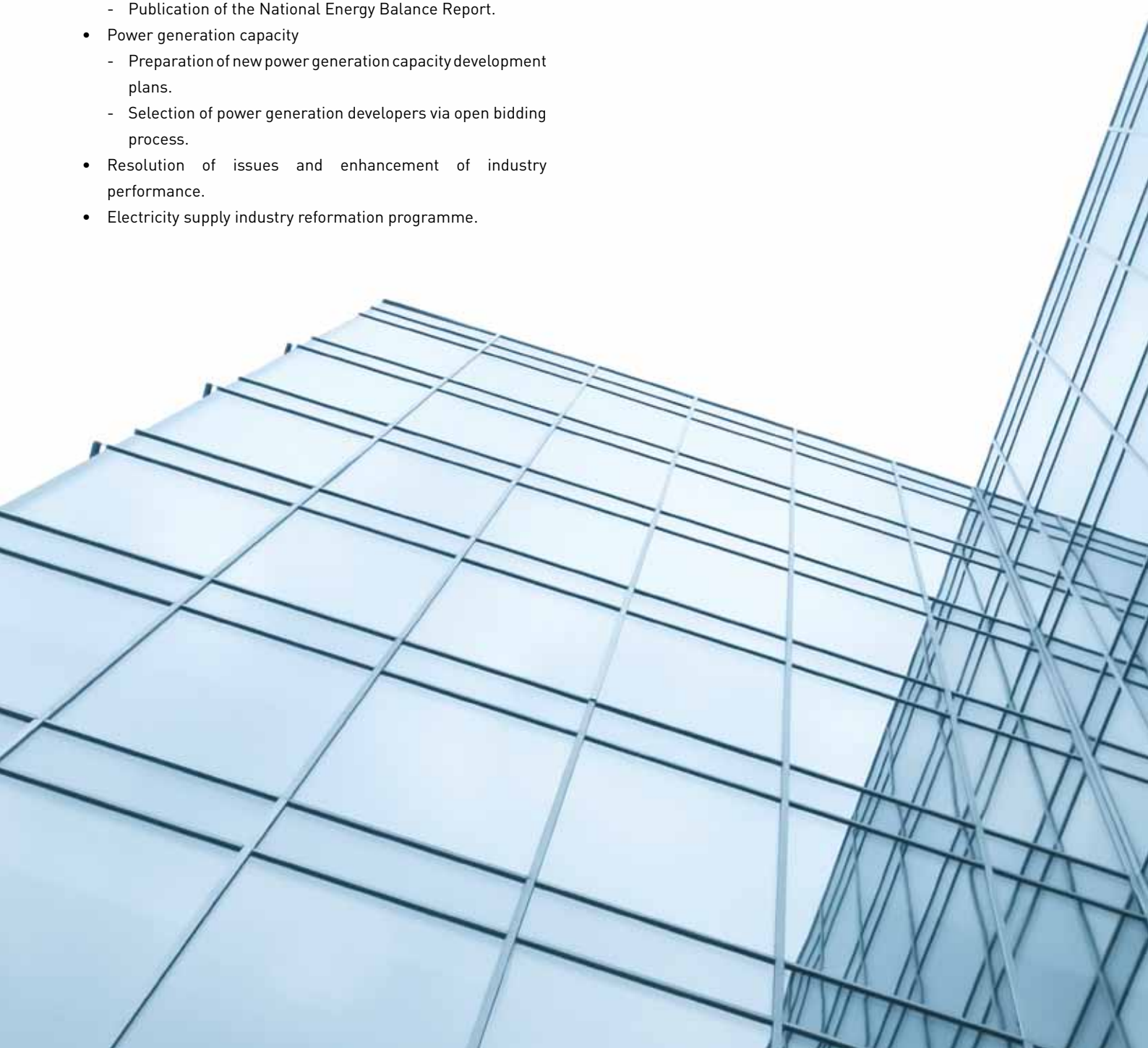
- Licence for electricity and piped gas supply to others and/or own consumption.
- Certificate of Competency for competent persons.
- Registration of contractor firms.
- Commissioning of competency training institutes.
- Registration of energy efficiency managers.
- Equipment approval.
- Registration of electrical installations.
- Piped gas installation approvals.
- Registration of energy services firms.

Planning and Development Activity

- Legal requirements and industrial practices
  - Acts, regulations, licence terms and performance standards.
  - Codes, guidelines, circulars and directives.
- Regulatory frame work
  - incentive based electricity and piped gas tariff.
  - TPA to gas infrastructure.
- National Energy Database
  - Publication of the National Energy Balance Report.
- Power generation capacity
  - Preparation of new power generation capacity development plans.
  - Selection of power generation developers via open bidding process.
- Resolution of issues and enhancement of industry performance.
- Electricity supply industry reformation programme.

STRATEGIC OBJECTIVES

- Ensuring a reliable and efficient energy supply at reasonable prices.
- Ensuring energy supply security.
- Encouraging a transparent and competitive energy industry.
- Ensuring efficient and safe energy consumption.
- Ensuring legal compliance.
- Protecting consumer interest.
- Developing a robust regulatory frame work.
- Enhancing organisational capability.



energy commission members

Top from left:

Dato' M. Ramachelvam
Date of appointment:
1 September 2010

Dato' Ir. Aishah Dato' Hj. Abdul Rauf
Date of appointment:
1 September 2009

Datuk Pengiran Hassanel Datuk Pengiran Hj. Mohd Tahir
Permanent Secretary,
Ministry of Finance, Sabah
Date of appointment:
1 September 2009

Datuk Dr. Rahamat Bivi Yusoff
Director General
Economic Planning Unit
Date of appointment:
1 October 2012

Datuk Loo Took Gee
Secretary General
Ministry of Energy,
Green Technology
and Water
Date of appointment:
25 May 2007

Datuk Ir. (Dr.) Abdul Rahim Hj Hashim
Date of appointment:
1 September 2009

Ir. Dr. Philip Tan Chee Lin
Date of appointment:
1 September 2009

Datuk Mohd Nasir Ahmad
Date of appointment:
1 September 2012

Bottom from left:

Datuk Ir. Ahmad Fauzi Hasan
Chief Executive Officer
Date of appointment:
1 April 2010

Tan Sri Datuk Dr. Ahmad Tajuddin Ali
Chairman
Date of appointment:
1 April 2010

Tan Sri Dr. Ali Hamsa
Date of appointment:
from 1 December 2008
to 30 September 2012

Dato' Ir. Pua Shien Tick
Date of appointment:
from 1 September 2010
to 31 August 2012

Datuk Ir. Peter Lajumin
Date of appointment:
1 September 2010

energy commission meetings

Energy Commission Meetings

No.	Date	Day	Time	Venue
1/2012	20 January 2012	Friday	9.30 am	ST Meeting Room, Putrajaya
2/2012	19 March 2012	Monday	9.30 am	ST Meeting Room, Putrajaya
3/2012	15 June 2012	Friday	9.30 am	ST Meeting Room, Putrajaya
4/2012	20 July 2012	Friday	3.00 pm	ST Meeting Room, Putrajaya
5/2012	7 September 2012	Friday	3.00 pm	ST Meeting Room, Putrajaya
6/2012	5 November 2012	Monday	2.30 pm	ST Meeting Room, Putrajaya

Energy Commission Special Meetings

No.	Date	Day	Time	Venue
1/2012	3 February 2012	Friday	8.30 am	Cempaka Room, Hyatt Regency Sabah, Kota Kinabalu
2/2012	20 February 2012	Monday	11.30 am	ST Meeting Room, Putrajaya
3/2012	9 March 2012	Friday	2.30 pm	ST Meeting Room, Putrajaya
4/2012	29 March 2012	Thursday	4.00 pm	ST Meeting Room, Putrajaya
5/2012	17 April 2012	Tuesday	5.00 pm	ST Meeting Room, Putrajaya
6/2012	24 May 2012	Thursday	3.30 pm	ST Meeting Room, Putrajaya
7/2012	8 August 2012	Wednesday	5.30 pm	ST Meeting Room, Putrajaya
8/2012	14 December 2012	Friday	3.00 pm	ST Meeting Room, Putrajaya

energy commision committees' meetings

Joint Licensing Committee Meeting (Management and Energy Commission)

No.	Date	Day	Time	Venue
1/2012	16 January 2012	Monday	9.30 am	ST Meeting Room, Putrajaya
2/2012	6 March 2012	Tuesday	9.30 am	ST Meeting Room, Putrajaya
3/2012	24 May 2012	Thursday	9.30 am	ST Meeting Room, Putrajaya
4/2012	11 July 2012	Wednesday	9.30 am	ST Meeting Room, Putrajaya
5/2012	24 October 2012	Wednesday	10.00 am	ST Meeting Room, Putrajaya
6/2012	27 December 2012	Thursday	2.30 pm	ST Meeting Room, Putrajaya

OFFICE BEARERS:

Chairman
Dato' Ir. Aishah Dato' Haji Abdul Rauf

Members
Datuk Ir. Ahmad Fauzi Hasan
Datuk Ir. Peter Lajumin
Dato' Ir. Pua Shien Tick (Up to 31 August 2012)
Datuk Mohd Nasir Ahmad (Commencing 7 November 2012)

Management Members
Director of Electricity Supply and Market Regulation
Director of Enforcement and Regional Coordination
Director of Energy Management and Industry Development
Director of Gas Safety and Supply Regulation

Remuneration and Nomination Committee Meeting

No.	Date	Day	Time	Venue
1/2012	9 March 2012	Friday	10.30 am	ST Meeting Room, Putrajaya
2/2012	9 July 2012	Monday	3.00 pm	ST Meeting Room, Putrajaya
3/2012	17 October 2012	Wednesday	11.30 am	ST Meeting Room, Putrajaya
4/2012	14 November 2012	Wednesday	4.30 pm	ST Meeting Room, Putrajaya

OFFICE BEARERS:

Chairman
Tan Sri Datuk Dr. Ahmad Tajuddin Ali

Members
Datuk Ir. Ahmad Fauzi Hasan
Dato' M. Ramachelvam
Ir. Dr. Philip Tan Chee Lin

Energy Commission Finance and Audit Committee Meeting (as of 17 April 2012)

No.	Date	Day	Time	Venue
1/2012	24 February 2012	Friday	3.00 am	ST Meeting Room, Putrajaya

OFFICE BEARERS:

Chairman
Datuk Ir. (Dr.) Abdul Rahim Haji Hashim

Members
Dato' Ir. Aishah Dato' Haji Abdul Rauf
Ir. Dr. Philip Tan Chee Lin

Invited Member
Datuk Ir. Ahmad Fauzi Hasan

Energy Commission Audit Committee Meeting 2012 (formed on 17 April 2012)

No.	Date	Day	Time	Venue
1/2012	5 June 2012	Tuesday	10.30 am	ST Meeting Room, Putrajaya
2/2012	3 December 2012	Monday	9.30 am	ST Meeting Room, Putrajaya

OFFICE BEARERS:

Chairman
Datuk Ir. (Dr.) Abdul Rahim Haji Hashim
Datuk Ir. Peter Lajumin (Up to 7 November 2012)

Invited Member
Datuk Ir. Ahmad Fauzi Hasan

Members
Datuk Ir. Peter Lajumin (Commencing 7 November 2012)
Dato' M. Ramachelvam
Dato' Ir. Pua Shien Tick (Up to 31 August 2012)

Energy Commission Finance and Tender Committee Meeting 2012 (formed on 17 April 2012)

No.	Date	Day	Time	Venue
1/2012	2 May 2012	Wednesday	2.30 pm	ST Meeting Room, Putrajaya
2/2012	2 August 2012	Thursday	2.00 pm	ST Meeting Room, Putrajaya
3/2012	24 October 2012	Wednesday	2.30 pm	ST Meeting Room, Putrajaya
4/2012	27 December 2012	Thursday	10.00 am	ST Meeting Room, Putrajaya

OFFICE BEARERS:

Chairman
Datuk Mohd Nasir Ahmad Hashim
Datuk Ir. (Dr) Abdul Rahim Haji Hashim
(Up to 7 November 2012))

Members
Datuk Ir. Ahmad Fauzi Hasan
Dato' Ir. Aishah Dato' Haji Abdul Rauf
Ir. Dr. Philip Tan Chee Lin

Ir. Azhar Omar
Senior Director
Electricity Supply
and Market Regulation
Department

Mohd. Elmi Anas
Director
Energy Management and Industry
Development Department

Ir. Othman Omar
Director
Enforcement and Regional
Coordination Department

Datuk Ir. Ahmad Fauzi Hasan
Chief Executive Officer

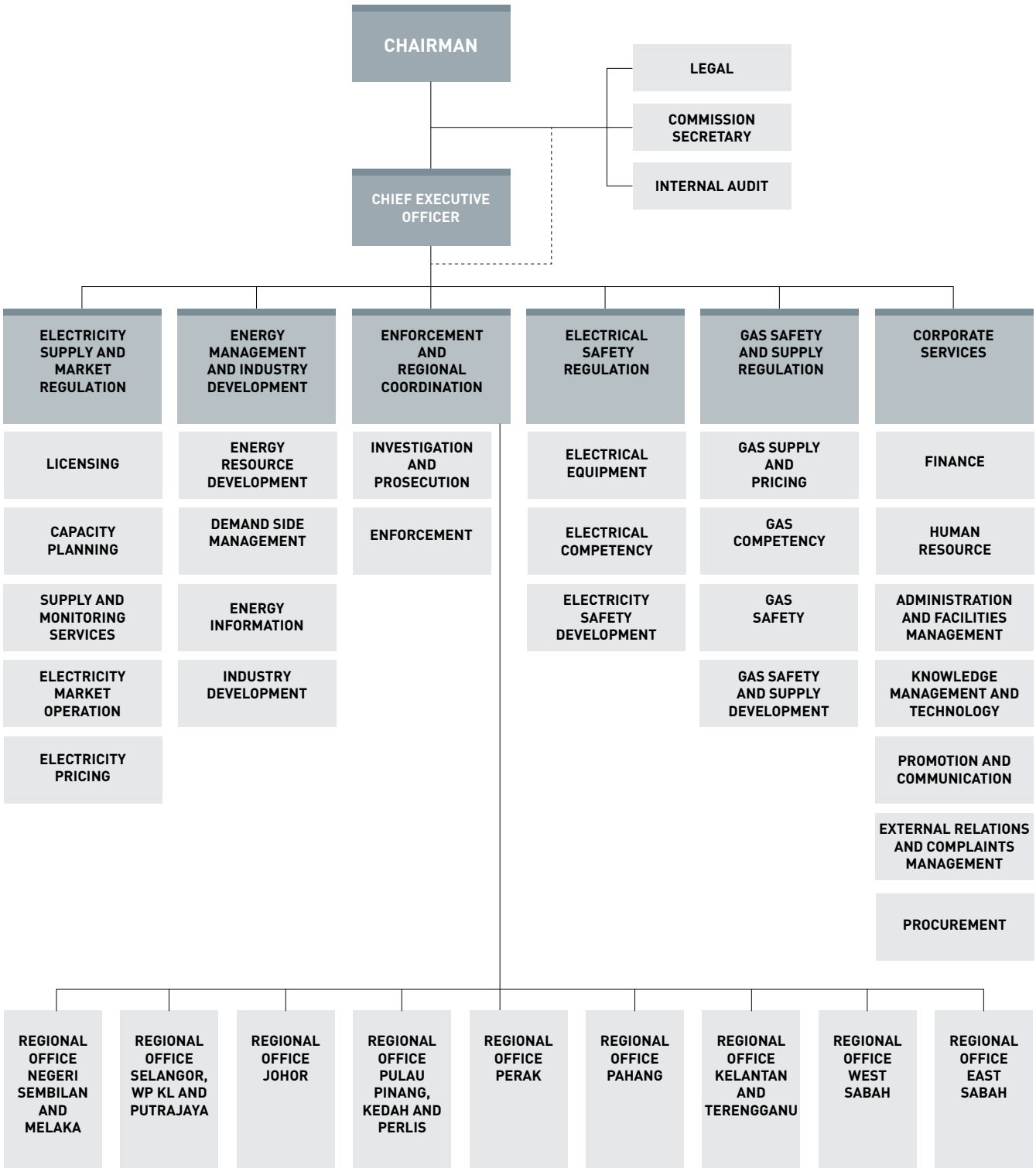
senior management team

Ir. Abdul Rahim Ibrahim
Director
Electrical Safety
Regulation Department

Asma Aini Mohd Nadzri
Director
Corporate Services
Department

Ir. Ahmad Nornadzmi
Datuk Dr. Dzulkarnain
Director
Gas Safety and Supply
Regulation Department

organisational structure



2012
At a Glance

activities calendar

11 January 2012
Meeting with Universiti Teknologi Malaysia (UTM) to initiate cooperation between ST and Research Alliance (RA) UTM

17 January 2012
Meeting on the installation of protection device for water heating equipment with manufacturers and importers of water heaters.

17 February 2012
A group of 30 ST staff received the Excellent Service Award 2011 during the ST Appreciation Night.

28 February 2012
'National Energy Security Conference' organised by ST with the theme 'Closing the Energy Supply-Demand Gap'

10 March 2012
A delegation from Asia-Pacific Economic Cooperation (APEC) visited the ST Diamond Building.

16 March 2012
Interview segment on RTM's 'Selamat Pagi Malaysia' with Ir. Othman Omar, ST Director of Enforcement and Regional Coordination Department.

March 2012
ST tabled a working paper at the 'Energy Regulation and the Promotion of Energy Conservation', conference in Bangkok, Thailand.

january february march

18 April 2012
Piped Gas Safety Seminar themed 'Prevention is Better Than Cure' organised by ST.

24 April 2012
Brainstorming session on Review of Eligibility Criteria for Special Industrial Tariff by stakeholders (KeTTHA, PEMANDU, MyPower and TNB).

17 May 2012
Memorandum of Understanding signing ceremony between ST and California Energy Resources Conservation and Development Commission (CEC), USA.

23 May 2012
ST opened an exhibition booth at the 'One Million Youths Gathering 2012' organised by the Ministry of Youth and Sports, Malaysia.

31 May 2012
ST opened its booth at the CIDB Awareness Seminar On Green Technology.

2-4 June 2012
ST participated in the Kuen Cheng High School Science Camp exhibition to raise students' awareness on electrical and piped gas safety.

5 June 2012
Briefing on meter reading by Tenaga Nasional Berhad for the first batch of ST Officers.

16 June 2012
Briefing on meter reading by Tenaga Nasional Berhad for ST Officers.

activities calendar (continued)

19 June 2012
ASEAN Energy Awards panel of judges visited the ST Diamond Building.

21 June 2012
Brunei Darussalam delegates visited the ST Diamond Building.

27 June 2012
Working visit by the Kenya Private Sector Alliance for knowledge sharing on ST regulatory administration.

28 June 2012
ST participated in the 'TENAGA 2012 Expo & Forum' exhibition.

3 July 2012
Energy Consultation Panel meeting No.1/2012 to discuss issues on electricity supply.

4 July 2012
Brainstorming session on Review of Eligibility Criteria for Special Industrial Tariff by stakeholders (KeTTHA, PEMANDU, MyPower and TNB) together with industrial customers.

5 July 2012
Czech Republic's Minister of the Environment visited ST to explore opportunities for bilateral collaboration in energy, green technology and water.

July 2012
ST accompanied the Minister of Energy, Green Technology and Water to the 10th APEC Energy Ministers' Meeting in San Petersburg, Russia.

30 August 2012
Joint Aidilfitri celebration organized by ST, KeTTHA, SPAN and SEDA-MGTC.

june july august

11 September 2012
Energy Supply Law Training Programme for ST Officers.

12 September 2012
ST joined the KeTTHA delegation to the 30th Asean Ministers on Energy Meeting (AMEM) and its Associated Meetings in Phnom Penh, Cambodia.

12 September 2012
ST's Diamond Building secured the most energy-efficient building accolade for 'New and Existing Buildings' at the Asean Energy Awards (AEA) 2012 in Phnom Penh, Cambodia.

13 September 2012
ST organised a one-day Meet The Customers Day in Tawau, Sabah.

19 September 2012
User Requirement Specification (URS) ECOS Online System workshop.

25 September 2012
Dialogue between ST and TNB to discuss the quality and level of service for electricity supply provided by utilities.

27 September 2012
ST organised a one-day Meet The Customers Day in Kuantan, Pahang.

2 October 2012
Visit by Upper Austria's Minister of Economy to the ST Diamond Building.

9 October 2012
Media conference announcing the selected bidder for the International Open Bidding (Track 1) and the First Generation IPP/TNB Limited Bid Track 2).

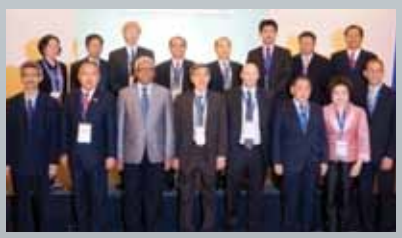
9 October 2012
Visitors from Vietnam at the ST Diamond Building.

activities calendar (continued)

13 October 2012
Exhibition at the 3rd International GreenTech and Eco Products Exhibition and Conference Malaysia (IGEM 2012) and Malaysia GreenTech Awards.

21 October 2012
Visit by the Senior Policy Advisor from the Prime Minister's Department of the Bahamas to the ST Diamond Building.

23 October 2012
Visit to Jimah Energy Ventures in Port Dickson by members of the ASEAN Agreement on Coal Use and Trading (ACUT).



23 October 2012
ST participates in the East Asia Summit - Energy Market Deregulation Forum, Singapore.

21 November 2012
Courtesy call from the Ministry of Energy, Republic of Kenya.

8 December 2012
Family Day at Zoo Negara, Kuala Lumpur.

14 December 2012
Energy Consultation Panel meeting No.2/2012 to discuss issues on electricity supply.

19 December 2012
Seminar on Energy Efficiency initiatives for Government buildings.

19 December 2012
Stakeholders 'Engagement on Power Quality Management' workshop.

october november december

ST in mass media

Looking at the future of power

Orang ramai diminta guna kontraktor elektrik berdaftar

Parties deciding on gas price

By YAP LENG KUEN
lengkuen@thestar.com.my

PETALING JAYA: The Energy Commission, Petroliam Nasional Bhd (Petronas) and the Economic Planning Unit are discussing the final recommendation to the Cabinet regarding the price of gas.

Sources told *Starbiz* meetings were held almost every week to look into how much should be borne by Tenaga Nasional Bhd (TNB) and the independent power producers (IPPs) and, finally, the end-consumers.

Analysts said TNB and the IPPs, which had the gas supply shortage rages on with TNB complaining of dwindling cash reserves that were used to fund the purchase of more expensive distillates to substitute for gas.

Analysts said that when converting gas into electricity, efficiency was the buzz word as more electricity might be converted from the same amount of gas.

After taking into account the price of gas and conversion costs, operating costs that include fixed and non-fuel costs also impact the final cost of electricity.

Acceptance of lower investment returns and sourcing of cheaper financing would also help

MALAYSIA-PRESS-Energy Commission floats tender for two coal plants-The Edge

The Energy Commission (EC) is calling for tenders for two new coal power plants totaling 3,000MW in capacity, to be commissioned between 2017 and 2019.

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

More than 40 keen on new power plant

By Nadia S Hannan

"However, this time it might be faster because the site is already there.

and round of bidding between Malakoff Bhd's Tanjung Bin power plant

Energy Commission evaluating bids for Prai project

8.260

The principal activities of the Group and of the Company are the generation, transmission, distribution and sale of electricity

KUALA LUMPUR: The Energy Commission (EC) is in the process of evaluating and shortlisting 10 consortia and sole bidders for the Prai combined-cycle gas turbine power project.

"The first track is for the 1,000 MW to 1,400 MW gas-fired power plant. We're in the process of evaluating them.

"Pre-qualification will be released in about three weeks," chairman Tan Sri Dr Ahmad Tajuddin Ali said on the sidelines of the inaugural National Energy Security Conference 2013.

The submission for pre-qualified statements closed two weeks ago. The EC received pre-qualification statements from 33 out of 38 participants who purchased the request for qualification (RFQ) documents. The 33 participants make up the 18 consortia and sole bidders.

Concurrently, Tajuddin said the commission was also calling fresh generation independent power producers (IPPs) to submit bids for possible extension of their power purchase agreements (PPAs).

Tough call for IPPs in bid for EC greenfield plant tender

Independent power producers (IPPs) believe problems with acquiring a suitable new site and the emphasis for the transmission line required for the proposed 2,000MW (2x1,000MW) coal-fired power plant tender will limit participation to companies with deep pockets and Tenaga Nasional Bhd (TNB).

"It's going to be quite difficult to find the right location for the project site and even more challenging to get landowners to sell land for the transmission line — they are going to ask for inflated prices and IPPs don't have the power to forcefully acquire the land," said a spokesperson with a local IPP.

The greenfield plant tender under its demand package 3B has been called by the Energy Commission (EC). The request for qualification (RFQ) requires for the construction of the transmission lines from the proposed site to the nearest solid point including procurement of all necessary equipment.

As it stands, the facilities in greenfield 1,000MW package 3B coal-fired power plant open tender that required interconnection facility and evacuation attracted two bidders in TNB and Malaysia Development Bhd (MDB) with their respective foreign partners Ampala 33 companies having RFQ for both the packages.

47 potential bidders for new power plants

Commission: The names subject to further verification

BY DALJIT DHESI
daljit@thestar.com.my

PETALING JAYA: The Energy Commission has unveiled a list of 47 prospective bidders, comprising both local and foreign firms, for the development of new combined-cycle power plants in the country.

Among the local parties bidding for the combined-cycle power projects are Tenaga Nasional Bhd (TNB), Tanjung Energy Holdings Sdn Bhd, YTL Power International Bhd, Petroliam Nasional Bhd, Sime Darby Energy Sdn Bhd, Malakoff Corp Bhd and Ranhill Power Sdn Bhd.

The foreign parties, among

Winner of bid for Prai gas turbine plant to be known in October

8.230

MACC to monitor corporate integrity pledge

Tajuddin: I think those days when Tenaga was directed to negotiate with people on the power purchase agreements (PPA). Those days are gone. Now it's all about open and competitive bidding

they realised it would boost their bottom lines over the long term.

The foreign prospective bidders, for example Samsung and Daewoo, were conglomerates and had strong research and development capabilities and would add value to the power sector, an analyst noted.

OSK head of research Chris Eng said recently that as the first-gen-

18 groups submit RFQ to EC for new Prai power plant bid

The Energy Commission (EC) will announce mid-next month the results of an international competitive bidding for the approximately US$10 billion (RM30.2 billion) Prai combined cycle gas turbine (CCGT) power project, which has attracted 18 consortiums comprising local and foreign players, and sole bidders.

The EC had received prequalification statements from 33 out of 38 participants who purchased the request for qualification (RFQ) documents on Jan 31, it said in a statement on its website yesterday.

"The 33 participants make up the 18 consortia and sole bidders," it said. It is learnt that the project will be for a 1,000MW to 1,400MW plant at a site located next to Malakoff Corp Bhd's existing 350MW CCGT Prai Power Plant. According to a power industry analyst, the cost of putting up a gas plant is

ST
in mass media (continued)

Bekalan gas negara pulih 2013

Loji pemprosesan di Sungai Udang tampung kekurangan

Oleh Ahmad Farizal Hajat

Putrajaya

"Gangguan bekalan tenaga ini tidak dirancang dan kami menjangkakan ia lebih baik menjelang September ini"

Ahmad Fauzi Hasan, Ketua Eksekutif Suruhanjaya Tenaga

Tawar kontrak loji CCGT RM31 juta

Suruhanjaya Tenaga umum pembida berjaya 10 Oktober

Fate of IPPs to be known in September

POWER PURCHASE: Government is negotiating with first-generation producers for more competitive agreements

More spark for power sector soon

Malaysian energy at the crossroads

- will have to be fully imported
- Sarawak hydro potential can be developed, but cost of transmission is a barrier

By Stephen Ng

Thirty years ago, Malaysia discovered natural gas. That good fortune benefited the power-hungry industries of Japan, Korea and Taiwan, which drew up long-term supply contracts. It also led the country's utility company Tenaga Nasional Berhad (TNB) to depend greatly on natural gas to fire its power plants.

Kemalangan elektrik boleh dielakkan

Malaysia to boost renewable energy generation by more than 5 times

Malaysia will increase the percentage of electricity generated from renewable energy to 5.5 per cent from the less than one per cent currently.

Energy Commission of Malaysia CEO Datuk Ir Ahmad Fauzi Hasan said the higher percentage was achievable through the establishment of the Sustainable Energy Development Authority.

Click to zoom

Teknologi hijau bangunan berlian

Pengguna tertipu

EKSKLUSIF

Suruhanjaya Tenaga dedah alat jimat elektrik tak boleh kurangkan bil

PANDUAN MENGHADAPI BANJIR

Mengelak Bahaya Elektrik

Kilang plastik curi elektrik diserbu lagi

Dua kilang ais dikesan curi letrik

Suruhanjaya Tenaga

GUNAKAN ELEKTRIK SECARA CEKAP DAN SELAMAT DI HARI RAYA

JANGAN	PASTIKAN

Keselamatan Elektrik Bermula Dari Kita

Selamat Hari Raya Aidilfitri

'ALAT PENJIMATAN TENAGA'

Didapati Tidak Berkesan Untuk Menjimatkan Tenaga Elektrik Seperti Diiklankan

ESD

Adakah alat ini benar-benar boleh menjimatkan penggunaan tenaga elektrik tanpa pengguna perlu mengubah cara penggunaan tenaga elektrik?

Kilang tak serik curi elektrik tumpas

PELABUHAN KLANG: Meskipun pernah didakwa atas kesalahan mencuri bekalan tenaga elektrik dua tahun lalu, sebuah kilang yang beroperasi hampir 10 tahun di sini tidak serik apabila melakukan kesalahan sama sejak beberapa bulan lalu.

Bagaimanapun, kegiatan kilang di Jalan Telok Gong itu tumpas apabila dikesan hasil pemantauan setiap bulan yang dijalankan Jabatan Perkhidmatan, Keselamatan dan Risikan Tenaga Nasional Berhad (TNB) sebelum diserbu semalam.

Hasil maklumat yang diperoleh itu, 15 anggota dari Suruhanjaya Tenaga dan

Suruhanjaya Tenaga

GUNAKAN ELEKTRIK SECARA CEKAP DAN SELAMAT

CARA MENGGUNA ELEKTRIK DENGAN CEKAP

Cable thief found electrocuted

KUALA LUMPUR: A 40-year-old man was electrocuted while trying to steal cable in Kampung Muhibbah, Bukit Jalil.

Cheras district police chief ACP Mohan Singh Tara Singh said the victim was married with three children.

The body was sent to the Universiti Malaya Medical Centre for a post-mortem yesterday.

In a separate incident, ACP Mohan Singh said an Indonesian construction worker was feared drowned after falling into the water during a fishing outing with his friends at a former mining pool in the same village on Thursday evening.

Mohd Bain, 30, was believed to have slipped while trying to fix his fishing hook, he said, adding that a search and rescue operation was being carried out by the Bukit Jalil Fire and Rescue Department, Civil Defence Department and police. – Bernama

ENSURING RELIABLE AND EFFICIENT ENERGY SUPPLY AT REASONABLE PRICES

ST balances the interests of society with industry players in ensuring that the national energy supply progresses in line with global trends. The following report presents the national electricity supply and demand situation, and covers the systems for power generation, transmission and distribution; quality of power; supply of piped natural gas and Liquefied Petroleum Gas (LPG), including monitoring of fuel prices and electricity tariff.

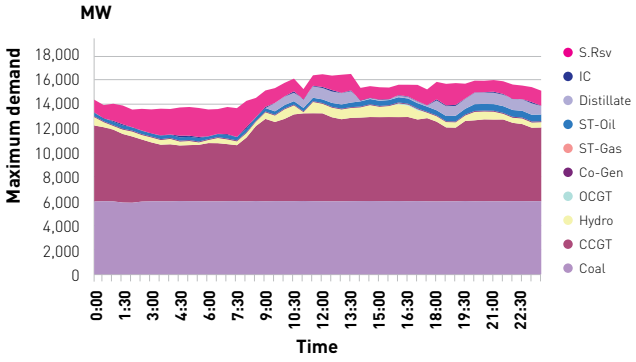
ensuring reliable and efficient energy supply at reasonable prices

ELECTRICITY SUPPLY AND DEMAND SITUATION

Peninsular Malaysia

The maximum demand on the Peninsular Malaysia grid system in 2012 had increased by 2.3% to 15,826 MW, as recorded at 16:00, 20 June 2012 compared to 15,476 MW in 2011. The highest daily energy demand, at 328.72 GWh, was recorded on the same day – an increase of 3.2% from 318.40 GWh in 2011.

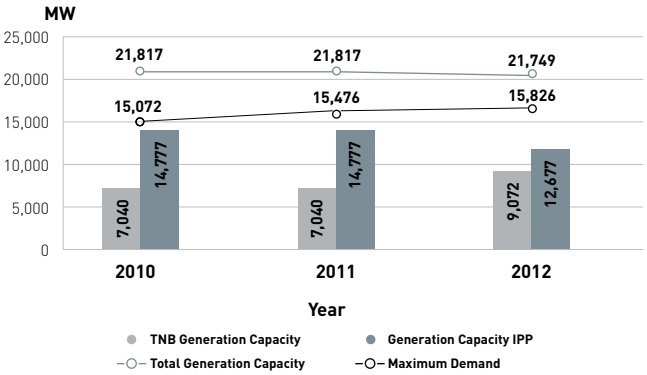
GENERATION PROFILE ON 20 JUNE 2012 (WEDNESDAY)



The overall annual energy demand increased approximately 4.1% from 104,220 GWh in 2011 to 108,473 GWh in 2012. Energy sales also increased to 97,243 GWh, or a 3.8% rise compared to 93,640 GWh in 2011.

Generation capacity had decreased to 21,749 MW following the relocation of a 68 MW gas turbine from the Teluk Ewa power station in Langkawi to Tawau, Sabah. Of the overall installed generation capacity, 41.7% (9,072 MW) is wholly-owned by Tenaga Nasional Berhad (TNB), comprising 1,911 MW from hydroelectric stations, 5,061 MW from thermal stations and 2,100 MW from coal-fired stations. Meanwhile, Independent Power Producers' (IPP) plants contributed 58.3% (12,677 MW) to the overall power generation capacity in Peninsular Malaysia.

INSTALLED GENERATION CAPACITY AND MAXIMUM DEMAND IN PENINSULAR MALAYSIA 2012



Based on the Tested Annual Available Capacity (TAAC) of all power generation stations, the capacity stood at 21,369 MW. A total of 8,828 MW or 41.3% of this capacity was recorded from TNB wholly-owned power stations, with the remainder contributed by independent power producers' stations.

The generation capacity in Peninsular Malaysia had met demand sufficiently for 2012 and the system's reserve margin remained at a satisfactory 37.4% compared to 41% in 2011.

BREAKDOWN OF INSTALLED CAPACITY BASED ON GENERATOR TYPE

Type	Main Fuel	MW
Solid Cycle Gas Turbine	Gas	9,373
Conventional Thermal	Coal	7,170
Conventional Thermal	Gas	840
Open Cycle Gas Turbine	Gas	2,455
Open Cycle Gas Turbine	Distillate	-
Hydroelectric	Hydro	1,911
Total Installed Capacity		**21,749**

Sabah

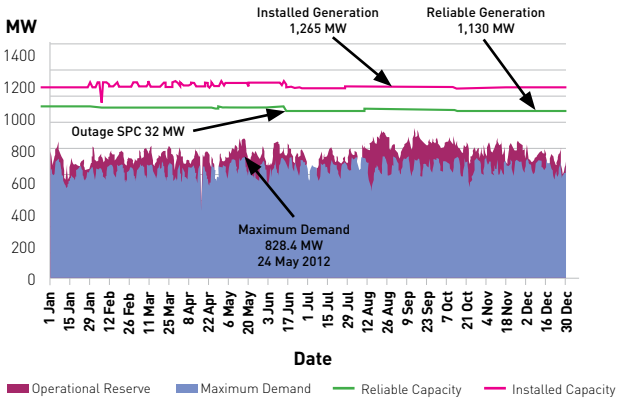
The decreased generation capacity in Sabah requires attention. This decrease had resulted from the outage of the Sandakan Power Corporation's (SPC) 32 MW power generator station on May 2012, following serious damage of its diesel engine.

The situation was exacerbated by the frequency of unplanned outages at the 47.5 MW ARL Power station and company cash flow issues, which had affected the supply of fuel and lubricant to the Stratavest station.

Moreover, several SESB power generation stations had also

recorded low levels of readiness and reliability. In 2012, the highest maximum demand on the grid system in Sabah was recorded at 828.4 MW on 24 May 2012, which is a 0.2% decrease as compared to 830.1 MW in 2011.

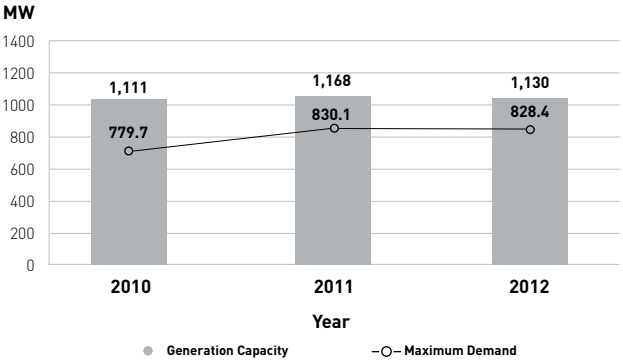
MAXIMUM DEMAND AND DAILY OPERATIONAL RESERVE IN SABAH 2012



The total installed capacity in Sabah, which stood at 1,265 MW, had decreased by 32 MW following the outage at SPC. To boost capacity, existing stations such as Ranhill Powertron I and Sepangar Bay Power Corporation contributed a total of 14 MW in July 2012, besides capacity acquisition exercise and enhancement of diesel powered generators owned by Sabah Electricity Sdn Bhd (SESB).

Taking into account derated capacity and constraints on the generation system at Sabah power stations, the reliable capacity stood at 1,130 MW. Of this total, 673.5 MW comprised generation capacity owned by IPPs, 417.3 MW by SESB and 39.5 MW by renewable energy power stations.

RELIABLE GENERATION CAPACITY AND MAXIMUM DEMAND IN SABAH 2012



Although the generation reserve margin in Sabah was sufficient to meet demand, the high frequency of unplanned outages for Medium Fuel Oil (MFO) and diesel-fired stations had affected operations and reliability of the grid system in Sabah.

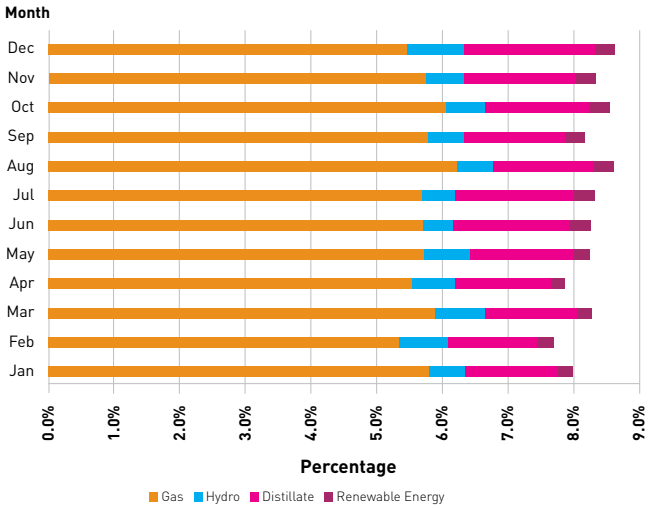
Transitioning to a more efficient generation system, almost 50% of power generation in Sabah is seen moving towards natural gas for fuel. The development of renewable energy projects in Sabah had also contributed to the increase in capacity and reduced dependence on diesel as fuel for power generation.

INSTALLED GENERATION CAPACITY (SABAH)

Fuel	Installed Generation Capacity (MW)	Reliable Capacity (MW)			
		Sabah West Coast (MW)	Sabah East Coast (MW)	Total (MW)	Percentage (%)
Gas	641	599	0	599	53%
MFO	152	47	96	143	13%
Diesel	356	79	200	279	25%
Hydro-electric	76	74	2	76	7%
Biomass	40	0	33	33	3%
Total	**1,265**	**799**	**331**	**1,130**	**100%**

A total of 5,478 GWh was generated in Sabah, of which 3,816 GWh (69.6%) was generated from gas; 1,068 GWh (19.5%) generated from MFO and diesel; 414.4 GWh (7.6%) from hydro power and 179.6 GWh (3.3%) generated from renewable energy in 2012.

POWER GENERATION COMBINATION BASED ON FUEL TYPE 2012



ensuring reliable and efficient energy supply at reasonable prices (continued)

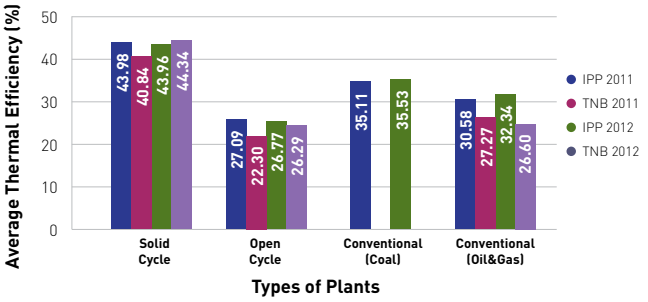
GENERATION SYSTEM PERFORMANCE

Peninsular Malaysia

Thermal Efficiency

Overall, power generation stations in Peninsular Malaysia had shown consistent performance and increase in average thermal efficiency, while performance among conventional generation stations owned by TNB that use oil or gas had decreased compared to 2011 because of the age factor and degradation.

AVERAGE THERMAL EFFICIENCY

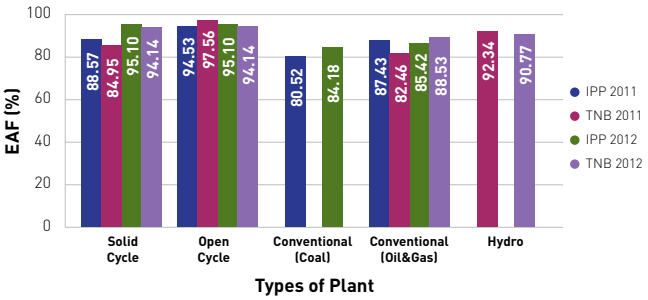


Efficiency performance for combined cycle gas-fired power stations had increased slightly especially for TNB owned stations, following the implementation of a scheduled maintenance programme that was conducted throughout the year, apart from a prevailing high level of average capacity factor. The records show that gas use among gas-fired power plants in 2012 was at 372,739 mmscf (million standard cubic feet) compared to 337,151 mmscf in 2011.

Equivalent Availability Factor (EAF)

An increase of 7% and 10% in EAF was achieved by power generation stations in Peninsular Malaysia. All combined cycle power stations recorded an average EAF of 94% to 95%, while the average EAF for coal-fired stations was the lowest at around 84%.

PLANT EQUIVALENT AVAILABILITY FACTOR (EAF)

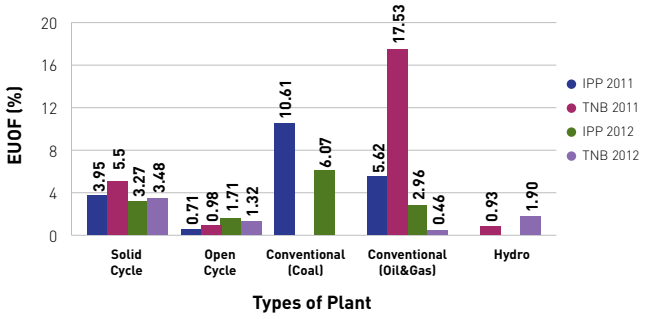


Equivalent Unplanned Outage Factor (EUOF)

With the increase in EAF as stated earlier, the EUOF recorded in 2012 had also improved.

The lower EUOF recorded was closely linked to the better performance in gas supply for 2012, which had enabled gas and coal-fired power stations to implement scheduled maintenance as planned, hence improving station reliability and reducing unplanned outages.

EQUIVALENT UNPLANNED OUTAGE FACTOR (EUOF)



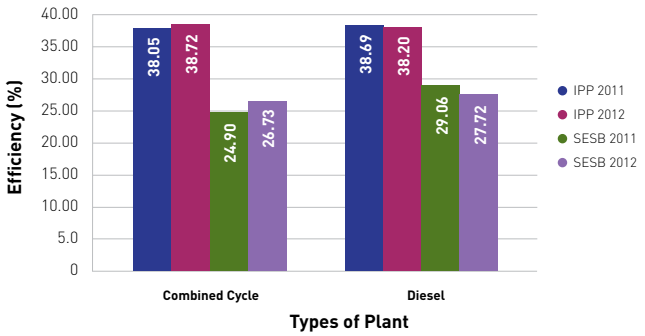
Sabah

Thermal Efficiency

In 2012 power stations in Sabah demonstrated a better average thermal efficiency compared to 2011, except for diesel powered stations owned by SESB that had shown a slight decrease.

Gas-fired power stations, especially those owned by SESB, had achieved better performance following a high level of operations at all times to compensate for a reduced generation capacity.

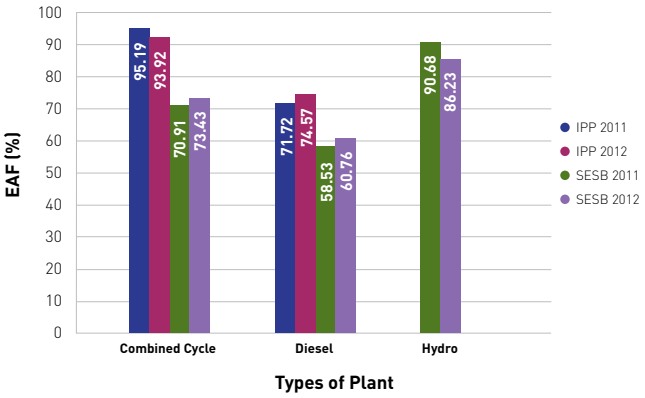
THERMAL EFFICIENCY



Equivalent Availability Factor (EAF)

However, EAF indicators for electricity generation stations in Sabah had decreased by an average of 2% and 11%. This was caused by the frequency of outages in power stations that had encountered problems. The EAF for hydroelectric generation had declined due to a generator flashover incident that had required the shutdown of Unit 1 at the Tenom Pangi station from June to August. The outage of the station owned by Sandakan Power Corporation Sdn Bhd (SPC) had also contributed to the EAF decline.

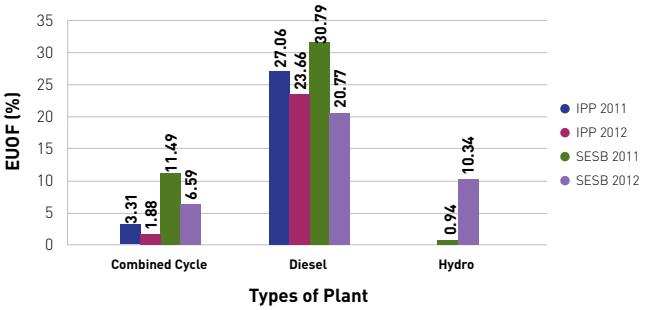
STATION EQUIVALENT AVAILABILITY FACTOR



Equivalent Unplanned Outage Factor (EUOF)

Based on engineering best practices, EUOF target is normally set at 4% for combined cycle and open cycle power stations, and 6% for thermal stations using oil, gas and coal as fuel.

EQUIVALENT UNPLANNED OUTAGE FACTOR



The rate of EUOF in 2012 had improved compared to 2011 when combined cycle and diesel-fired power stations recorded significant decreases. The EUOF for diesel power stations had decreased from a rate of 30.8% to 20.8%, while the EUOF for combined cycle power stations had decreased from 11.5% to 6.6%. However, these rates were still high and were above those that were determined based on engineering best practices.

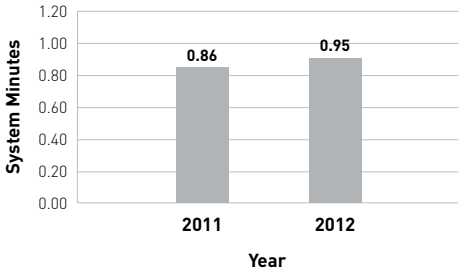
TRANSMISSION SYSTEM PERFORMANCE

Peninsular Malaysia

System Reliability

The overall TNB transmission system performance in Peninsular Malaysia had shown that the Delivery Point Unrealibility Index (DePUI) for the national grid remained at a satisfactory level and did not breach the set target of 1 minute.

DELIVERY POINT UNREALIBILITY INDEX (DEPUI) –SYSTEM MINUTES

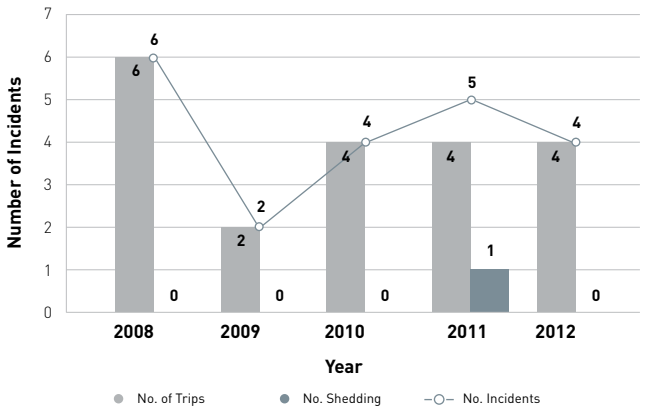


In 2012 four tripping incidents occured in the transmission system in Peninsular Malaysia with a loss of load of more than 50 MW, compared to five incidents 2011.

Considering that the decrease was only by one incident (20%) compared to 2011, the transmission system performance in Peninsular Malaysia remained at the same level as that in 2011. No load-shedding incidents were reported while unsupplied energy had decreased to 212.7 MWh compared to 225.2 MWh in 2011.

ensuring reliable and efficient energy supply at reasonable prices (continued)

THE NUMBER OF TRANSMISSION SYSTEM TRIPS WITH LOAD SHEDDING OF >50 MW FROM 2008 TO 2012



Grid System Status

Constraints on the grid system remained at the 275 kV Ayer Tawar – Batu Gajah transmission line and the Supergrid XGT2 500/275 kV transformer at PMU Bukit Tarek. These were caused by the concentration of power generation in Manjung district that had increased risks associated with the transfer of power from the Northern Region to the load centre in the Central Region.

A 150% overload in Manjung could occur at the Ayer Tawar - Batu Gajah transmission line, while a 130% overload could occur at PMU Bukit Tarek if both the 500 kV transmission lines between Ayer Tawar - Bukit Tarek or between Bukit Tarek - Kapar tripped simultaneously.

To reduce risks during the transfer of power, the generation activity in Lumut - Manjung had been limited as follows:

Location	Impact	Contingency	Limit	Day	Last Day
Ayer Tawar – Batu Gajah 275 kV	Northern -Central	Double circuit trip 500kV Ayer Tawar - Bukit Tarek	150%	8	28 January
Bukit Tarek 500/275 kV XGT2	Northern -Central	Double circuit trip 500 kV Bukit Tarek – Kapar	130%	6	14 January

Four load loss incidents of more than 50 MW occured in 2012 following multiple causes that compromised and disrupted the National Grid System as follows:

Date	Duration (Start/ Finish)	Component	Load Loss (MW)	Loss	Last Day
1 March	2117/2332	National University (NUNI), Bangi 275/132/33/11 kVsubstation	71	96.59	Transformer Breakdown 132/33 kV 90MVA T4
6 March	1817/1913	132kV Overhead Transmission Line, Alor Setar to Kota Setar L1 & L2	66	23.4	132 kV Overhead Transmission Line L1 & L2 tripped by operation of current differential relay, overcurrent and earth leakage
28 April	1908/1941	132 kV Reserve Busbar, Pasir Gudang Power Station	81	42.9	132 kV Reserve Busbar tripped by operation of busbar protection relay
24 May	0958/1140	132kV Overhead Transmission Line, KL North-Damansara Heights L1	106	49.8	132 kV Overhead Transmission Line L1 tripped by operation of line distance protection

An incident on 1 March 2012 at the 275/132/33/11 kV National Universiti (NUNI) substation in Bangi had compromised the stability of the grid system and had caused supply interruptions to the following areas:

Transmission Line	Area Involved
Serdang – Abu Bakar Baginda 132 kV Line 1 & Line 2	Serdang
National Universiti – Bangi Height 132 kV Line 2	Bangi
Arab Malaysian Industrial – Nilai Line 1 132 kV	Arab Malaysian Industrial
Sg. Semenyih Water Works – National University 132 kV Line 2	Sg. Semenyih Water Works
Kajang – Cheras Jaya 132 kV Line 1	Both sides (Kajang & Cheras Jaya)
Bus Coupler	i) Kajang 132kV ii) Abu Bakar Baginda 11 kV iii) Abu Bakar Baginda 33 kV iv) Abu Bakar Baginda 132 kV v) National Universiti 33 kV vi) National Universiti 11 kV

Sabah

System Reliability

Reduced generation capacity and low reliability levels remained a challenge for Sabah in 2012.

This was due to the age factor of existing power stations and outages at high capacity power stations, which also exposed the Sabah electricity supply system to load management and load shedding incidents.

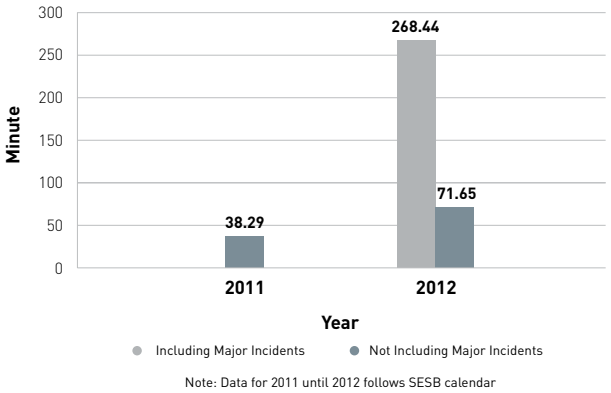
The System Minutes for the Sabah grid in 2012 had shown a substantial increase of 87.12% to 71.65 minutes compared to 38.29 minutes in 2011, excluding major incidents. The increase indicated that the average performance of the transmission system owned by Sabah Electricity Sdn Bhd (SESB) had declined compared to the previous year and had exceeded the annual target of 25 minutes for 2012.

In 2012, several tripping incidents in the Sabah grid system that had caused load shedding of 50 MW and above were recorded.

A major incident occurred on 30 April 2012 with a load shedding of 475 MW and 163,351.8 MW min of unsupplied power contributed 196.79 to the system minutes in Sabah. The incident was the result of a transformer fire at the 66kV Penampang – Inanam line at PMU Penampang, which caused almost the whole of Sabah to lose power supply except for areas that were off-grid such as Telupid.

Meanwhile, a voltage surge incident was reported on 1 May 2012 with a load shedding of 89.56 MW.

DELIVERY POINT UNRELIABILITY INDEX (DEPUI) – THE SYSTEM MINUTES FOR SABAH GRID



Note: Data for 2011 until 2012 follows SESB calendar

Planned and Unplanned Outage

Sabah still lacks power generation capacity especially in its East Coast area. This is due to the frequent breakdowns of aging diesel powered generation stations and continuous operations that had forced maintenance to be deferred.

Stratavest Sdn Bhd (Stratavest) and Sandakan Power Corporation (SPC) are among the major power generation in the Sabah East Coast. Stratavest is still facing financial constraints that had affected the supply of MFO and cylinder lubricant for its power generation unit. Meanwhile, SPC's generation unit has been out of commission since 2011 and the company had stopped its operations in May 2012.

ensuring reliable and efficient energy supply at reasonable prices (continued)

These incidents had affected the overall generation capacity in Sabah in 2012 when power generation stations in the West Coast had to compensate for the decreased capacity in the East Coast.

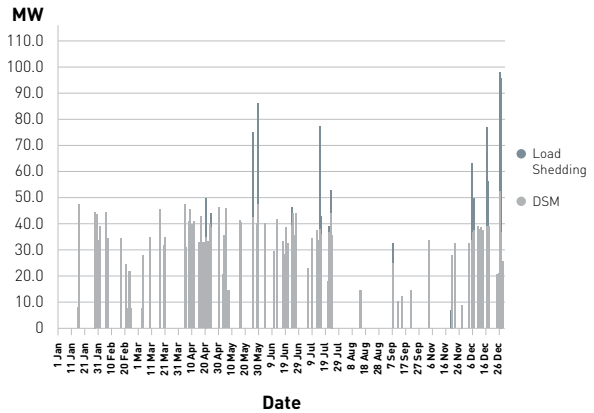
In 2012, planned outages amounting to 52.3 MW or 5% of reliable capacity and forced outages amounting to 203.5 MW or 18% of reliable capacity had occurred in Sabah. Meanwhile, the yearly average generation capacity experienced a deration during grid operation at 33.2 MW or 3%. This meant that only 841 MW or 74% ready capacity was available for meeting the rising maximum demand in Sabah in 2012.

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

In 2012, SESB had to execute DSM and UFLS more frequently to prevent a wider interruption to the overall grid system in Sabah.

An increase in DSM and significant load shedding were recorded after Ranhill Powertron I station encountered problems with its GT1A generation unit on 5 December 2012. This December 2012 incident had recorded the highest accumulated annual DSM and load shedding at 53.3 MW and 59.3 MW respectively. The highest UFLS in 2012 was on 8 March 2012 that involved a load shedding of 72.3 MW. This followed the tripping of the 132 kV Penampang – Beaufort line and the 132 kV Penampang – Papar line, which had compromised the transmission of power from generation stations in Sabah.

DSM AND UNDER FREQUENCY LOAD SHEDDING IN SABAH 2012



Generation Unit Outage Incident

On 5 December 2012, a forced outage of generation unit GT1A at the Ranhill Powertron I station was caused by the breakdown of several components in its compressor and stator blades.

Following the incident, Sabah lost 99.5 MW from a reliable capacity of 1,130 MW, which had destabilised the grid system due to Ranhill Powertron I being one of the major generation stations in Sabah West Coast. The situation had forced all power generation stations to operate at full capacity to prevent a grid system collapse. At the same time, a high percentage of outage at 256.4 MW (23%) in Sabah did not help to alleviate the situation.

As the available capacity was lower than the system demand, electricity supply was disrupted in several areas in the Sabah West Coast following inadequate generation capacity.

The available capacity and maximum demand on 5 December 2012 stood at 803 MW and 774 MW respectively, while operating reserve was only at 29 MW or 2.6%. Operating the grid at that level of available capacity and a slim margin of operating reserve had compelled SESB to execute DSM and UFLS more frequently in order to stabilise the system. As a result of the damage, the situation was expected to continue until early 2013.

The volume of energy generated on the day of the incident was 3,957 MWh (25%) from diesel, 10,144 MWh (63%) from gas, 1,386 MWh (8%) from hydro and 524 MWh (3%) from biomass.

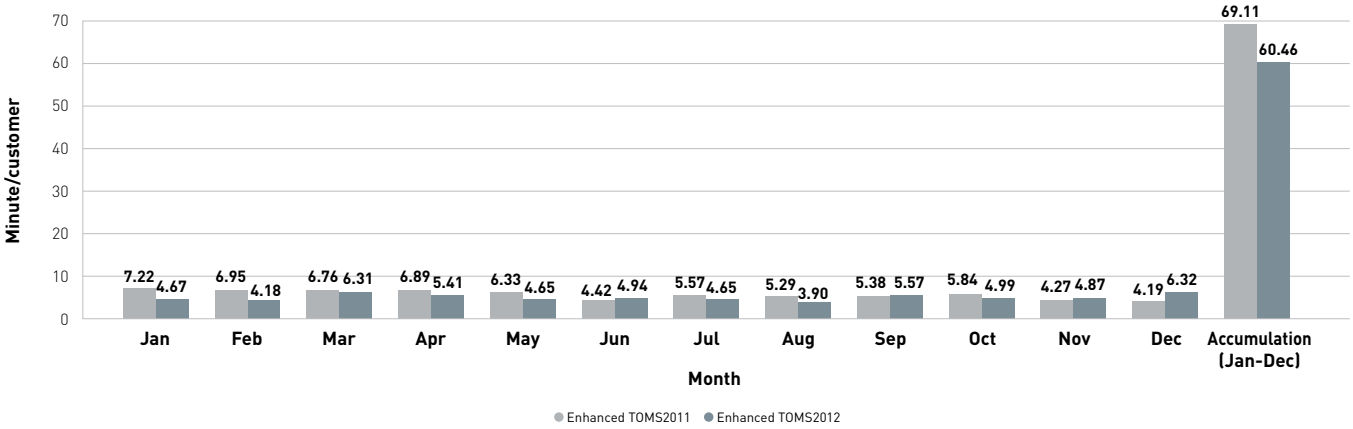
DISTRIBUTION SYSTEM PERFORMANCE

SAIDI (System Average Interruption Duration Index)

Peninsular Malaysia

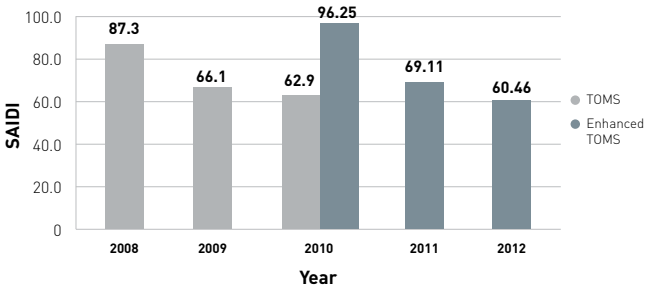
Overall, the monthly SAIDI in 2012 had shown a decreasing trend compared to the monthly SAIDI in 2011, except for the SAIDI in June, September, November and December. The SAIDI for December was the highest compared to other months at 6.32 minutes/customer, due to the increase in interruptions in the medium voltage system.

COMPARISON OF MONTHLY AND YEARLY SAIDI IN PENINSULAR MALAYSIA IN 2011 AND 2012



On the whole, TNB electricity supply performance for 2012 had improved with a 12.5% decrease in SAIDI to 60.46 minutes/customer/year compared to 69.11 minutes/customer/year in 2011 and the set SAIDI target of 70 minutes/customer/year.

SAIDI (MINUTES/CUSTOMER/YEAR) IN PENINSULAR MALAYSIA FROM 2008 TO 2012



The medium voltage system remained the biggest contributor to the overall SAIDI compared to low and high voltage systems. Nevertheless, the medium voltage system SAIDI in 2012 had shown a decreasing trend to 49.30 minutes/customer/year compared to 63.25 minutes/customer/year in 2011.

Action Plan to Reduce SAIDI

Peninsular Malaysia

In 2012, TNB had implemented several action plans to reduce the main causes of SAIDI namely, interruptions to low and medium voltage systems for every state in the peninsula. Interruption to low voltage systems caused by damaged Insulating Piercing Connectors (IPC) still recorded the highest percentage compared to other causes.

In order to tackle this problem, TNB had focused on states and areas with high instances of damage to the IPC. Actions taken by TNB included:

- More stringent checks during handover of new projects;
- Providing refresher courses to supervisors and contractors; and
- Evaluation of engineering practices (hand holding initiative).

Apart from that, the main focus of TNB's action plan was targeted at the reduction of interruptions at the medium voltage supply system, which contributed more than 90% to the TNB SAIDI index. Attention was given to the underground cable systems, cable connections, third party damage and termination of cables, which accounted for more than 70% of the medium voltage supply system interruptions.

ensuring reliable and efficient energy supply at reasonable prices (continued)

Some short term measures that have been implemented for every state in Peninsular Malaysia were as follows:

- Cable insulation testing;
- Partial Discharge Test for underground cables;
- Replacing high risk old cable with Paper Insulated Lead Cover (PILC) cables; and
- Replacing old cables end terminations with new ones.

In 2012, TNB continued with its implementation of a long term measure involving system improvement projects in every state in Peninsular Malaysia as follows:

- Upgrading of cable sizes, such as from 25mm^2 PILC to 150mm^2 Cross Linked Poly Ethylene Cable (XLPE);
- Installing new feeders from Main Intake Substations/Main Distribution Substations;
- Replacing medium voltage cables having many joints as a result of frequent damages;
- Construction of new substations to overcome low voltages;
- Replacing medium voltage cables that cause bottlenecks;
- Creating a ring system between substations;
- Replacing Ring Main Units (RMU) at substations with Vacuum Circuit Breakers (VCB);
- Replacing PILC cables with XLPE or Aerial Bundled Cable (ABC) for medium voltage overhead lines;
- Enhancing transformer capacity;
- Installing auto-re closer switchgears to overcome frequent system trips due to transient faults;
- Replacing old switchgears with new RMUs;
- Changing cable routes affected by development and road widening; and
- Replacing substations on poles with those on land to expedite repairs and restoration of supply during interruptions.

Sabah

Continuous monitoring of Sabah's electricity supply system performance was carried out in 2012 to ensure that the set SAIDI targets were achievable. The SAIDI achievements in Sabah for 2012 were as follows:

	2012 target (minutes/ customer)	2012 Achievement (minutes/ customer)	2011 Achievement (minutes/ customer)
Sector 1	400	376.62	307.66
Sector 2	700	677.78	632.28
Sector 3	700	1,048.67	990.80
Overall	650	556.82	494.66

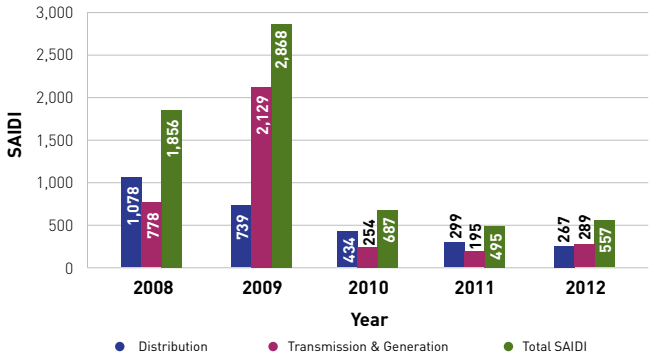
Throughout 2012 there were several critical issues that had affected the electricity supply system in Sabah:

- The failure of several high capacity generation stations to operate due to breakdowns.
- The fragile transmission line grid system network in Sabah that is prone to outages as a result of aging equipment.

As of 31 December 2012, the SAIDI for the whole of Sabah stood at 556.82 minutes/customer/year, representing a 12.5% increase from 495 minutes/customer/year achieved in 2011.

This was the result of a 48.2% increase in SAIDI in the generation and transmission systems in 2012 compared to 2011. The SAIDI for the distribution system had decreased by 11% compared to the previous year.

ANNUAL SAIDI (MINUTES/CUSTOMER/YEAR) FOR SABAH FROM 2008 TO 2012



Among the number of action plans for reducing Sabah Electricity Sdn Bhd's (SESB) SAIDI was the creation of a Handholding Task Group Initiative between TNB and SESB, which comprised short and medium term initiatives for resolving electricity supply interruption issues, especially those involving SESB transmission, distribution and generation. Short term initiatives included creating a radial configuration for 66 kV lines, expediting distance protection, reviewing of Under Frequency Load Shedding (UFLS) system, reviewing of black start operation and generation restoration system, plus the review of distribution feeder protection system. Medium term initiatives involved VAR Management Control for Sabah's grid system, a scheme for overhead transmission lines protection system and intensifying the Condition Base Maintenance (CBM) regime for medium voltage overhead transmission lines. These activities were fully completed in September 2012, bringing improvements especially in the transmission sector.

Additionally, SESB had also given a major focus on reducing electricity supply interruptions caused by trees, which amounted to 19% of the total electricity supply interruptions in Sabah.

The action plan carried out by SESB for curtailing interruptions caused by trees were as follows:

- Replacement of bare conductor cables with Aerial Bundled Cable (ABC) for high voltage and PVC Insulated Conductor for low voltage system. A total of RM5.9 million was allocated for the project to replace bare conductor cables with insulated ones for the 2013 financial year.
- Installation of auto-recloser (AR) to minimise the duration of interruptions.
- Creation of new injection points to minimise the number of consumers affected in any interruption.
- Intensifying clearing of transmission line rentice.
- Targeting a 9% reduction in interruptions and SAIDI caused by foliage for the 2013 financial year.

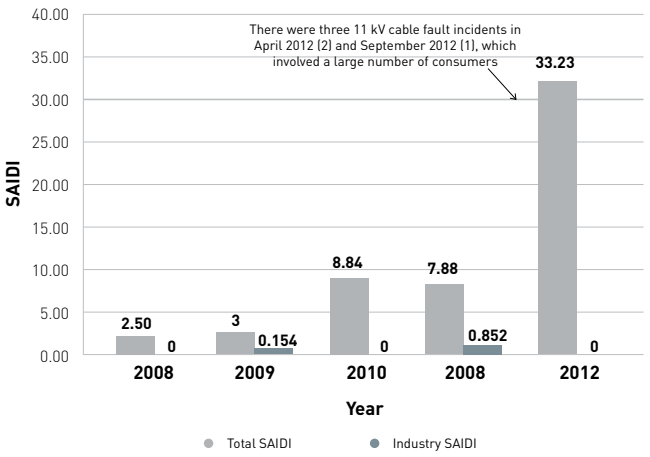
Among constraints faced by SESB during transmission line rentice clearing operations were as follows:

- Reluctance among farm/private land owners to cut trees, especially oil palm trees, fearing that this will affect the growth of other healthy trees.
- Land owners intentionally planting trees close to the rentice line in the hope of being compensated in the event these trees were cut.
- Areas overgrown with bamboo plants that were planted as a measure against landslides.
- Trees outside the rentice line falling on transmission lines during landslides/soil movement.

Kulim Hi-Tech Park (KHTP)

SAIDI at the KHTP in 2012 as reported by NUR Distribution Sdn Bhd had increased to 33.23 minutes/customer/year compared to 7.88 minutes/customer/year in 2011. This increase was the result of three 11 kV cable fault incidents in April 2012 (2 incidents) and September 2012 (1 incident), which involved a large number of consumers. This had contributed 29.2 minutes/customer/year or 88% of the overall yearly SAIDI for 2012. However, no incidents was reported for high voltage industry consumers at the KHTP in 2012.

TOTAL SAIDI (MINUTES/CUSTOMER/YEAR) AND SAIDI FOR INDUSTRY (HIGH VOLTAGE CONSUMERS ONLY) FOR KULIM HI-TECH PARK FROM 2008 TO 2012



ensuring reliable and efficient energy supply at reasonable prices (continued)

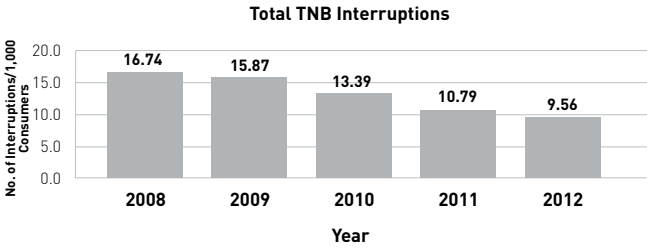
ELECTRICITY SUPPLY INTERRUPTIONS

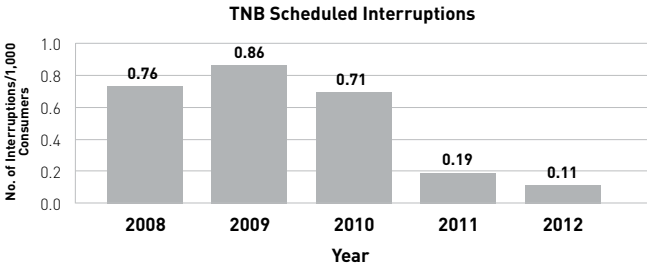
Peninsular Malaysia

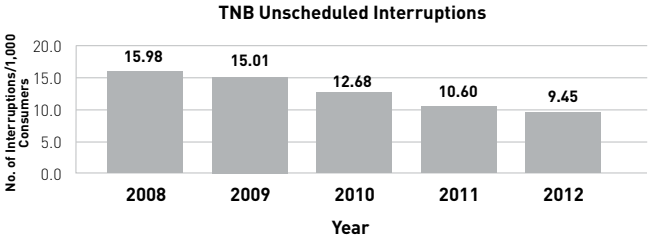
In 2012 the overall electricity supply interruptions for every 1,000 consumers of the TNB supply system in Peninsular Malaysia had shown a reduction from 10.79 interruptions in 2011 to 9.56 interruptions, representing an 11.4% decrease.

The number of scheduled and unscheduled interruptions in 2012 had shown a decrease of 10.8% and 42.1% respectively, compared to 2011. Nevertheless, unplanned interruptions had recorded a high 99% out of all unscheduled interruptions in 2012.

TNB ELECTRICITY SUPPLY INTERRUPTIONS FOR EVERY 1,000 CONSUMERS FROM 2008 TO 2012

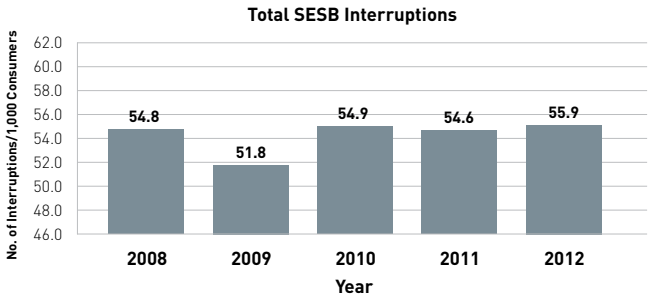




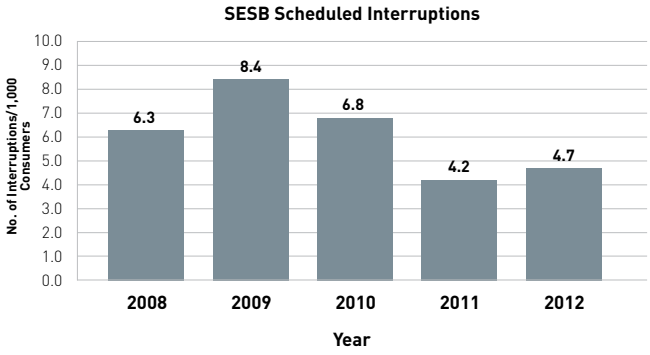


Sabah

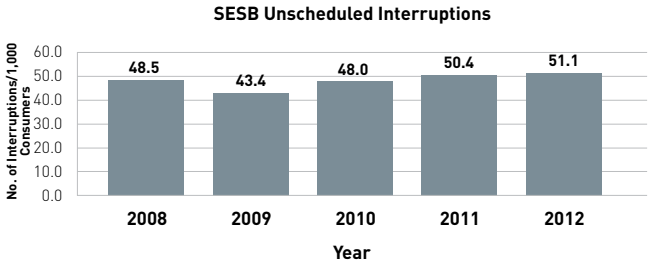
The number of electricity supply interruptions for every 1,000 consumers of the SESB supply system in Sabah had increased in 2012 to 55.9, compared to 54.6 interruptions in 2011.



The number of scheduled interruptions had also increased by 11.9% to 4.7 for every 1,000 consumers compared to 4.2 for every 1,000 consumers in 2011 due to maintenance work on installations.



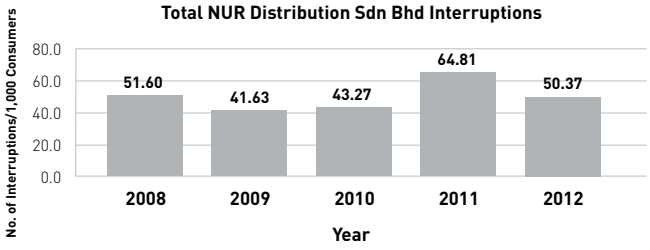
The number of unscheduled interruptions too, had increased by 1.4% to 51.1 interruptions for every 1,000 consumers from 50.4 for every 1,000 consumers in 2011.

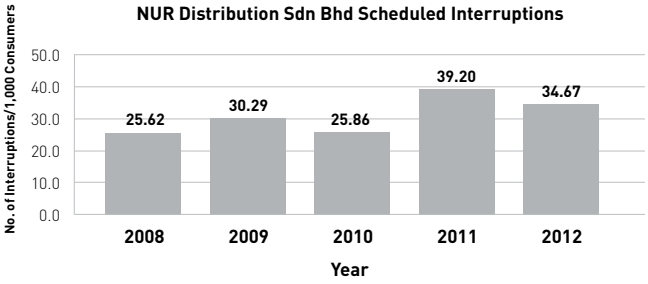


Unscheduled interruptions still recorded a high percentage at 91.4% out of the total interruptions in 2012.

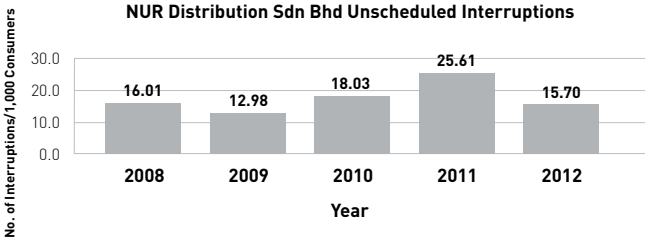
Kulim Hi-Tech Park (KHTP)

In 2012 the number of electricity supply interruptions for every 1,000 consumers at the KHTP as reported by NUR Distribution Sdn Bhd had decreased 22.3% to 50.37 interruptions, compared to 64.81 interruptions in 2011.





The number of unscheduled and scheduled interruptions for every 1,000 consumers had also decreased by 38.7% and 11.6% respectively, compared to 2011. However, scheduled interruptions had recorded a higher percentage of 69% compared to unscheduled interruptions, which contributed 31% of the total number of interruptions.



POWER QUALITY PERFORMANCE

Peninsular Malaysia

In Peninsular Malaysia, power quality performance is measured by the $SARFI_x$ index whereby (x) is the maximum level of recorded cases. For example, $SARFI_{90}$ means the average number of voltage dip incidents with voltage dipping below 90% of the normal value.

To monitor SARFI performance, a total of 150 power quality recording devices were installed in 2012 at main intake stations (PMU) in several states in Peninsular Malaysia. Industrial consumers submitted complaints about voltage dips that were recorded at these 150 Primary Substations installed with power quality recorders. Statistics for average voltage dip incidents that were reported according to voltage levels for states in the peninsula are shown below.

$SARFI_x$ FOR 11 KV, 22 KV, 33 KV VOLTAGE LEVEL AND OVERALL SYSTEM FOR PENINSULAR MALAYSIA STATES IN 2012

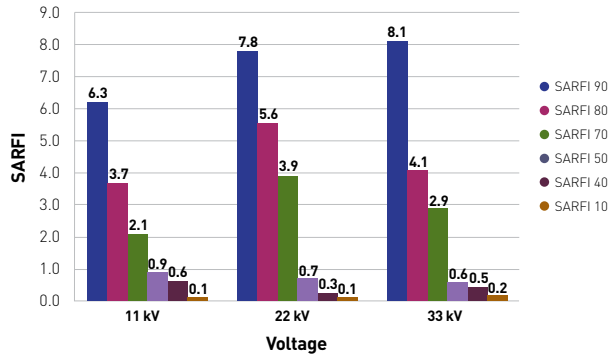
State	$SARFI_x$ - System 11 kV						$SARFI_x$ - System 22 kV						$SARFI_x$ - System 33 kV						$SARFI_x$ - Overall System					
	90	80	70	50	40	10	90	80	70	50	40	10	90	80	70	50	40	10	90	80	70	50	40	10
Johor	5.60	2.90	1.80	0.50	0.20	0.10	8.38	6.08	4.15	0.77	0.31	0.15	6.00	2.50	1.50	-	-	-	6.16	4.16	2.84	0.60	0.24	0.12
Kedah	7.20	3.80	1.80	0.80	0.40	-	-	-	-	-	-	-	14.86	8.57	6.29	0.71	0.57	0.14	10.69	6.08	4.00	0.54	0.38	0.08
Kelantan	-	-	-	-	-	-	-	-	-	-	-	-	58.33	35.67	28.67	3.33	2.67	1.67	58.33	35.67	28.67	3.33	2.67	1.67
Melaka	5.63	4.38	2.75	0.75	0.50	0.13	-	-	-	-	-	-	-	-	-	-	-	-	5.63	4.38	2.75	0.75	0.50	0.13
N. Sembilan	4.89	2.33	1.78	0.44	0.22	-	-	-	-	-	-	-	13.00	5.00	3.00	1.00	-	-	5.70	2.60	1.90	0.50	0.20	-
Pahang	9.13	4.63	2.63	1.38	1.13	0.13	-	-	-	-	-	-	-	-	-	-	-	-	8.11	4.11	2.33	1.22	1.00	0.11
P. Pinang	1.75	0.50	0.50	0.25	0.25	-	-	-	-	-	-	-	7.14	2.29	1.43	0.86	0.71	0.14	5.18	1.64	1.09	0.64	0.55	0.09
Perak	9.44	5.78	3.11	1.56	1.00	0.22	-	-	-	-	-	-	10.86	4.71	2.14	-	-	-	8.53	4.53	2.35	0.82	0.53	0.12
Perlis	19.00	13.00	6.00	2.00	1.00	-	-	-	-	-	-	-	16.00	8.00	6.00	3.00	1.00	-	13.00	8.50	5.00	2.50	1.00	-
Selangor	-	-	-	-	-	-	-	-	-	-	-	-	3.88	1.33	0.83	0.33	0.29	0.21	3.72	1.28	0.80	0.32	0.28	0.20
Terengganu	11.29	6.14	3.29	1.86	1.43	0.43	-	-	-	-	-	-	8.00	4.00	3.00	2.00	2.00	-	10.63	5.75	3.25	1.88	1.50	0.38
K. Lumpur	3.33	2.00	0.67	-	-	-	-	-	-	-	-	-	4.58	1.83	1.17	0.67	0.42	0.25	3.73	1.53	1.00	0.53	0.33	0.20
Putrajaya/ Cyberjaya	10.33	3.67	2.33	1.67	1.33	-	-	-	-	-	-	-	18.00	7.00	4.00	2.00	2.00	-	9.25	3.50	2.25	1.25	1.25	-
TNB	**6.32**	**3.72**	**2.13**	**0.90**	**0.63**	**0.12**	**7.79**	**5.64**	**3.86**	**0.71**	**0.29**	**0.14**	**8.13**	**4.13**	**2.94**	**0.61**	**0.46**	**0.22**	**6.77**	**3.85**	**2.57**	**0.71**	**0.50**	**0.17**

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

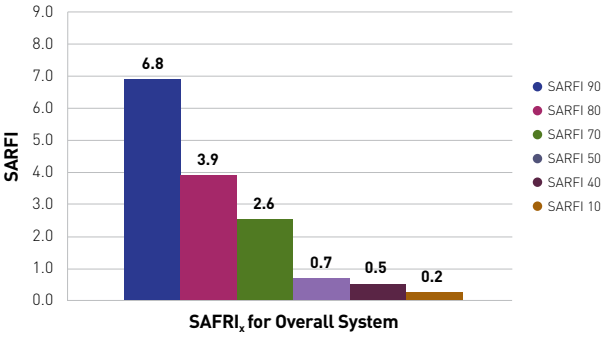
ensuring reliable and efficient energy supply at reasonable prices (continued)

The following chart shows the comparison of accumulated $SARFI_x$ for 11 kV, 22 kV, 33 kV systems and the overall system in 2012, where the 33 kV system had recorded a higher level of $SARFI_{90}$ than the 11 kV and 22 kV systems. For the overall system $SARFI_{90}$ had recorded a high incident average of 6.8.

$SARFI_x$ FOR 11 KV, 22 KV AND 33 KV SYSTEMS IN PENINSULAR MALAYSIA IN 2012



$SARFI_x$ FOR THE OVERALL SYSTEM IN 2012



A total of 103 power quality complaints from 48 industrial consumers were recorded in 2012, an increase of 10.8% when compared to 93 complaints in 2011.

To tackle power quality incidents that often occur in Peninsular Malaysia's industrial areas, TNB had also provided consultancy services for the consumers involved to gather feedback and initiate the appropriate follow up action.

The Distribution Division of TNB had appointed TNB Energy Services to carry out power quality services at consumers' premises upon any request from them for equipment testing. Additionally, the cost for the consultancy services was fully borne by TNB's Distribution Division. In 2012, a total of 32 major power consumers in Peninsular Malaysia states were provided with power quality services. They were located in Johor (9), Kedah (1), Kuala Lumpur (1), Melaka (1), Negeri Sembilan (3), Perak (3), Pulau Pinang (3), Selangor (10) and Terengganu (1).

Of the 32 consumers who filed complaints on power quality, 14 were fully provided with power quality services by TNB.

POWER QUALITY COMPLAINT STATISTICS RECORDED ACCORDING TO PENINSULAR STATES IN 2012

State	No. of Voltage Dip Incident	No. of Consumers Involved	Consultancy Services			Power Quality Services (TNBES)		
			Compliant	Completed	(%)	No.	Completed	(%)
K. Lumpur	56	6	13	13	100.0	1	-	-
Putrajaya/ Cyberjaya	37	-	-	-	-	-	-	-
Selangor	93	16	27	27	100.0	10	3	30.0
Johor	154	7	14	14	100.0	9	5	55.6
Melaka	45	2	4	4	100.0	1	-	-
N. Sembilan	57	3	3	3	100.0	3	-	-
Kelantan	175	-	-	-	-	-	-	-
Pahang	73	1	1	1	100.0	-	-	-
Terengganu	85	1	1	1	100.0	1	1	100.0
Kedah	139	-	-	-	-	1	1	100.0
Perak	145	5	15	15	100.0	3	-	33.3
Perlis	26	-	-	-	-	-	-	-
P. Pinang	57	7	25	25	100.0	3	3	100.0
Total	**1,016**	**48**	**103**	**103**	**100.0**	**32**	**14**	**43.8**

Nota : The total number of voltage dip incidents was not the sum of every state's total unique incidents. Some incidents were similarly reported in several states.

The comparison of the number of power quality complaints recorded in 2011 and 2012 showed that voltage dip incidents reported in 2012 had increased. The increase was due to more recording devices being installed; from 100 units in 2011 to 150 units in 2012.

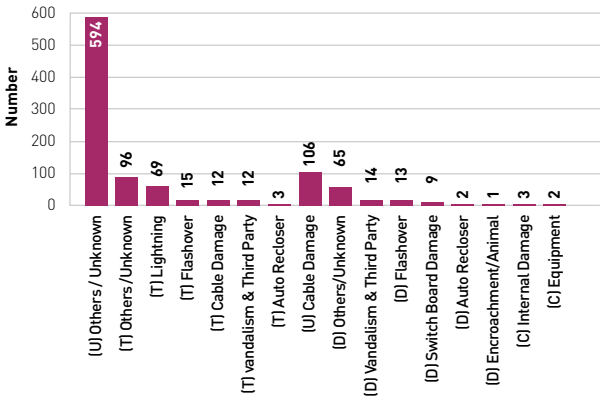
The installation of additional recording devices meant that more voltage dip incidents could be recorded compared to the previous year.

COMPARISON OF POWER QUALITY COMPLAINTS IN 2011 AND 2012

Year	Number of Voltage Dips	Consumers Involved	Consulting Services			Power Quality Services		
			Complaints	Complete	(%)	No.	Complete	(%)
2012	1,016	48	103	103	100	32	14	44
2011	750	46	93	93	100	35	19	54

The main causes of voltage dips caused by (U) other sources/ unknown have recorded the highest number from overall causes.

THE CAUSES OF VOLTAGE DIPS RECORDED IN 2012



Nota : The descriptions of each category for specified causes for the above voltage dip graph are as follows:

(U) Others/Unknown	i) Unsure/unidentified cause (no supply interruption record) ii) Incipient/transient fault that did not become permanent damage
(T) Others/Unknown	Apart from flash, cable, flashover, third party/ vandalism and Auto Recloser in transmission system
(D) Others/Unknown	Apart from cable, flashover, the third party/vandalism, Auto Recloser, encroachment on the Distribution system
(T) Flashover/(D) Flashover	Damage to switch gears and transformer in the transmission system (T) and distribution (D)
T	TNB transmission system
D	TNB distribution system

ACTION PLAN TO REDUCE POWER QUALITY INCIDENTS

Peninsular Malaysia

To address power quality problems that occur often in major industrial areas in Peninsular Malaysia, TNB has implemented an action plan that include conducting several seminars or dialogues with the users and programmes to reduce the causes of power quality events. The purpose of the seminar and dialogue is to enhance the knowledge and understanding of the management of consumers on power quality problems.

Several activities and initiatives were carried out by TNB to reduce the causes of power quality events, namely:

a) Action plan to reduce damage of underground cables;

Initiatives undertaken include conducting tests on cable insulation through the Polarity Index/Dielectric Absorbtion Ratio (PI/DAR) and Partial Discharge (PD) test through Oscilating Wave Test Set (OWTS). This Condition Based Maintenance (CBM) technique enables the potential damage to be repaired to avoid further damage. There were also replacements of old cables with repeated damage records and small sized cables.

b) Action plan to reduce transient interference;

Initiatives undertaken include conducting CBM activities, tracking using Transient Earth Voltage (TEV) and Ultrasound method for switchgears, besides conducting CBM for medium voltage overhead line installations.

Kulim Hi-Tech Park (KHTP)

Generally, power quality problems such as voltage dips will cause power failure for several milliseconds and thus affect the sensitive operations at the industrial premises.

The main causes that contributed to the voltage dips were lightning, transmission system faults, switching activities, and third party interference by dredging work causing cable damage. The incident can occur in the line or cable that is located many miles away from the involved consumers.

ensuring reliable and efficient energy supply at reasonable prices (continued)

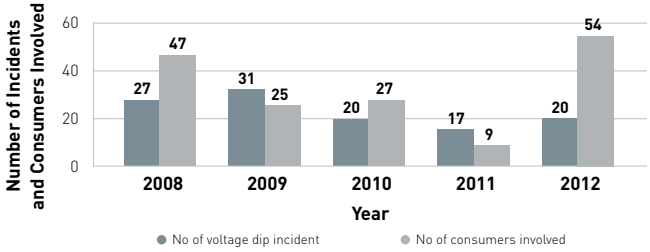
KHTP is an industrial area which houses international companies that carry out high technology activities. In 2012, 20 incidents of voltage dips were reported, an increase of 17.6% from the 17 incidents in 2011.

The number of consumers involved in voltage dip incidents also had significantly increased from 9 consumers in 2011 to 54 consumers. The most number of consumers involved was reported in October 2012, where there were 34 major high technology industry consumers whose operations were affected in KHTP. This increase was caused by two tripping incidents in October 2012, due to TNB transmission system, namely:

- Tripping of 275 kV line from Junjong to Bukit Tengah; and
- Tripping of 132 kV line from Kuala Ketil to Guthrie.

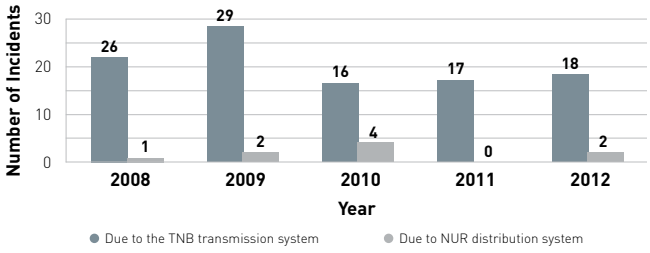
These two trips were caused by lightning and each involved 17 consumers.

NUMBER OF VOLTAGE DIPS AT THE KULIM HI - TECH PARK REPORTED BY NUR DISTRIBUTION SDN BHD 2008 TO 2012



The year 2012 showed 18 incidents reported due to the supply system and 2 incidents involving NUR internal systems.

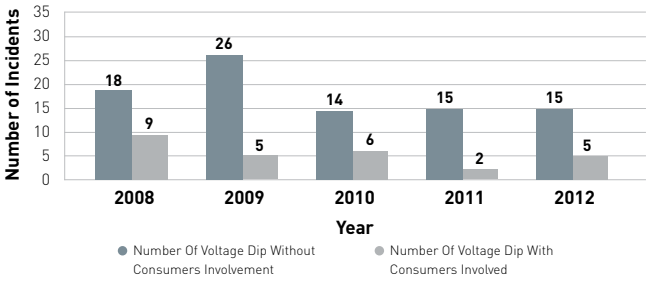
STATISTICS OF VOLTAGE DIP INCIDENTS THAT AFFECTED SUPPLY TO CONSUMERS IN 2008 TO 2012



Incidents such as the tripping of transmission line, cable damage, switching or auto reclosing, transient or lightning damage and others are the main causes that triggered voltage dip incidents in TNB grid system. The causes of the incidents from NUR Distribution Sdn Bhd distribution system involved online trips, cable damage, switchgear, transformers and other equipment damages.

In other words, any incident in the northern TNB grid system or distribution system for NUR Distribution Sdn Bhd in KHTP will also affect the supply of electricity to consumers, especially for those with equipment for precision – based manufacturing process.

STATISTICS OF VOLTAGE DIP INCIDENTS INVOLVING CONSUMERS AND NOT INVOLVING CONSUMERS IN 2008 TO 2012 YEAR.



The number of voltage dips involving consumers in 2012 had increased from two to five incidents in 2011. However, the number of voltage dip incidents not involving consumers reported no increase and remained at 15 incidents.

Power Quality Baseline Study

The Power Quality Baseline Study that began in April 2010 had been extended till February 2013 to obtain the recorded data by PQ Monitors up to January 2013 for the Central and Southern areas.

The study was conducted to assess the level of Malaysian power quality to enable the formulation of related standards of power quality. Data collection for Power Quality Baseline Study of Electricity Supply in the peninsula through the installation of PQ Monitors for the year had been completed at 25 locations in the North and the East Coast. PQ Installation Monitors at 25 locations for Central and Southern area was also done and recorded data up to January 2013 will be obtained.

Collection of data through data logger installation for 500 installations had been completed throughout Peninsular Malaysia.

Data collected up to October 2012 have been analysed and presented at a Power Quality Stakeholders Workshop held on October 22, 2012.

Addressing Power Quality Issues

During the PEMUDAH meeting No. 10/2012 held on 6 November 2012 and chaired by the National Chief Secretary AMCHAM, a white paper about consumers' concerns on current trends related to power quality, especially voltage dip incidents that affected the semiconductor factories' operations was presented, followed by a recommendation that the matter should be addressed promptly.

A Working Group on Power Quality was set up on 19 November 2012, and a meeting was held to discuss on power quality issues faced by AMCHAM and their companies. The meeting was attended by AMCHAM, Texas Instruments, Western Digital, Freescale Semiconductor, TNB and GTIM (ST's consultant for the PQ Baseline Study).

From then on, ST organised a Stakeholder Engagement on Power Quality Management Workshop' at the Hotel Equatorial Bangi. The workshop was attended by 40 participants representing ST, KeTTHA, MIDA, TNB, AMCHAM and the industry, NUR and GTIM, with the aimed of sharing information on the current situation related to power quality, identifying power quality related issues as well as finding possible solutions to reduce the risks related to power quality.

Several solutions were recommended during the workshop, all of which will be presented at the next PEMUDAH meeting.

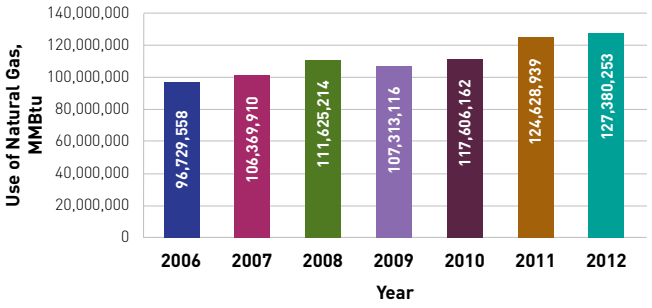
PRESENT SITUATION AND DEVELOPMENT OF SUPPLY OF NATURAL GAS AND LIQUEFIED PETROLEUM GAS (LPG) THROUGH PIPELINE

Peninsular Malaysia

In 2012, the volume of natural gas supplied by Gas Malaysia Bhd (GMB) to the non-energy sector remained the same at 382 mmscfd. The total supply of natural gas is expected to increase in mid 2013 with an additional 500 mmscfd after the RGT at Sungai Udang, Melaka become fully operational.

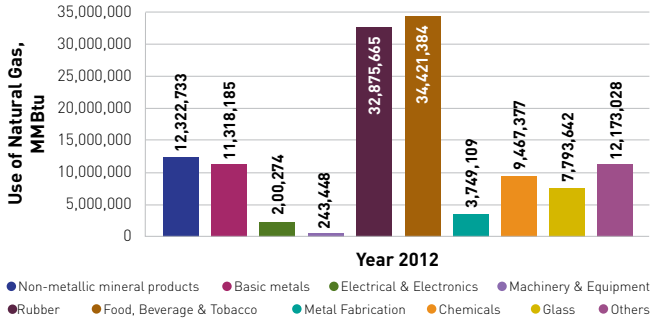
The quantity of natural gas supplied by GMB increased by 2.21% to 127,380,253 MMBtu in 2012 compared to 124,628,939 MMBtu in 2011. The industrial sector was the major natural gas consumer using 126,364,815 MMBtu equivalent to 99.20% of the total consumption. The commercial sector used 990.892 MMBtu (0.78%) and 24.546 MMBtu (0.02%) was used by the residential sector.

TOTAL NATURAL GAS CONSUMPTION IN PENINSULAR MALAYSIA



The following graph shows that the food, beverages and tobacco sub-industry had the highest total consumption of 34,421,384 MMBtu.

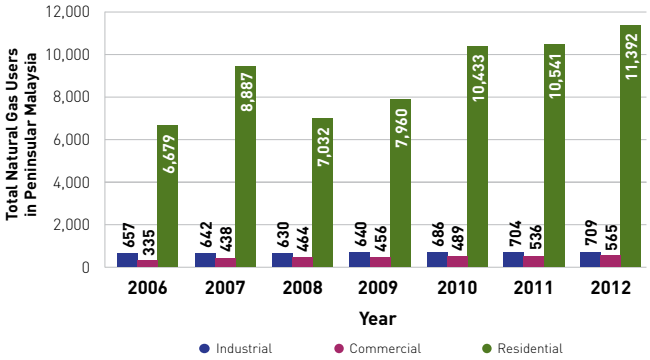
NATURAL GAS CONSUMPTION BY SUB-INDUSTRY CATEGORY IN PENINSULAR MALAYSIA IN THE YEAR 2012



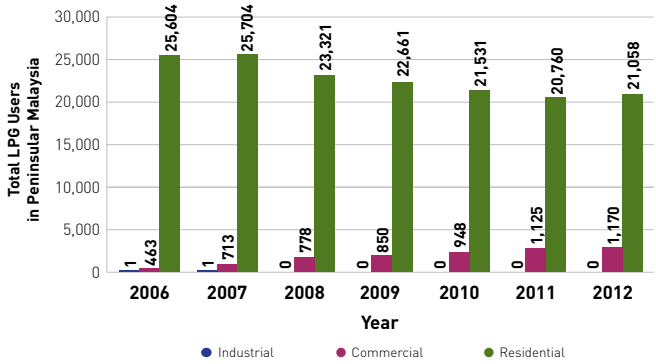
The number of natural gas consumers in the peninsula showed an increase in all the three sectors. The total number of consumers for all the three sectors were 709 for the industry, 565 for the commercial and 11,392 for the residential sector.

ensuring reliable and efficient energy supply at reasonable prices (continued)

NUMBER OF NATURAL GAS CONSUMERS IN PENINSULAR MALAYSIA

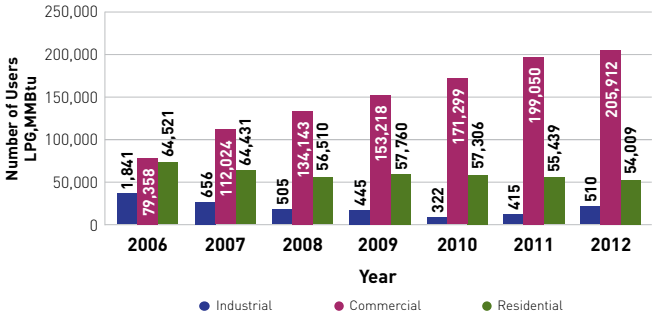


NUMBER OF LPG CONSUMERS IN PENINSULAR MALAYSIA



The quantity of LPG supplied by GMB was 260.431MMBtu, an increase of 2.17% in 2012 compared to the 254.904 MMBtu in 2011. The commercial sector was the main consumer with the use of 205.912 MMBtu equivalent to 79.07% of the total LPG consumption. Meanwhile, the housing sector used 54.009 MMBtu (20.74%) and the industrial sector used 510 MMBtu (0.19%).

TOTAL LPG CONSUMPTION IN PENINSULAR MALAYSIA

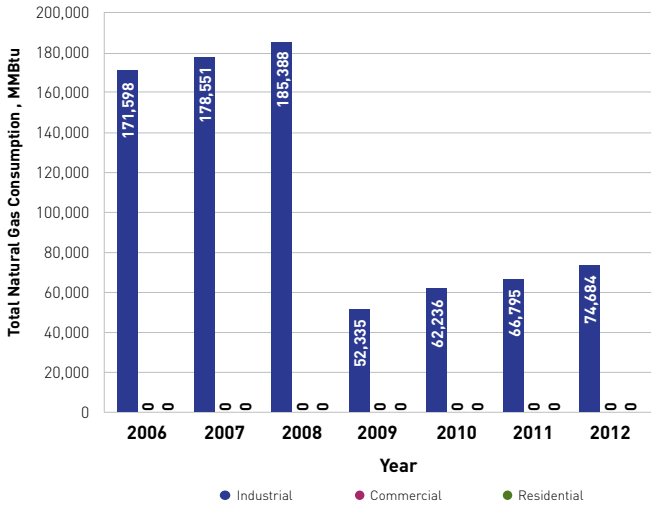


The number of LPG consumers in the housing sector in the peninsula increased by 1.44% from 20.760 users in the 2011 to 21,058 consumers in 2012. The commercial sector also experienced an increase of 4.00% from 1,125 consumers in 2011 to 1,170 consumers in 2012, while there were no LPG industry consumers since 2008.

Sabah and the Federal Territory of Labuan

The introduction to the Virtual Pipeline System project by the Sabah Energy Corporation Sdn. Ltd. (SEC) is expected to encourage the growth in the natural gas industry there. The project will supply compressed natural gas to premises that operate outside KKIP. The proposed virtual technology pipeline system is based on the mother–daughter station concept. In 2012, two (2) new customers signed an agreement with SEC and gas supply through the Mother-Daughter arrangement and are expected to start operations in March 2013.

TOTAL NATURAL GAS CONSUMPTION IN SABAH AND LABUAN



SERVICE PERFORMANCE OF GAS SUPPLY THROUGH PIPELINES

Continuity of Gas Supply

Overall, the performance of the gas supply has decreased compared to 2011, whereby GMB's SAIDI increased due to high long periods of supply disruptions reaching 16,000 hours in November 2012 and that made the SAIDI to increase by 0.7489 for the year. The majority of the disruptions and leaks occurred in the housing sector as it has the highest number of consumers compared to the industrial and commercial consumers.

To overcome this problem, the licensee has raised the level of inspection and maintenance, besides identifying and implementing more effective preventive measures.

GMB PERFORMANCE INDICATORS (UNTIL NOVEMBER 2012)

Guidance Performance	Unit	Index 2010	Index 2011	Index 2012
SAIDI	Minutes/ customer /Year	0.6299	0.3630	0.7489
SAIFI	Interruptions/ customer /Year	0.0037	0.0039	0.0029
CAIDI	Minutes / interference	169.27	90.96	260.90
Leakage along the gas pipe for every 1000 Km	Number of leakages /1000 Km	7.2343	0.003827	0.0037
Leakage at station & premises of consumers for every 1000 customer	Number of leakages /1000 customer	6.7983	0.003615	0.0050

Note : SAIDI = System Average Interruption Duration Index
SAIFI = System Average Interruption Frequency Index
CAIDI = Customer Average Interruption Duration Index

Supply Service Quality

In 2012, 272 complaints were received by Gas Consumption Licensees. Complaints regarding the service of gas supply through pipelines were delivered directly to the licensee. All complaints received were divided into two categories i.e supply interruptions and leakages.

Gas supply interruptions occurring at the consumers' premises are caused by closed valves, faulty meters or pressure regulators. The licensee had repaired the conditions within the stipulated period. The gas leakages were caused by faulty pipe connections especially at the union connections, meters and pressure regulators. All the reported leakages were minor leakages that occurred at the consumers' premises and were repaired promptly.

In 2012, a total of 29,640 inquiries about the gas bills, bills payments, gas prices, billing complaints, new customer registrations and reconnections had been recorded.

NUMBER OF COMPLAINTS RECEIVED BY LICENSEE

	Supply Interruption			Supply Leakage			
	Industrial	Commercial	Domestic	Industrial	Commercial	Domestic	Total
Natural gas	3	4	21	28	7	27	**90**
LPG	0	19	51	0	27	83	**180**
Total	**2**	**23**	**72**	**28**	**34**	**110**	**270**

FUEL PRICE MONITORING AND ELECTRICITY TARIFF

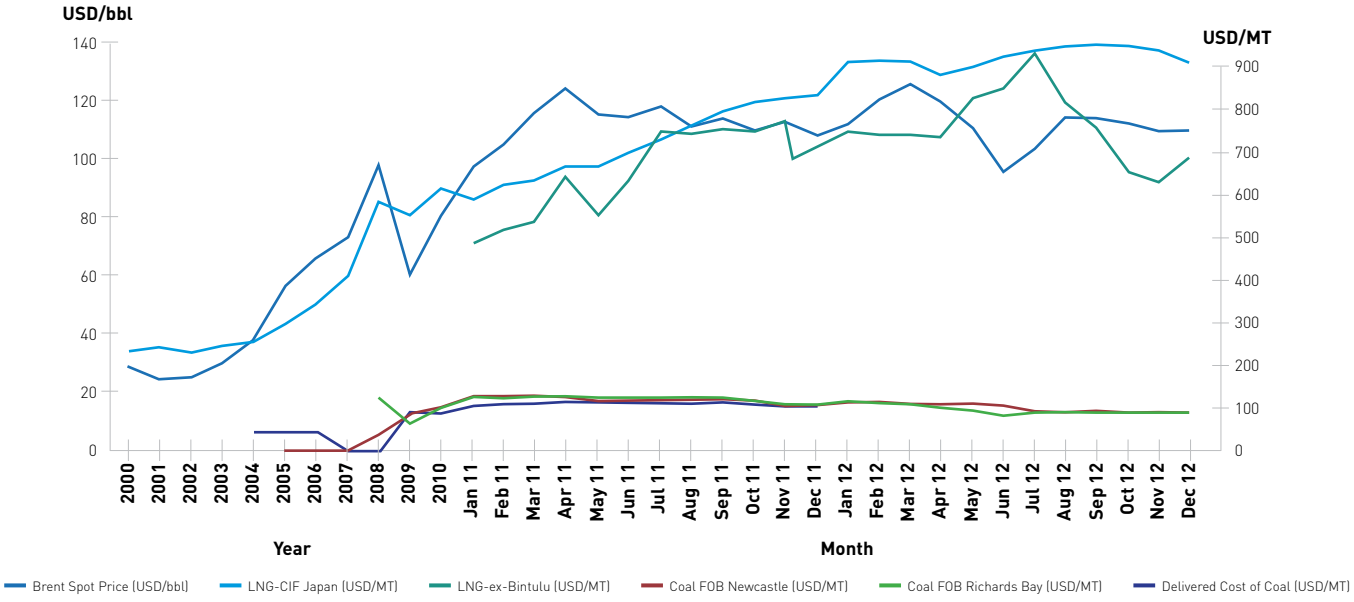
World Oil and Fuel Prices Flow

The internationally used indicator for world crude oil prices i.e the Brent Spot Price recorded values above USD 100 a barrel during the financial year of 2012. The highest level was recorded in March with USD125 per barrel. However, the Newcastle Free On Board (FOB) and Richard Bay coal price declined in 2012 due to the lower exchange rate of the USD, lower rate of bunker and higher demand of coal supply compared to the demand in the year. Thus, the price of coal traded below USD 100 per tonne as shown in the diagram.

ensuring reliable and efficient energy supply at reasonable prices (continued)

The ex-Bintulu LNG price, showed a downward trend at the end of 2012, from a peak in July 2012 at USD920/ton to USD680/ton in December 2012.

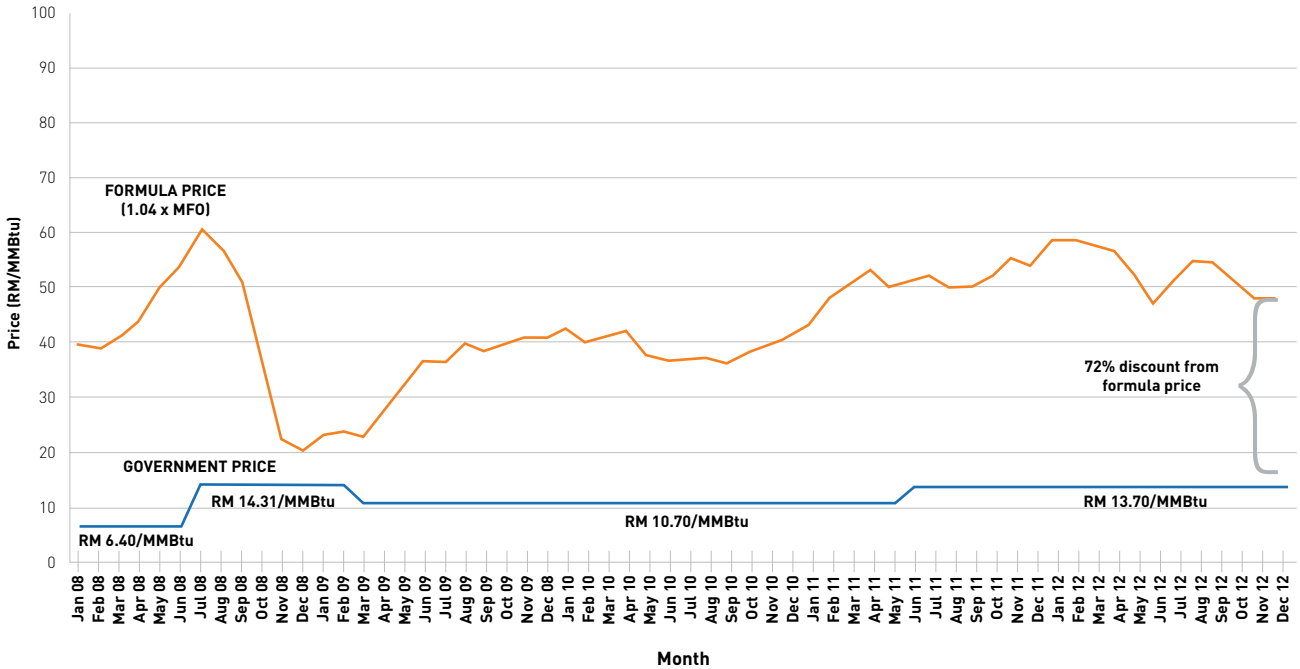
AVERAGE PRICE OF WORLD FUEL



Difference in Gas Price (Formula) and the Government Stipulated Gas Prices for the Electrical Sector

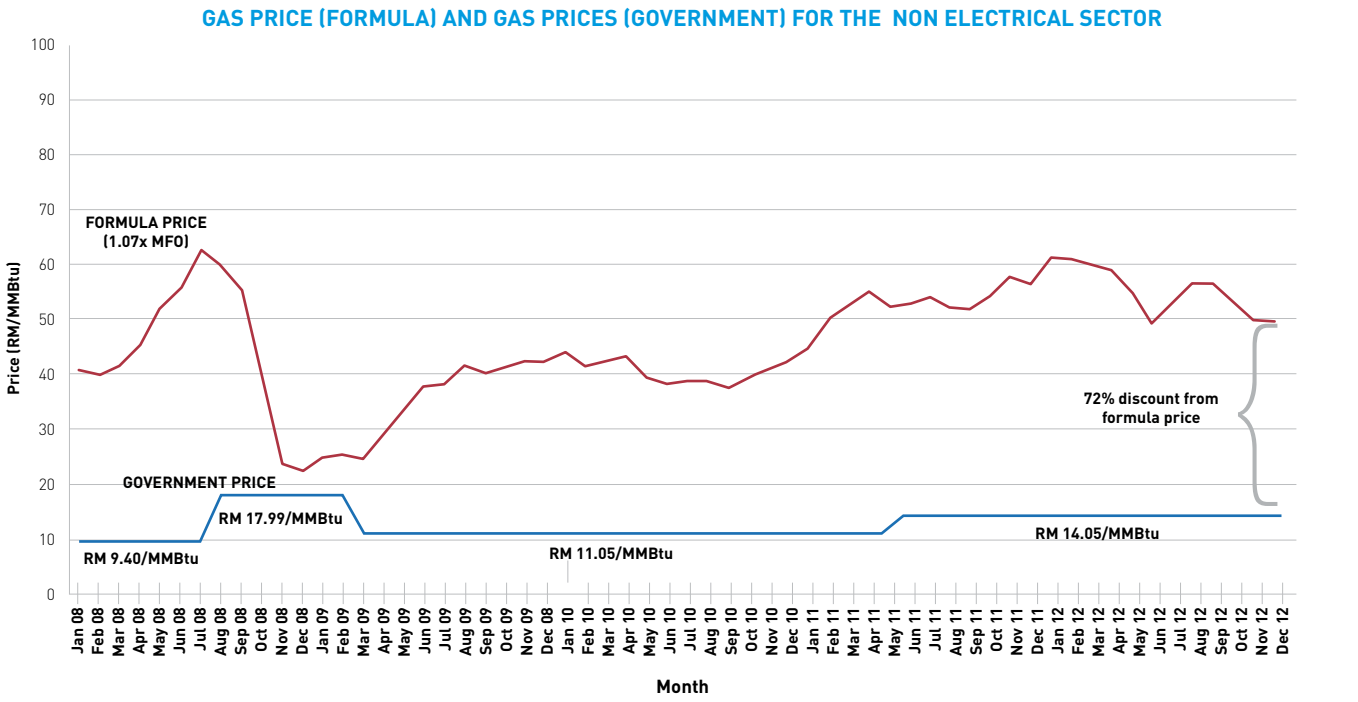
The last electricity tariff adjustment was made in June 2011 during which the average tariff rate in Peninsular Malaysia was adjusted from 31.31 cents/kWh to 33.54 cents/kWh, an increase of 7.12%. In maintaining the average electricity tariff at a stable level of 33.54 sen/kWh, Government had allocated a discount gas price of 72% from the gas price (formula) to the power sector. This subsidy allocation helped to alleviate the problem of people and the industry.

GAS PRICE (FORMULA) AND GAS PRICES (GOVERNMENT) FOR THE ELECTRICITY SECTOR



Difference in Gas Price (Formula) and the Government Stipulated Gas Prices Non-Electrical Sector (GMSB)

For the non-electrical sector, the gas price had increased from RM11.05/MMBtu to RM14.05/MMBtu during the electricity tariff revision in June 2011. Similar to the electrical sector, the non-electrical sector also enjoyed the discount on the gas price of 72% (formula) as shown in the diagram below to assist the industry in facing the uncertain global economic situation.



Natural Gas Tariff And Price of LPG in Peninsular Malaysia

The price of natural gas supplied by Petronas to GMB (the licensee) remained unchanged from the 2011 level. Throughout 2012 the average natural gas tariff was RM16.07/MMBtu.

Total Rate Category	Gas Consumption (mmBtu/tahun)	Fare (RM/mmBtu)
A	0	19.52
B	0-600	20.61
C	601-5000	13.98
D	5001-50,000	14.61
E	50,001-200,000	16.07
F	200,001-750,000	16.07
G	>750,001	16.45

Liquefied Petroleum Gas (LPG) prices for the housing sector supplied by GMB is divided into three categories. LPG price for low-cost housing premises category were set with a price subsidy of 12kg or 14kg LPG per cylinder stipulated by the Government. The price of LPG for the the medium cost categories and high cost categories at resedential premises are based on market prices.

Natural Gas Price and LPG price In Sabah and Labuan

The price of natural gas supplied in Sabah and Labuan are based on sales and purchase gas agreement between the licensee, SEC and the user based on Section 18 of the Gas supply Act in 1993 due to limited demand.

ensuring reliable and efficient energy supply at reasonable prices (continued)

Trial-Run of Incentive-Based Regulation (IBR) As The New Policy For Electricity Tariff Setting in Peninsular Malaysia

In 2012, ST actively implemented the trial run to review electricity tariffs in Peninsular Malaysia based on the IBR financial year framework of 2013 to 2014. The implementation of IBR trial-run was initiated with the following actions:

- Issuance of Final Rule Implementation Guidelines (Electricity Regulatory Implementation Guidelines-Rigs) on 13 February, 2012 to TNB as preparation for the adoption of IBR framework;
- Finalising the principle of fuel cost pass through mechanism (Imbalance Cost Pass-Through-ICPT) and measuring service standard of TNB Key Performance Indicators (KPI) under IBR regime with stakeholders through a consultation session held in June 2012;
- As a result of the consultation process and the arrangements of ICPT, the revised fuel cost pass through for the first half year (December 2011-May 2012) was approved by ST top management and forwarded to the Minister for consideration and information;
- Finalising TNB Key Performance Measures proposed according to the Regulatory Implementation Guideline No 6 for TNB distribution and transmission business entity; and
- TNB also proposed its first electricity tariff revision based on IBR on 30 November 2012 through TNB's IBR Report and Tariff Review Submission FY 2014 – FY 2017 prepared in accordance with RIGs guidelines.

If the result of the trial-run electricity tariff revision based on IBR resolution is well received by consumers and Government, the duration of September 2013 to August 2014 would be the period for improving the process of IBR before full implementation beginning in September 2014 until the end of August 2017 or any date as determined by the Government.

The IBR concept will be pioneering the new change in reviewing, making and determination of electricity tariff that ensures only cost-efficient processes are included in the revised electricity tariff proposal. At the same time, a reasonable rate of return will be given to the utility so that the incentive for performance will be improved. It also stimulates transparency in the Government decision making, tariff mechanism and formulation and provide clear guidance to the utilities. Indirectly it also gives guidance to consumers and the Government to be informed about any tariff adjustments from time to time.

Revised Study on Connection Charges of Tenaga Nasional Berhad

Introduced since 1995, the connection charges imposed by TNB upon electricity users has yet to be reviewed up to date, taking into account price change and the current inflation rate. The last revision study was submitted by TNB in the tariff restructuring proposal in 2009. However, the connection charges revision proposal was postponed to give way for the adjustment of the electricity tariff in Peninsular Malaysia that was decided in June 2011.

To ensure that the rates charged to consumers is in line with the cost to be borne by TNB, the Commission has initiated a review of the connection charges of TNB consumers beginning early 2012. For this, TNB has submitted a draft of the consumer connection charges proposal in March 2012. At the end of 2012, discussions with TNB on the proposal were still on going. The study is expected to be completed in 2013 and will be brought to the Government for consideration and approval.

Ensuring Secure Energy Supply

ST is ever facing challenges in ensuring that the country's energy supply is sufficient and secure. Apart from monitoring generation activities, ST puts serious attention towards supplying electricity and fuel for the generation sector.

ensuring secure energy supply

ELECTRICITY SUPPLY SITUATION

Peninsular Malaysia

The generation capacity development plan for the peninsula was presented to the Electricity Supply and Tariff Planning and Implementation Working Committee (JPPPET) on October 2012. The Gross Domestic Product (GDP) growth rate and the maximum demand of electricity used were as follows:

GDP GROWTH RATE AND THE MAXIMUM DEMAND OF ELECTRICITY

Duration	October 2012 projection	
	GDP (%)	Maximum Requirement (%)
2012 - 2015	5.7	3.6
2016 - 2020	5.9	3.3
2021 - 2030	6.2	1.6

Based on the projected electricity requirements approved by JPPPET, the required additional generation is 10,882 MW for 2015 to 2020 and a total of 12.213 MW for 2021 to 2030.

ADDITIONAL GENERATION CAPACITY UNTIL 2020

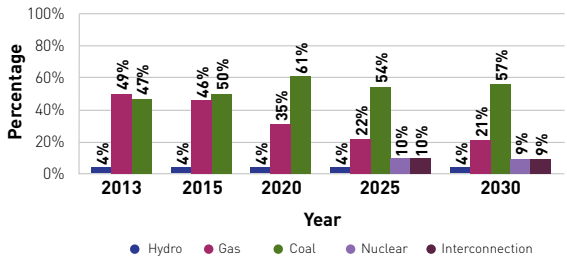
Year		
2015	Coal based generation station Manjung 4	1,010 MW
	Connaught Bridge Repowering Station	343 MW
2016	Hydro generation station of TNB Hulu Terengganu	265 MW
	Hydro generation station of TNB Ulu Jelai	372 MW
	Coal based generation station Tanjung Bin Energy	1,000 MW
	Combined cycle generation station Prai Sdn Bhd	1,071 MW
	Operation extension of combined cycle generation station Genting Sanyen	675 MW
2017	Cogeneration PETRONAS generation station, Pengerang	400 MW
	Operation extension of combined cycle generation Segari Energy Venture	1,303 MW
	Operation extension of combined cycle generation TNB Pasir Gudang	275 MW
	Coal based generation station through bidding process Track 3	1 x 1,000 MW
2018	Additional capacity for hydro generation station of Chenderoh 5	12 MW
	Coal based generation station through bidding process Track 3	1 x 1,000 MW
2019	Hydro generation station Tekal	156 MW
	Coal based generation station through bidding process Track 3B	1 x 1,000 MW
2020	Combined cycle gas generation station	1 x 1,000 MW
	Total	**10,882 MW**

To ensure diversification of energy sources, the Government is considering electricity supply options through online transmission of High Voltage Direct Current (HVDC) from Sarawak with a total capacity of 2,000 MW for operation from the year 2021.

The option of nuclear power stations development requires an in-depth study and remains as a technology option to meet the long-term demand in the future. Therefore, gas and coal based generation are still preferred options for the short and medium terms.

The generation capacity development plan has taken into account the maximum gas supply provisions at 1,350 mmscfd with gas prices gradually increasing until market prices are achieved in 2016.

PROJECTION OF GENERATION MIX IN PENINSULAR MALAYSIA 2013 TO 2030



Sabah

In Sabah, besides power supply issues, the problems caused by most of the diesel power stations and low quality MFO has resulted in a decline in generation capacity due to the cessation of operations of the power station owned by Sandakan Power Corporation Sdn. Bhd (SPC). In addition, there were IPP power stations which suffered cash flow problems resulting in interruptions to fuel supply and thus limiting the generation from the station.

SPC with a capacity of 32 MW has filed a notice to terminate its PPA on 15 October, 2011. According to SPC, the termination had to be done due to safety factors, lack of insurance coverage and weak financial position. Following the cessation of operations, the licence was terminated on 29 May, 2012 while the Power Purchase Agreement between SPC and SESB was terminated on 16 October 2012.

Mitigation measures have been taken in the short term to overcome this problem, such as new capacity creation and implementation of initiatives to improve reliability of available power stations.

COMPARISON OF SABAH SUPPLY SITUATION

	West coast	East Coast	Total
Peak demand (MW)	472.8	280.0	752.8
Potential capacity (MW)	799.0	331.0	1130.0
Reserve margin (%)	68.9	18.2	50.1
Existing capacity (MW)	670.2	164.6	834.8
Operation Reserve (%)	41.8	-41.2	10.9

In addition, the implementation of generation power projects in Kimanis (385 MW) and Lahad Datu (300 MW) will increase the capacity of gas-based power generation from 585 MW to 1,270 MW in 2016. By having these stations, most of the diesel generating capacity may be discontinued with consumption of MFO being reduced. Several generation projects based on Renewable Energy sources with a capacity of 73.2 MW have also been approved to start work in 2013-2016. This will contribute to a more reliable, environmentally friendly and cost effective supply.

However, over-reliance on gas resources should be reduced. The output of the RE stations are often uncertain as it depends on fuel supplies, particularly oil palm waste. Long term planning should also consider resource diversification. Options to acquire supply from Sarawak with a huge potential of hydroelectric power, is being studied at utility level. For this purpose, new transmission lines construction and upgrading of the existing transmission system need to be done first.

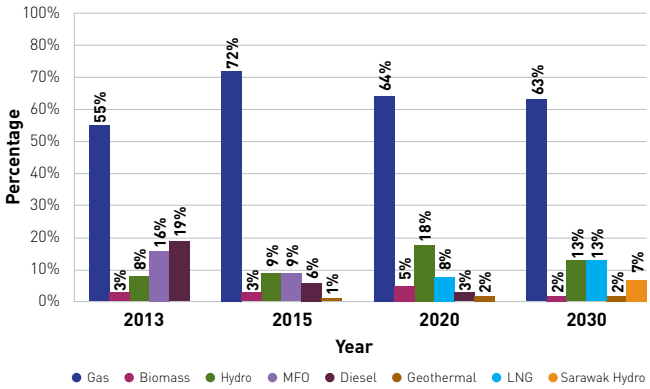
For long-term planning, the new power station projects approved by JPPPET are as follows:

COMPARISON OF SUPPLY SITUATION IN SABAH

Project	Capacity	Fuel	Target Year
S.J Kubota, Tawau (Relocation)	64 MW	Gas	January 2012
SREP Kalansa	6.5 MW	Biomass	2013
SREP Cash Horse	12 MW	Biomass	2013
SREP Afie Power	8.2 MW	Hydro	2013
SREP Eco-Biomass	20 MW	Gas	2013
SREP Tawau Green Energy	30 MW	Geothermal	2014
S.J Batu Sapi (Rehabilitation)	20 MW	Gas	2013
S.J Tenom Pangi (Upgrade)	8 MW	Hydro	2014
SPR Energy(M) Sdn Bhd	100 MW	Gas	2013
Kimanis Power Sdn Bhd	300 MW	Gas	2013 – 2014
Eastern Sabah Power Consortium Sdn Bhd (ESPC)	300 MW	LNG	2015 – 2016
Upper Padas Hydroelectric	180 MW	Hydro	2018

With the operation of new gas powered stations in 2013-2016, the consumption of diesel and MFO connected to the grid is expected to be reduced. To ensure optimal fuel mix, channeling of energy from Sarawak is required while the use of Renewable Energy using Biomass and Geothermal energy will be further intensified. Considering these factors, the generation mix projection will be as follows:

GENERATION MIX PROJECTION IN SABAH 2013 UNTIL 2030



ensuring secure energy supply (continued)

NATIONAL FUEL SUPPLY SITUATION FOR THE GENERATION SECTOR

Gas Supply to Electricity Generation Sector in Peninsula

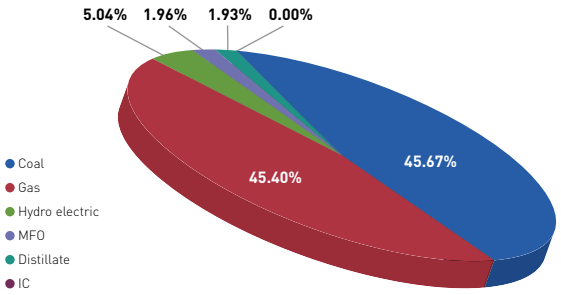
2012 witnessed the continued reliance on gas and coal as the primary fuel source for generation. The percentage of generation mix in 2010, 2011 and 2012 were as follows:

GENERATION MIX PERCENTAGE

Fuel	2010	2011	2012
Gas	52.8	42.7	45.4
Coal	41.6	44.7	45.7
Hydro	5.1	5.6	5.0
Others	0.4	7.0	3.9

The percentage increase in coal-based generation is due to gas supply shortage to the energy sector from PETRONAS.

GENERATION MIX YEAR 2012

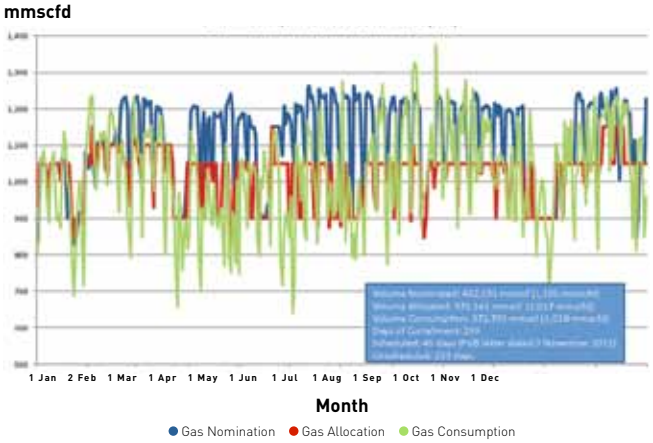


Gas supply to the electricity sector had experienced significant reductions in 2011 and 2012 due to the fire that occurred at the gas platform in Bekok C on 14 December 2010.

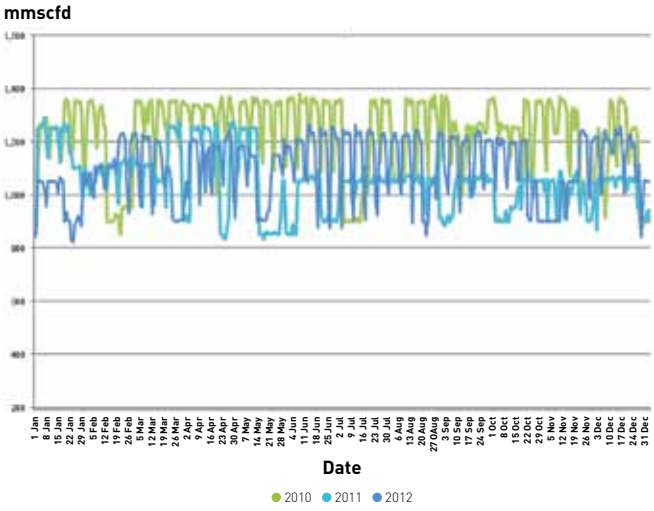
Gas supply had reduced from 1,250 mmscfd in 2011 to 1,150 mmscfd in 2012 as decided by the Economic Council meeting on 10 January 2012. The gas supply situation was exacerbated by unscheduled downtime incidents at Terengganu gas offshore platforms from time to time.

To accommodate the lower domestic gas supplies, PETRONAS has taken steps to import gas in the form of LNG from overseas. For that purpose, the LNG RGT in Sungai Udang, Melaka has to operate from September 2012.

NOMINATION, ALLOCATION AND GAS USE FOR 2012



NOMINATION FOR 2010, 2011 AND 2012



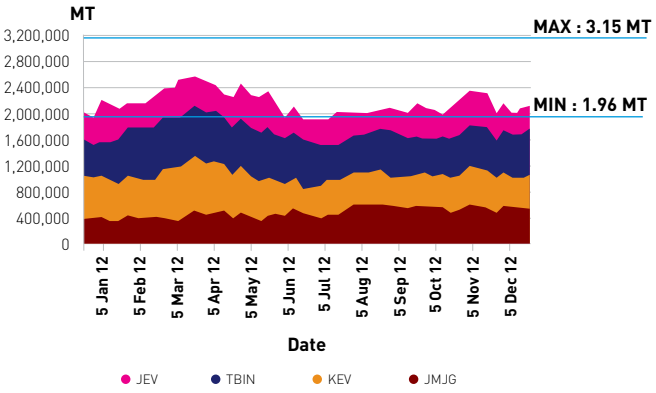
During 2012, the energy sector received an average of 1,018 mmscfd of gas from PETRONAS compared to the daily average nomination of 1,100 mmscfd by TNB. The nomination average for 2011 was 1,050 mmscfd while for 2010 it was 1,224 mmscfd. This share declined due to the increase in curtailment from 194 days in 2011 to 299 days in 2012. Out of that, 46 days had scheduled interruptions and 253 days had unscheduled interruptions.

Coal Supply For Generation Sector

Overall, the level of coal stocks for the peninsula remained at a maximum of 45 days to cover the increased demand for electricity due to the extended gas shortage in Peninsular Malaysia.

Until December 2012, the world coal demand rose to 816.3 million tonnes from 788.4 million tonnes in 2011. The major suppliers of coal were Indonesia, followed by Australia, the U.S., Colombia, South Africa and Russia.

COAL STOCK LEVELS (2012)



In TNB financial year 2012, a total of 21 million tonnes of coal for the use in coal-fired power plants in the peninsula were imported. Indonesia was the biggest supplier with 67.2%, followed by Australia 17.4% and South Africa 15.0%. From the third quarter of 2012, Russia was listed as a new supplier of coal supplying to the Kapar power station.

BREAKDOWN OF COAL ACCORDING TO GENERATION STATIONS AND IMPORT FOR PENINSULAR MALAYSIA

Station	Australia	Indonesia	South Africa	Russia	Total
	Matrix Ton				
Kapar Energy Ventures	2,830,00.00	290,000.00	1,090,000.00	80,000.00	4,290,000.00
TNB Janamanjung	-	6,170,000.00	-	-	6,170,000.00
Tanjung Bin Power	850,000.00	4,210,000.00	1,450,000.00	-	6,510,000.00
Jimah Energy Ventures	-	3,500,000.00	630,000.00	-	4,120,000.00
Total	**3,680,000.00**	**14,170,000.00**	**3,170,000.00**	**80,000.00**	**21,090,000.00**

Alternative Fuel Cost Sharing Mechanism

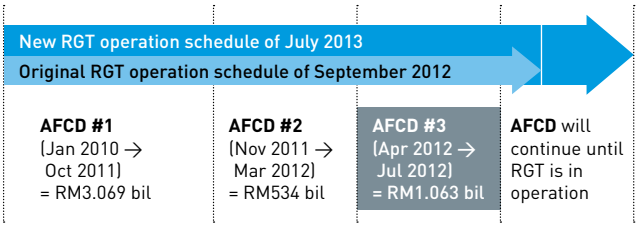
Since 2010, the energy sector faced gas supply disruptions. This persisted in 2011 and become more acute in 2012 due to PETRONAS gas shortages. The cause of the constraints of gas supply is the scheduled and unscheduled gas rigs downtime. This resulted in the cost of electricity generation increasing sharply when power generating stations had to use MFO and distillates as alternative fuels as well as importing electricity from the Electricity Generating Authority of Thailand (EGAT).

According to the yearly maintenance plan for 2012 issued by PETRONAS, there were 5 shut downs for the year 2012. In addition, the unscheduled downtime events could have contributed to the reduction of gas supply to the energy sector that has been limited to 900 mmscfd. The total gas supply indicated a reduction of 350 mmscfd from the actual amount of supply.

Therefore, on 26 March 2012 the Economic Council (EC) meeting determined an equal sharing by the Government, PETRONAS and TNB for the replacement cost of fuel used by TNB. This also led to the operation of the RGT in Sungai Udang, Melaka. ST is responsible to review the actual costs incurred and validate them before payment can be made by the Government and PETRONAS to TNB.

ensuring secure energy supply (continued)

ALTERNATIVE FUEL COST DIFFERENTIAL - AFCD



The total alternative fuel cost differential (AFCD) to be shared by the Government, PETRONAS and TNB for the first time amounted to RM3.069 billion for the period of January 2010 to October 2011 and for the second time from November 2011 to March 2012, it amounted to RM534 million and RM1.063 billion for the third period from April 2012 to July 2012.

Study on Framework for Generation Fuel Mix in the Peninsula

The National Energy policy has objectives such as supply security, reasonable tariff while minimising the effect on the environment. Due to rising fuel costs particularly for gas, the fuel mix basis had to be reevaluated to ensure that the country's energy policy objectives are met.

For this purpose, efforts to formulate this policy through a study on the framework for the generation fuel mix in Peninsular Malaysia had been implemented by the Ministry of Energy, Green Technology and Water (KeTTHA) and MyPOWER. The scope of the study covers the safety, adequacy, efficiency, cost-effectiveness, sustainability and quality of supply; rationalisation of subsidies on the electricity supply chain; efficient use of energy; minimising the negative impact on the environment and 7 Energy Security (ES) parameters.

Proposed 7 Energy Security (ES) parameters that has been identified as a framework to be applied in the long term development plan in Peninsular Malaysia. It also takes into account factors such as availability, accessibility, affordability and acceptability of fuel. The proposed framework is shown below:

PROPOSAL FRAMEWORK FOR ELECTRICITY SUPPLY SECURITY AND FUEL MIX

#	Perimeter	Current Situation	Target	Action
ES1	Global reserve to production ratio of gas, coal and oil	Gas – 60 years Coal – 120 years	To check whether production of coal, gas and oil could be maintained with the global reserve to production ratio > 60 years throughout planning period	• Ensuring current R/P ratio sufficient for coal and gas • Requirement for monitoring R/P ratio of domestic gas
ES2	Reserved margin for generation sector	LOLP <1 day Reserved margin = 32%	LOLP <= 1 day	• Use LOLP as a guidance in JPPPET planning • Use of reserved margin ratio at least 22% as a guidance for developed countries
ES3	HHI for fuel mix (eg gas, coal, diesel, hydro) for generation sector	HHI = 0.48	HHI < = 0.5 towards 2020 HHI <= 0.4 towards 2025	• Use of HHI as a guidance in JPPPET planning
ES4	HHI for fuel supplier (based on supplier country) for generation sector	HHI = 06 (Coal) HHI = 0.5 (Domestic gas)	HHI , 0.5 (for coal)	• Encouraging utility fuel supplier to diversify coal source in a practical way by means of pass through mechanism
ES5	Net Energy Import Dependency (NEID) for gas, coal and oil for the generation sector	NEID (Coal) =100% NEID (Gas) = 80%	Irrelevant NEID ratio ES4HHI • When NEID –ve:HHI not relevant • When NEID +ve:HHI < 0.5	• Diversification of source required to ensure existing fuel import
ES6	Stock of gas, coal and oil for generation sector	Gas = Negative reserve Coal = 45 days	Gas = reserved margin of 15% Coal = 90 days towards 2018	• Encouraging investment for development of stock and fuel capacity • To encourage investment, implementation of cost critical pass through is critical
ES7	CO_2 release intensity for generation sector	0.64t/MWh	Current situation =<0.7t/MWh 2020 and further on = <0.62t/MWh 2025 and further on = <0.52/MWh	• Used as guidance in JPPPET planning • Encouraging the implementation of RE, energy efficiency (EE), importing energy from Sarawak and /or nuclear

Nota: **HHI** – Herfindahl Hirshman Index **LOLP** – Loss of Load Probability **R/P** – Reserves to production ratio

MONITORING GENERATION PROJECTS

Special Committee To Address Sabah Electricity Supply Problem

ST has set up a special committee to identify key issues faced by SESB and IPP and find solutions to overcome the problems faced to ensure that the electricity supply industry in Sabah is more sustainable and reliable.

Several discussions were held with the interested parties to seek their views on the problems encountered. Next, suggestions to address this problem were refined at the Special Committee before being endorsed by ST to be submitted to the Minister and Economic Council. A summary from the Special Committee meeting was presented in the Economic Council meeting on 23 April 2012.

PROGRESS OF ENERGY GENERATION PROJECTS

Monitoring of all power projects is done to ensure that it is implemented as planned. ST always monitors closely the progress of the projects through periodical reports submitted by the project developers, site visits and discussions from time to time.

For the peninsula, on the whole, the implementation of the project is on schedule where the coal powered plant projects were implemented as scheduled while gas station projects were still in the early stage of implementation. Nevertheless, there was a delay in the implementation of the hydroelectric projects in Hulu Terengganu and Ulu Jelai. However, the scheduled commercial operation date–(SCOD) can still be achieved and is unchanged from the original target.

The implementation of generation projects in Sabah is entirely unsatisfactory, particularly for RE projects and projects under SESB that use Government funds. The implementation of the Feed in Tariff (FIT) scheme currently is being extended to existing RE power stations in Sabah. This matter has caused RE projects under construction to suffer delay because the developers are still waiting for a decision on whether they are eligible to be considered for the FIT scheme.

The incident where the barges carrying GT1 turbine gas from Gulf Ewa, Langkawi to SJ Kubota, Tawau were hijacked had obstructed the project implementation with a delay of 7 months. The short term mitigation project is expected to be operational in February 2013 compared to the initial target of August 2012.

As for projects under the IPP scheme in Sabah, the Kimanis Power project was implemented more smoothly than the SPR project. This correlates to the fact that the Kimanis Power developer has more experience in implementing big scale project and also is in a strong financial position. The SPR project was delayed from the start because its original main shareholder is a newcomer to the industry and did not have strong financial support. The acquisition of the original SPR owner's equity by JAVA Berhad also took time to obtain prior approval from the Government. This resulted in a delay to the financial close of the project which then contributed to negative impacts on project schedule.

In addition, SPR faced problems to build the gas pipeline to the power station. Recognising the importance of this project in solving the problem of electricity supply in Sabah, a solution is being worked out to ensure that the implementation of the project is not delayed from the scheduled commisioning date.

In general, the projects in the peninsula are excuted more smoothly than in Sabah. Many RE projects, which do not rely on goverment policies are developed and implemented in Sabah. The implementation of RE projects in the peninsula, relative to the size of the system, is much smaller than large-scale hydroelectric and coal fired projects.

TNB, as the utility and hydroelectric project developer in the peninsula is in a strong financial position to finance large-scale projects. The opposite situation exits in Sabah where SESB needs to get Government funds to finance the short-term mitigation projects and feasibility study of the Ulu Padas hydroelectric project.

For power generation projects under the IPP scheme, the involvement of the private sector in the electricity generation sector is seen as a positive move. However, the developers need to be strong financially because the power generation projects require long construction periods and intense capital requirements. The delay in the implementation of the SPR project was due to the original developer not having the required experience and its weak financial standing compared to projects in Tanjung Bin Energy and Kimanis Power led by companies with experience and large capital positions.

ensuring secure energy supply (continued)

STATUS OF RENEWABLE ENERGY GENERATION

Based on the incentives for promoting the development of renewable energy, 77 applications for sales tax exemption and import duties for Renewable Energy equipment for photovoltaic solar systems (solar panel, inverter, DC cable) have been received and evaluated.

STATISTICS FOR RE EQUIPMENT 2012

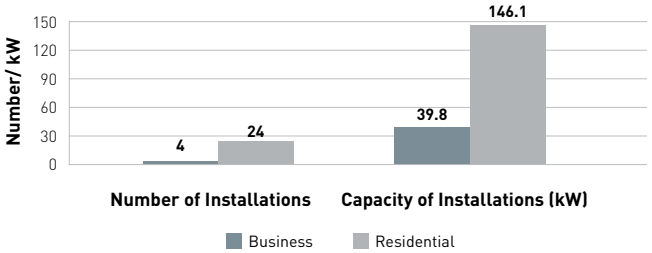
Subject	2012
Total applications received	77
Total solar system equipment (solar panel, inverter, DC cable) approved	706

PROMOTING RENEWABLE POWER GENERATION

Licensing for Installations Using Photovoltaic System Under Electricity Supply Act 1990 and Exemption Under Section 54, Government Gazette of August 7, 2008

Photovoltaic installations less than 24 kW (single phase) and 72 kW (three phase), do not require to be licensed in accordance to the exemption granted by the Minister of Energy, Green Technology and Water based on the Gazette of August 7, 2008. The number of photovoltaic installations and their capacities exempted under Section 54 are as follows:

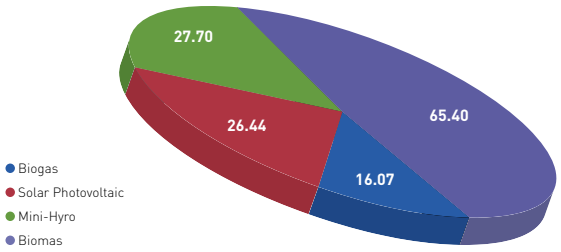
NUMBER & CAPACITY OF SOLAR PHOTOVOLTAIC INSTALLATIONS EXEMPTION UNDER SECTION 54



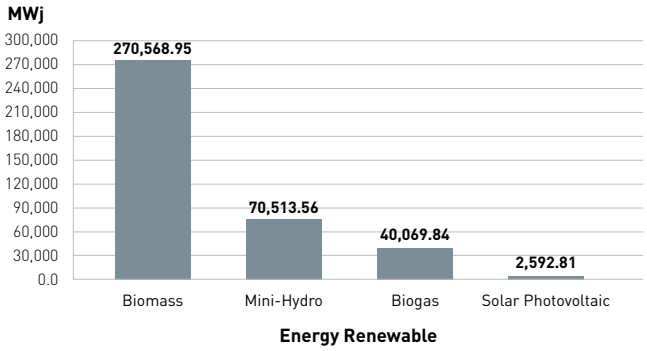
Granting of Public Licence to Generation Station Using Renewable Energy

A total of 42 public licences with 135.61 MW capacity were given to power plants using renewable energy in the peninsula and Sabah until December 2012. The total capacity of public licences issued to power plants using renewable energy is as follows:

TOTAL CAPACITY OF PUBLIC LICENCES ISSUED TO POWER PLANT USING RENEWABLE ENERGY (MW)



TOTAL ELECTRICITY GENERATION BY POWER PLANTS USING RENEWABLE ENERGY



Generation using biomass resources is the highest recorded in 2012. Generation by the three main power stations in Sabah is the major contributor to this generation, besides supplying power to the Sabah Grid. Based on the information by the Malaysian Palm Oil Board (MPOB), Sabah has the largest area of oil palm plantations in Malaysia, 1.43 million hectares or 28.6% of the total area of the state, making palm oil as the major fuel for electricity generation in Sabah.

The lowest generation recorded was from photovoltaic solar systems as the number of licensees in operation was only three, while the rest are still under development. Licences for generation using photovoltaic solar systems were only issued for the peninsula. Meanwhile, biogas power stations and mini-hydro respectively accounted for 11% and 19% respectively of the total generation.

There were several issues faced by power stations using renewable energy such as the weather, fuel supply and major engine damages. For example, mini-hydro power stations rely heavily on climatic factors where the dry weather in the third quarter of the year affected the performance of the stations.

The damage to the boiler is one of the causes that halted the operations of a station. Uncontrollable high temperatures in boilers not meeting specifications of the system design can cause the insulation material in the boiler to fail.

In addition, the high moisture content in the methane gas derived from biogas/landfill gas is also among the causes that contributed to the biogas-based power stations being unable to show a good electricity generation performance.

In 2012, there were a number of power stations that have been successfully commissioned, including the power station at Sungai Rek which began operating in August 2012. The station contributed 4% of electricity generation from the total generation by mini hydro power stations. Besides Sungai Rek, Suria KLCC also commisioned a Solar PV system in February 2012 while 2 more biogas power plants at Cypark Suria (Negeri Sembilan) and Solar Cypark (Pajam) commenced commercial operations in June 2012.

Promoting a Transparent and Competitive Energy Industry

ST is putting in place programmes to promote transparency of the energy industry besides ensuring its competitiveness in the local as well as in the international market.

Among the steps that have been and are being implemented include a competitive bidding process, grid monitoring and delivery system, monitoring of the financial performance of generation licensees, establishing gas billing mechanisms and disseminating information pertaining to the situation and industry performance in an appropriate and effective manner.

promoting a transparent and competitive energy industry

COMPETITIVE BIDDING PROCESS

New Capacity in Prai and Restricted Tender for Licence Renewal for The First Generation Independent Power Producer Plants (IPP)

ST has successfully implemented the international competitive bidding process (Track 1) for new capacities in Prai and also a restricted tender (Track 2) for licence renewal of the first generation Independent Power Producers and Tenaga Nasional Berhad (TNB) plants on 9 October 2012. This is aimed at meeting the requirements for generation capacity in Peninsular Malaysia for the year 2016/2017 as proposed by ST to the Government.

Shortlisted companies for the implementation of a new power plant with a nett capacity of 1,000MW - 1,400MW have signed an Integrity Pact for the international bidding which was conducted on 5 June 2012. The ceremony was witnessed by the Minister of Energy, Green Technology and Water together with YBhg Dato' Hajah Sutinah Sutan, the Deputy Director-General (Prevention) of the Malaysian Anti-Corruption Commission.

The objective of the Integrity Pact is to improve transparency in Government procurement and thus reducing and eradicating corruption.

The following are the results of Track 1 and Track 2 projects based on the evaluation of lowest (levelised) tariff that meets all the requirements of the bid:

Track 1	Tenaga Nasional Berhad was offered to build, own and operate the combined cycle plant with a capacity of 1,071 MW in Prai, Pulau Pinang to commence operations on 1 Mar 2016. The power plant will use 2 units of Siemens brand H class gas turbines which should achieve around 60% efficiency.	
Track 2	Genting Sanyen Power Sdn Bhd, Segari Energy Ventures and TNB Pasir Gudang were offered renewal of licence to operate their existing power plants capacity, with a levelised tariff and extended period as follows: -	
	Genting Sanyen Power Sdn Bhd	675 MW; extension for 10 years
	Segari Energy Ventures	1,303 MW; extension for 10 years
	TNB Pasir Gudang	275 MW; extension for 5 years

New Bidding Processes

Based on the presentations at the JPPPET meeting No. 2/2012, the meeting agreed for ST to implement the competitive bidding process for the procurement of a new capacity of 3,000 MW. The implementation of the competitive bidding process for the construction of coal power plants with a capacity of 1,000 MW (Project 3A) on a fast track basis began at the end of 2012. These coal powered plants are scheduled to be operating in October 2018 to meet the increasing electricity demand and to replace the capacity of TNB's Paka power station which will be decommissioned.

Another bidding for the construction of coal power plants with a capacity of 2 x 1,000 MW (Project 3B) on a greenfield site will be done simultaneously and the plants will be operating progressively in October 2018 for unit 1 and April 2019 for unit 2. A working committee at ST level, chaired by the Chief Executive Officer was formed to implement the international bidding process.

The selection of consultants to assist in the bidding process was made, as follows:

LIST OF CONSULTANTS FOR THE INTERNATIONAL BIDDING PROJECT

Consultant	Scope of Work
Price Waterhouse Coopers Capital Sdn Bhd	Financial Advisor
Sinclair Knight Merz Sdn Bhd	Technical Advisor
Messrs. Christopher Lee & Co Sdn Bhd	Legal Advisor

The preparation for the pre-qualification process based on the stipulated criteria in the RFQ document has been or will be held as follows:

IMPLEMENTATION SCHEDULE FOR THE INTERNATIONAL BIDDING PROCESS

ACTIVITY	Date	
	1000 MW Fast Track Project 3A	2000 MW Project 3B
Production of RFQ Document	18 December 2012	18 December 2012
Closing Date for Submission of RFQ	21 January 2013	11 March 2013
Announcement of Shortlisted Bidder	6 February 2013	1 April 2013
Issue of RFP Document	8 February 2013	15 April 2013
Briefing on RFP Document	8 March 2013	15 May 2013
Clarification Process	8 – 30 April 2013	1 July - 1 August 2013
Closing Date for Submission of RFP	20 May 2013	30 September 2013
Bid Evaluation	20 May – 30 June 2013	30 September - 30 November 2013
Consultation Process	1 -22 July 2013	1- 31 December 2013
Project Award	31 July 2013	31 January 2014
Financial Close Date	2 January 2014	31 July 2014
Expected Date for Commercial Operation	1 October 2017	1 October 2018 (Unit 1) 1 April 2019 (Unit 2)

MONITORING OF GRID AND TRANSMISSION SYESTEM

Grid System Operator Portal for Peninsular Malaysia

The Malaysian Grid Code Committee meeting had decided that a working group led by ST, is to be set up to discuss the preparation of the Grid System Operator (GSO) portal in compliance with clause 6.8 on General Condition in the Peninsular Grid Code. The portal displays issues of the grid system including maximum demand, fuel mix, current status of the grid system and relevant documents. A link to the portal (http://www.gso.org.my/) was loaded on to the ST portal for information and general reference.

GRID SYSTEM OPERATOR PORTAL

Establishment of the Planning Committee for the Development of Transmission System for Peninsular Malaysia and Sabah

The committee was formed to study the transmission system requirements as well as for monitoring the implementation of related projects in the peninsula and Sabah as agreed in the Pre - JPPPET meetings for peninsula No. 2/2011 in July 2011.

The establishment of this committee also aims to:

- ensure sufficient capacity of the transmission system to accommodate the increased load, increase of generation, capacity, system strengthening and minimising constraints in the system;
- ensure that the development of the transmission system is implemented as a planned and orderly manner and comply with the regulatory and legislative requirements; and
- monitor the progress of the transmission system being developed and planned by TNB and SESB as well as assisting in the resolution of issues that arise.

The transmission system Development and Planning Committee for Peninsular Malaysia and Sabah will sit and discuss at least twice a year and will be chaired by ST and comprise as members TNB, SESB, Ministry of Energy, Green Technology and Water, Public Private Cooperation Unit, Economic Planning Unit and Sabah Economic Planning Unit.

promoting a transparent and competitive energy industry (continued)

FINANCIAL PERFORMANCE OF LICENSEES GENERATION LICENCE HOLDERS

The review of the financial performance of the main generation licensees is carried out each year to monitor their technical and financial performance. The analysis is done through information in the audited financial statements submitted to ST by the generation licensees as stipulated in the terms and conditions of the licence.

Tenaga Nasional Berhad (TNB)

In the 2012 financial year, TNB recorded a net profit of RM3.12 billion, an increase by 439% from the 2011 FY (restated) (RM578 million). The sudden profit increase is due to the injection of funds amounting to almost RM3.15 billion received by TNB through the adjustment of alternative fuel cost-sharing mechanism. Therefore, TNB's return on ratebase (RoRB) in 2012 is in the range of 5.5%, compared to 1% in 2011.

Note : RoRB Formula = **(Sales Revenue – Operating Expenses – Depreciation – Consumer Deposits Interest – Regulatory Tax)** / **(Property, Power Stations & Equipment – Deferred Income – Consumer Deposits)**

From the aspect of debt to equity ratio, TNB recorded a decline from 0.9 in 2011 to 0.7 in 2012. This is due to the loan decrease of 5% to RM24 billion compared to the previous financial year (RM25 billion).

Sabah Electricity Sdn Bhd (SESB)

SESB's financial performance has yet to recover, despite the Government's decision on the tariff adjustment in Sabah in July 2011. SESB recorded a loss of RM50 million in 2012 following a loss of RM102 million in 2011 (restated). This is due to the supply cost incurred by SESB being higher than the revenue income earned through the sale of electricity.

Thus, the total equity of SESB continues to be in a deficit due to yearly losses. The total long-term SESB liabilities increased by 4% in 2012 from 2011. SESB's current assets were unable to cover its current liabilities due to working capital deficit.

Independent Power Producers – IPPs

Peninsular Malaysia

For the financial year of 2011, the average return on assets (ROA) rate for the first generation IPPs was 18.8%, 6.5% for the second generation IPPs while for the third generation IPPs it was 1.1% .The low return rate for third generation IPPs was due to the financial position of Jimah Energy Ventures Sdn Bhd which recorded a loss of 1.8%.

The first generation IPPs obtained a higher return rate than the other generations, in line with the necessary risk taken at the beginning of the IPP program in 1993 due to the low confidence of the financiers, unproven capability of the local developers' and uncertainties in the implementation process. With the experience and knowledge gained, the terms for second and third generation IPPs were tightened accordingly and reasonably. As a result, the ROA of second and third generation IPPs were in the range of 10% to 11% in the 2011 financial year.

LIST OF IPPS BASED ON THEIR IMPLEMENTATION STAGE IN PENINSULAR MALAYSIA

List of IPPs in Peninsular Malaysia	Installation Capacity (MW)
First Generation	
1. Genting Sanyen Power Sdn Bhd	**762**
2. PD Power Bhd	**440**
3. Powertek Bhd	**440**
4. Segari Energy Ventures Sdn Bhd	**1,303**
5. YTL Power Sdn Bhd	**1,212**
Second Generation	
6. Panglima Power Sdn Bhd	**650**
7. Pahlawan Power Sdn Bhd	**640**
8. GB3 Sdn Bhd	**720**
9. Kapar Energy Ventures Sdn Bhd	**2,420**
10. Prai Power Sdn Bhd	**334**
11. TNB Janamanjung	**2,100**
12. TTPC Sdn Bhd	**350**
Third Generation	
13. Tanjung Bin Power	**2,100**
14. Jimah Energy Ventures	**1,400**

Sabah

Compared to the financial performance of the IPPs in the peninsula, the IPPs in Sabah recorded different return rates and do not have different power purchase aggreements for IPPs of different implementation stages.

On average, for the 2011 financial year, IPPs in Sabah recorded a return rate in the range of 2.6% ROA, including ARL Tenaga Sdn Bhd which suffered a loss.

IPP LIST BASED ON GENERATION IN SABAH

List of IPPs in Sabah	Installation Capacity (MW)
ARL Power Sdn Bhd	**50**
Ranhill Powertron Sdn Bhd	**190**
Sepangar Bay Power Corporation Sdn Bhd	**100**
Serudong Power Sdn Bhd	**36**
Stratavest Sdn Bhd	**60**

GAS BILLING MECHANISM

In 2012, the implementation of the new mechanism for gas billing continued as a step in the improvement towards creating a sustainable electricity industry. This mechanism was introduced to address the unintended gains by the independent power producers (IPPs) that generated electricity using natural gas as fuel source.

For this purpose, a Committee for Gas Billing mechanism was set up in 2011 and chaired by the ST and as the secretariat to oversee the calculations of the savings and certify the revenue from the said gas savings to the Consolidated Fund. The members for the Gas Bill Mechanism Committee were the Economic Planning Unit, Ministry of Energy, Green Technology and Water, TNB and PETRONAS with MyPOWER Corporation, acting as an observer.

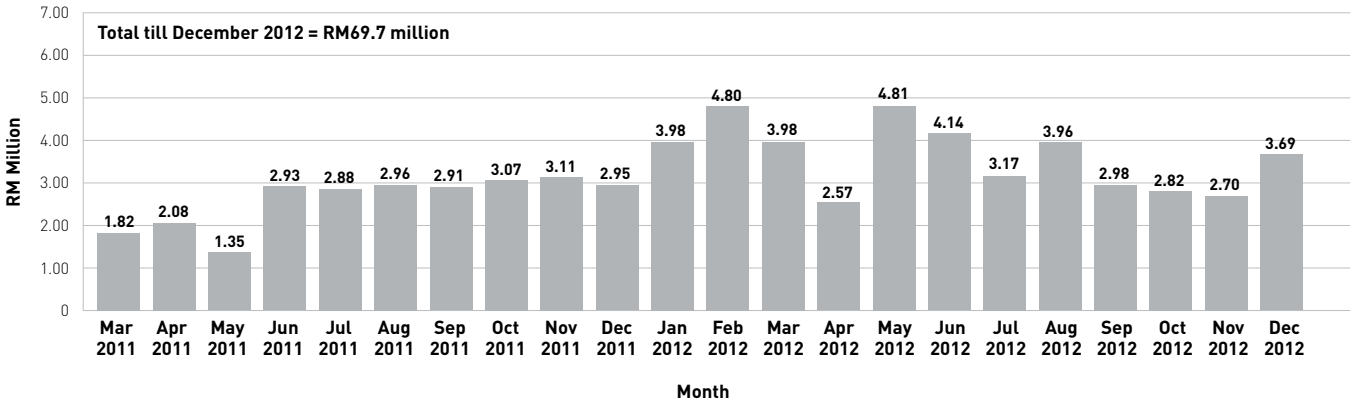
With the implementation of the new gas billing mechanism, PETRONAS will produce two types of bills as follows:

- Bills to IPP at RM6.40 per mmBtu based on the quantity of gas supplied as fuel to the power generation stations; and
- Bills to TNB on the current gas price differentials of RM6.40 per mmBtu, based on the quantity of gas supplied to the independent generators.

The savings obtained by TNB as a result of the reduction of fuel payments to the IPPs were channeled to the Consolidated Fund at the Ministry of Energy, Technology Green and Water (KeTTHA). On the whole, the value of the savings from the new billing mechanism had recorded RM69.7 million or an average of RM3.167 million a month from March 2011 till December 2012. The revenue earned from the savings mechanisms of new gas billing from March 2011 until December 2012 is shown in the diagram overleaf.

promoting a transparent and competitive energy industry (continued)

VALUE OF SAVINGS FROM THE GAS BILLING MECHANISM



DISSEMINATION OF INFORMATION ON AND PERFORMANCE OF INDUSTRY

Malaysia Energy Information Hub (MEIH)

The Malaysia Energy Information Hub (MEIH) is a comprehensive national one-stop data centre aimed at disseminating information, data and statistics pertaining to energy in Malaysia. The hub consists of data collected by the National Energy Balance (NEB) publication, electrical data information, statistics regarding industrial energy and piped gas distribution in Malaysia.

MEIH PORTAL

MEIH was developed specifically for policy makers, industry players and analysts to share relevant information and planning concepts and energy prices which later can be used as a useful reference. It also helps ST gather and conduct internal research or in collaboration with domestic and foreign regulators.

In December 2012, this portal had recorded nearly 15,000 users and visitors from Malaysia, India, United States, Europe and several Asian countries .

Publication of Electricity Supply Industry Outlook 2013 for Peninsular Malaysia

The publication of the Electricity Supply Industry Outlook 2013 is aimed at providing a clear and updated information regarding the electricity supply situation, current supply system and future industry direction. It could be a useful source of reference for interested investors in the electrical supply infrastructure development, financial analysts to evaluate the reputable companies listed in Bursa Malaysia and any parties interested in the industry development.

This initiative is also to improve transparency in the planning of the additional generation capacity in future and as an effort to encourage potential investors to execute new generation projects in Malaysia.

Information in the Outlook report covers the following matters:

- Current electricity supply situation for maximum demand, generation etc;
- Generation development plan as agreed by JPPPET; and
- Information based on the latest studies conducted by ST and MyPower.

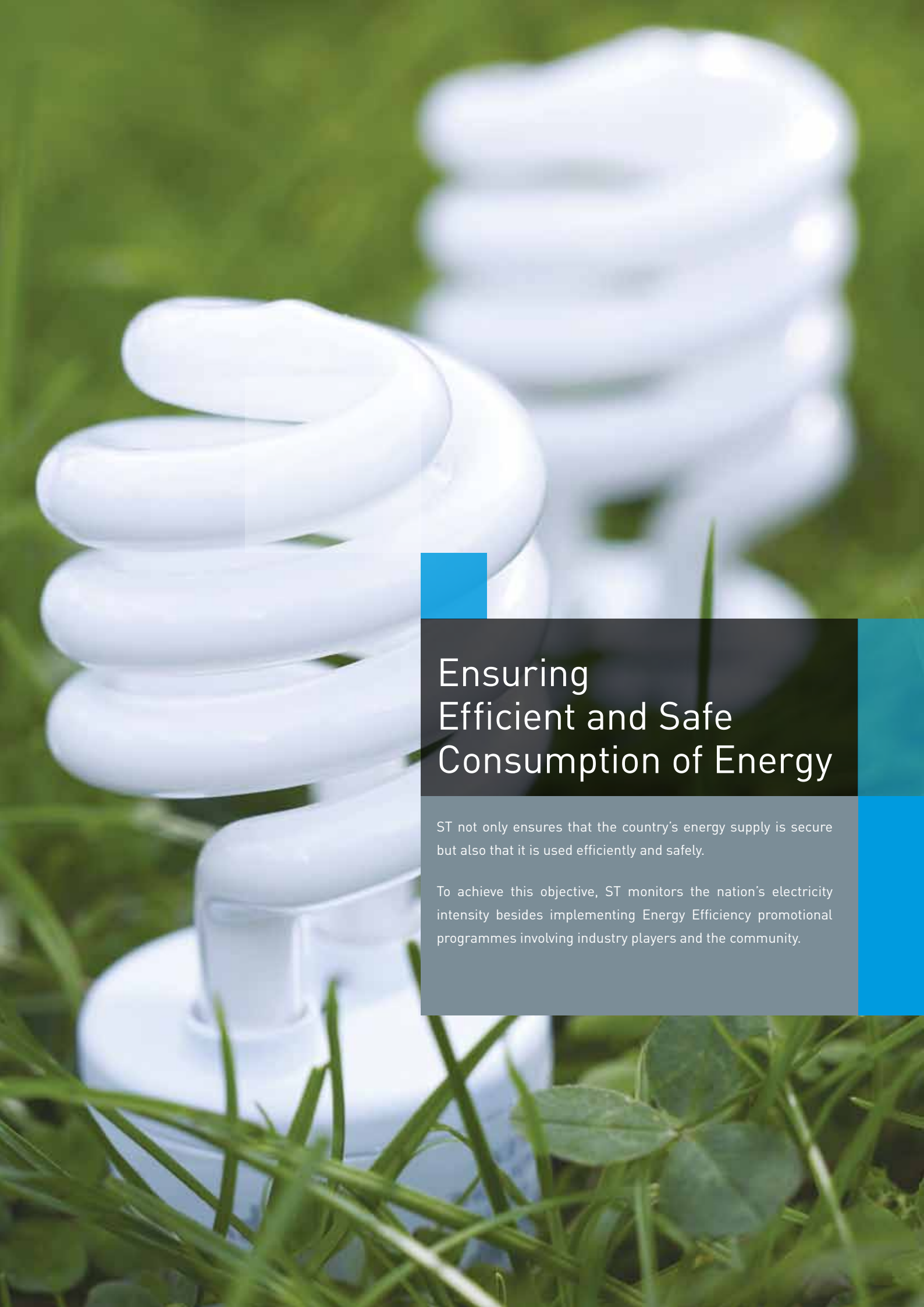
Harmonisation of Definitions of Levels of Supply Voltages for Use in the Electricity Supply Industry

The harmonisation of the voltage level definitions was approved by ST on 5 November 2012, based on recommendations by the Grid Code Committee, the Peninsular Distribution Code Committee and the Panel for Sabah and Labuan Grid Code.

Subsequently, ST will amend the Electricity Supply Act 1990 and Electricity Regulations 1994 to include the harmonised definitions.

AMENDMENTS OF VOLTAGE LEVEL DEFINITION

Voltage level	Amendment	Justification
Extra Low Voltage	V ≤ 50	Maintain definition on ESA 1990/ER 1994
Low Voltage	50 < V ≤ 1 kV	Same as above
Medium Voltage	1 kV < V ≤ 50 kV	The maximum value of the existing medium voltage level is maintained. Clause 5.4.4 of the Distribution Code is referred to.
High Voltage	50 kV < V ≤ 230 kV	Minimum level of high voltage as the continuation for maximum level of medium voltage while maximum level of high voltage as in MSIEC 60038:2006
Extra High Voltage	230 kV < V	Based on MSIEC 60038:2006



Ensuring Efficient and Safe Consumption of Energy

ST not only ensures that the country's energy supply is secure but also that it is used efficiently and safely.

To achieve this objective, ST monitors the nation's electricity intensity besides implementing Energy Efficiency promotional programmes involving industry players and the community.

ensuring efficient and safe consumption of energy

NATIONAL ELECTRICITY INTENSITY

Electricity is the primary energy source for the development and economic growth of a country. Malaysia's vision of becoming a developed and high income nation by 2020 is certainly going through a rapid development phase whereby it would involve an increase in the electricity demand in the country, especially in the industrial sector. Normally, electricity demand is associated with the country's economy. The efficiency of a country's electricity consumption is measured through energy intensity indicators. Electricity energy intensity is the electrical energy used to produce one unit of gross domestic product (GDP).

What is Electricity Intensity?

Electricity Intensity is the electrical energy used to produce a unit of Gross Domestic Product (GDP). Electricity intensity is used as one of the indicators to measure the efficiency of electrical energy consumption in the country.

What is the Gross Domestic Product (GDP)?

GDP is a way to measure the national economy of a country. GDP means the total market value of goods and final services within a country for a year (usually in the calendar year). It is also takes into account the total value added in each stage of production of goods and final services produced in a country and is given in currency value. GDP can be measured by three approaches namely product approach (or output), the income approach and the expenses approach. In principle, all the three approaches give the same results .

Every year the intensity of electricity is used as an efficiency measurement for the electricity consumption in the country. The generated electrical energy is used in a various sectors such as the industrial, commercial, service and domestic sectors. The enhancement of GDP growth, the increasing number of population and the current lifestyle which heavily depends on electrical equipment are among the factors that influence electricity consumption in the country. Logically, countries with higher GDP will use higher electrical energy. An assumption is made that countries that have a high GDP and have lower intensity, are considered to be efficient in consuming energy.

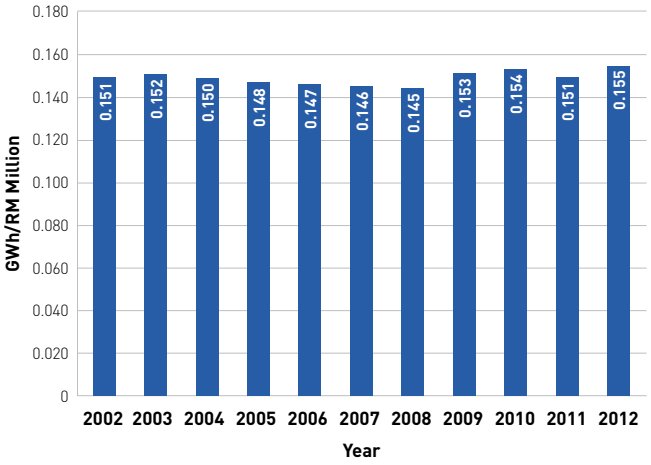
However, energy intensity indicators do not fully reflect the level of energy efficiency due to fluctuations in energy intensity which are not only influenced by increasing the process efficiency and equipment but by other factors that contribute to the increase or decrease of energy consumption but are irrelevant to energy efficiency. Energy consumption may be influenced by structural changes, behavior and weather.

Structural changes in the economy is the main mover of the economy composition and in any end-use sectors that affects the energy intensity but not associated with an increase in energy efficiency. In the industrial sector, changes in the manufacturing sector from the energy-intensive industries such as primary metals, chemicals and forest products to less energy-intensive industries such as transport equipment or food will cause a decrease in the energy intensity index, do not necessarily reflect improvement in energy efficiency. In a similar context, if the population shift from cold climate to warmer climate, the intensity of heating for the commercial and residential sectors in winter decrease, but the intensity for air conditioning in summer may be increased. Similarly, if the number of people in a household changes, the overall energy consumption will be likely to change.

Energy efficiency refers to the activity or product that can be produced with a given amount of energy, for example, tons of steel can be melted by megawatt hours of electricity.

Changes in national energy consumption per unit of gross domestic product due to behavioral factors do not reflect increase in energy efficiency. Its quite difficult to distinguish between behavioral and structural changes as sometimes demographic changes such as aging population may contribute to behavioral change that affect energy consumption. Thus, detailed calculation of energy intensity according to types of economic activities carried out for each main sectors are more accurate to reflect the level of energy efficiency. It also makes it easier for the Government to plan the necessary actions to be taken by energy efficiency programs for energy conservation and effectively prevent energy wastage.

ENERGY INTENSITY, GWH/GDP AT CONSTANT 2005 PRICE (RM MILLION)



In 2012, the country's energy intensity increased by as much as 2.65% from 0.151 GWh per RM million in 2011 to 0.155 GWh per RM million. The amount of electrical energy consumption for 2012 was 116.350 GWh, an increase of 8:40% compared to the previous year, while the country's GDP also increased in 2012 compared in 2011 by as much as 5.64%. The GDP for all sectors showed improvement. For the year 2012, the manufacturing sector indicated an increase of 4.78% compared to the year 2011.

Since energy intensity is often associated with efficient electricity consumption and in line with ST's responsibility in promoting energy efficiency, the ST has taken various steps and initiated energy efficiency promotion activities in Malaysia including promoting energy saving among consumers by incentives to manufacturers who provide energy efficient equipment or any energy efficient product that fulfills the criteria set by ST. This effort can directly promote energy efficiency and encourage the manufacturer to supply energy efficient equipment in the country. Among the qualifying equipment are refrigerators, domestic electric fans, ballasts for fluorescent lights, air conditioners, electric lights, televisions, high-efficiency motors and insulation material.

These incentives are to encourage efficient energy equipment being provided and widely distributed. This will facilitate easy access by the consumers if they wish to change to using energy efficient equipment in their daily lives.

Apart from the above efforts, ST also enforced the Efficient Management of Electrical Energy Regulations 2008 (EMEER 2008) where the firm that uses electrical energy equivalent to or more than 3 million kWh in 6 consecutive months have to appoint an Electrical Energy Manager (EEM) registered with ST. With the enforcement of these regulations, ST will be able to monitor and ensure that the installation involved reports electricity consumption on a regular basis to the ST.

In addition, the Government has also taken steps to initiate the "lead by example" program in which a circular has been issued for all Government buildings to maintain its indoor temperature at 24°C. These measures are taken in accordance with the Government's efforts to reduce and use electricity efficiently without incurring any cost. It also ensures that the Government sets a good example and is aimed at motivating others to also take the same step. Apart from the above mentioned initiatives, the Government also plans to revise the fuel prices for the generation sector every 6 months until it reaches market levels. This will thus influence the country's electricity tariff setting process. After reviewing and reflecting market prices, the electricity tariff will in turn act as a guide for consumers to use electricity more efficiently.

ensuring efficient and safe consumption of energy (continued)

INITIATIVE TO ENCOURAGE ENERGY EFFICIENCY

Efficient Management of Electrical Energy Regulations (EMEER) 2008

In 2012, 53 applications were received by ST. During the period, 11 interview sessions for Electrical Energy Manager (EEM) were conducted and 44 candidates had passed the interview and subsequently registered as Electrical Energy Managers. The total number registered for EEM in 2012 was 212 compared to 168 registered in 2011.

STATISTIC OF EEM REGISTERED UNDER EMEER 2008

Item	2011	2012
Applications received	72	53
Applications rejected	0	7
Interview sessions	10	11
Interviewed applicants	72	46
Successful candidates	32	44
Unsuccessful candidate	40	2

Appointment of Registered EEM by Installation Owners

As of 2012, a total of 1,423 installations have been identified as using more than 3 GWh of electricity within 6 months. 208 owners of such installations have appointed EEM in 2012.

STATISTIC OF REGISTERED EEM APPOINTMENT

Subject	2011	2012
Total number of installations affected by the Efficient Management of Electrical Energy Regulations 2008	1,490	1,423
Number of installations that have appointed EEM	**249**	**457**

Enforcement and Visit to Premises

Enforcement and visits to premises that have not appointed EEM were carried out during the year 2012. It included sending notices and reminders to each premise or installation which were subjected to EMEER 2008. A total of 25 enforcement visits were conducted throughout 2012 and all premise owners were informed on the requirement to comply with EMEER 2008.

ENERGY EFFICIENCY INCENTIVES

In 2012, ST intensified efforts to evaluate energy efficiency incentives and equipment applications as follows:

ENERGY EFFICIENCY AND EQUIPMENT INCENTIVES

Category	Incentive
Energy Efficient Equipment	• Sales Tax Exemption • Import Duty Exemption
Energy Efficiency and Generation Projects	• Investment Tax Allowance • Pioneer Status • Sales Tax Exemption • Import Duty Exemption

Energy Efficient Equipment

A total of 82 applications covering 1,652 energy-efficient equipment models such as televisions, refrigerators, air conditioners, fans, lighting, insulation materials, ballasts and high efficiency motors had been assessed technically and approved in 2012.

STATISTICS OF ENERGY EFFICIENT ELECTRICAL EQUIPMENT AND MATERIAL APPROVED

Type of Product	Total 2011	Total 2012	Total Approved Model (according to star rating)		
			3-Star	4-Star	5-Star
Air Conditioner	282	340	-	100	240
Refrigerator	51	45	-	1	44
Fan	254	362	4	77	281
Television	430	592	-	7	585
Insulation Material	27	17			
Ballast	23	44			
High Efficiency Motor	287	215			
Light Emitting Diode (LED) Lamp	11	37			
Total	**1,365**	**1,652**			

Energy Efficiency and Conservation Projects

In 2012, 35 applications involving 56 energy efficiency projects had been received and evaluated. 33 projects had been approved by ST. The evaluation reports were submitted to the Malaysian Investment Development Authority (MIDA) for obtaining investment tax exemption.

STATISTICS OF ENERGY EFFICIENCY PROJECT IN 2012

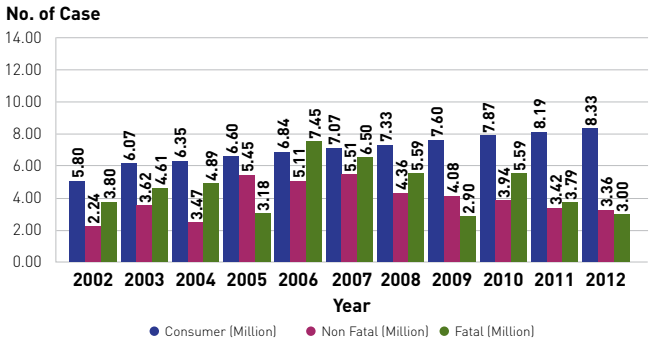
Subject	2012
Total applications received	35
Total proposed projects	56
Total approved projects	33
Total unsuccessful projects	23
Estimated energy savings per year (kWh)	46,989,664

ELECTRICAL SAFETY DEVELOPMENT

Statistics of Electrical Accident Cases

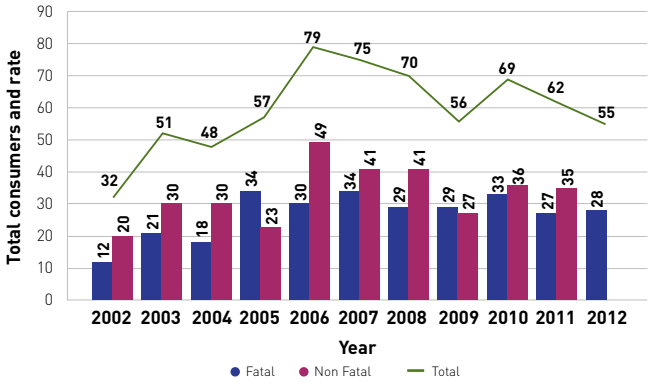
In 2012, electrical accidents decreased by seven cases compared to 2011, from 62 to 55 cases.

NUMBER OF ACCIDENT CASES PER MILLION ELECTRICITY USER/CONSUMERS OF TNB AND SESB 2002-2012



The fatal accident rates per million consumers also decreased from 3.79 in 2011 to 3.0 in 2012 and non-fatal accident rate per million consumers decreased from 3.42 in 2011 to 3.36 in 2012. Total utility consumers in 2012 was 8.33 million.

ELECTRICAL ACCIDENT CASES 2008 – 2012



Location Of Electrical Accidents

ELECTRICAL ACCIDENT LOCATION (2008-2012)

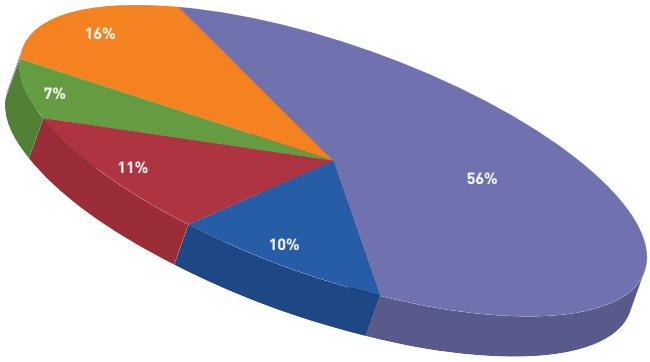
Location	2008	2009	2010	2011	2012
Residence (domestic)	11	9	8	16	6
School	1	1	0	0	0
Institution of Higher Learning	1	0	0	2	0
Factory (industry)	5	7	8	6	5
Local Government Council	1	1	3	2	2
Government Premise	2	1	0	0	2
Private Premise (commercial)	7	4	10	4	4
Construction Site	0	1	2	1	0
LV Overhead Utility Cable	10	12	10	11	13
HV Overhead Utility Cable	8	5	6	4	13
Electric Utility Substation	22	12	17	13	7
Underground Utility Cable	2	1	3	2	2
Plantation	0	2	2	1	1
Mines	0	0	0	0	0
Total	**70**	**56**	**69**	**62**	**55**

Based on the accident analysis of locations in 2012, zero accidents were recorded for schools, institutions of higher learning, construction sites, and the mining areas. School locations have recorded zero accidents for three years consecutively. For domestic installations, the number of accident cases had reduced by 10 cases compared to the year 2011. This was a result of the awareness campaign s conducted by ST and other related agencies.

ensuring efficient and safe consumption of energy (continued)

However, the number of accidents cases at high and low voltage overhead line installations increased. Among the reasons that contributed to the increase is line encroachment such as stealing of cables, installing flags, activities near overhead lines and plantation work such as palm fruit harvesting and safe work procedures not being followed. From 2002 to 2012, it was analysed that installations of utilities including overhead lines, substations, underground cables recorded the highest percentage (56%) of accident cases followed by domestic premises (16%) and other locations (industrial premises, commercial and Government owned premises).

LOCATION OF ELECTRICAL ACCIDENTS (2002-2012)



Causes of Electrical Accidents

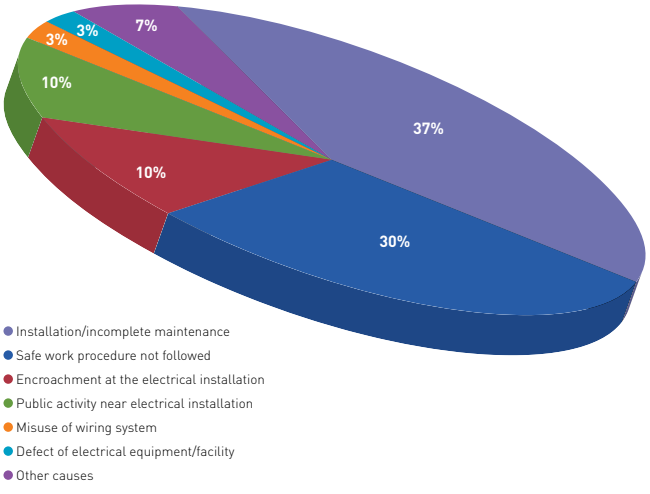
In 2012, 40% of accidents were caused by improper installations or maintenance while not adhering to safe work procedures causing 27.3%, was the second highest cause of electricity accidents. Other causes were as follows:

CAUSES OF ELECTRICAL ACCIDENTS (2008-2012)

Causes of Accidents	2008	2009	2010	2011	2012
Installation/ incomplete maintenance	25	27	18	23	22
Safe work procedure not followed	21	13	21	16	15
Encroachment at the electrical installation	11	6	12	4	5
Public activity at the electrical installation	6	6	9	6	5
Misuse of wiring system	1	2	4	2	2
Malformation of electrical equipment/ facility	1	0	3	4	4
Other causes	5	2	2	7	2
Total	**70**	**56**	**69**	**62**	**55**

Based on statistics from 2002 to 2012, from 654 cases recorded, 37% were caused by improper installation and maintenance and 30% by not adhering to safe work procedures.

CAUSES OF ELECTRICAL ACCIDENTS (2008-2012)



Ensuring Legal Compliance

ST believes that the formulation of policy must be accompanied by monitoring the enforcement so as to ensure legal compliance.

Electrical and gas installations must be registered with ST, and installation maintenance must be done by Competent Personnel. Besides conducting Management and Engineering Audits, equipment and generation activities are also monitored. Those who break the laws can be investigated and prosecuted.

ensuring
legal compliance

LICENSING AND ACCREDITATION ACTIVITIES

Issuance of Public and Private Electrical Licences

Application for public licences issued by ST in 2012 recorded a sharp increase compared to previous years due to aggressive efforts in reorganising and licensing renewable energy activities approved under the Feed in Tariff scheme.

Two public generation licences (IPP), 37 public distribution licences, 22 public licences for renewable energy generation and a cogeneration public licence were issued. In addition, ST also issued 59 provisional public licences with a total capacity of 158.75 MW. ST issued six private licences for capacity of 5 MW and above as well as 2,264 private licences less than 5 MW (1,200 in the peninsula and 1,064 in Sabah).

LIST OF PUBLIC LICENCES ISSUED IN 2012

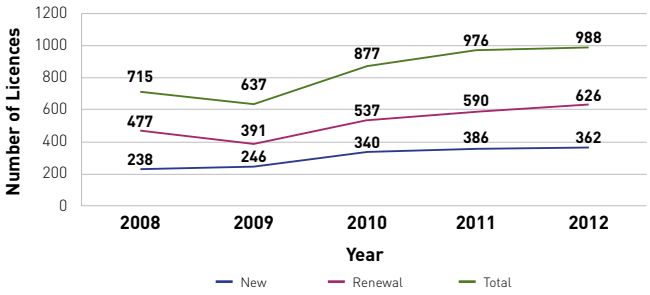
No	License Holder	Licensed Activity	Capacity (MW)
1.	Tanjung Bin Energy Sdn Bhd	Generation - IPP	1,000
2.	TNB Janamanjung Sdn Bhd	Generation - IPP	1,010
3.	Jelas Puri Sdn Bhd	Distribution	6.50
4.	Wisma Mirama Sdn Bhd	Distribution	1.44
5.	AEON Co. (M) Bhd -AEON Rawang	Distribution	8.50
6.	Suria KLCC Sdn Bhd	Generation	0.69
7.	Sungei Wang Plaza Management Corporation	Distribution	20.00
8.	GCH Retail (Malaysia) Sdn Bhd - Mukim Klang, Selangor	Distribution	1.53
9.	Universiti Tenaga Nasional Sdn Bhd - Campus Uniten Putrajaya	Distribution	3.83
10.	Universiti Tenaga Nasional Sdn Bhd - Campus Uniten Sultan Haji Ahmad Shah, Pahang	Distribution	2.98
11.	GCH Retail (Malaysia) Sdn Bhd - Giant Hypermarket Banting	Distribution	3.40
12.	GCH Retail (Malaysia) Sdn Bhd - Giant Cheras Hypermarket	Distribution	3.40
13.	Amtrustee Berhad - Jalan Bukit Bintang /Jalan Raja Chulan, Kuala Lumpur	Distribution	22.10
14.	EC Alamjaya Sdn Bhd	Distribution	5.84
15.	Universiti Telekom Sdn Bhd -Universiti Multimedia Cyberjaya	Distribution	5.10
16.	Universiti Telekom Sdn Bhd -Universiti Multimedia Melaka	Distribution	8.00
17.	Sagajuta (Sabah) Sdn Bhd	Distribution	3.22
18.	Malaysia Landed Sdn Bhd	Distribution	3.00
19.	Era Baru Sdn Bhd	Distribution	5.95
20.	Mammoth Empire Estate Sdn Bhd	Distribution	8.48
21.	GCH Retail (Malaysia) Sdn Bhd -Giant Setapak Hypermarket	Distribution	2.72
22.	GCH Retail (Malaysia) Sdn Bhd -Giant Kuala Pilah Supermarket	Distribution	2.04
23.	GCH Retail (Malaysia) Sdn Bhd -Giant Subang Jaya Hypermarket	Distribution	4.25
24.	Must Ehsan Development Sdn Bhd	Distribution	8.55
25.	Prestige Scale Sdn Bhd	Distribution	8.50
26.	Joint Management CouncilQueensbay Mall	Distribution	20.00
27.	Esquire Collection Sdn Bhd	Distribution	1.00
28.	Pasti Anggun Sdn Bhd	Distribution	3.44
29.	MCT Green Technology Sdn Bhd	Distribution	10.16
30.	Wize Platinum Sdn Bhd	Distribution	3.00
31.	Genting Simon Sdn Bhd	Distribution	4.08
32.	GCH Retail (Malaysia) Sdn Bhd -Giant Hypermarket Rawang	Distribution	1.28
33.	Atria Damansara Sdn Bhd	Distribution	11.50
34.	Petronas Gas Berhad -Mukim Tangga Batu, Melaka	Distribution	5.95
35.	Amtrustee Berhad -East Coast Mall, Kuantan	Distribution	10.0
36.	Mines Waterfront Business Park Sdn Bhd	Distribution	4.80
37.	Mines 2 Sdn Bhd	Distribution	3.20
38.	Nusajaya Lifestyle Sdn Bhd	Distribution	3.40
39.	GCH Retail (Malaysia) Sdn Bhd -Giant Hypermarket Cheng, Melaka	Distribution	2.10
40.	SEO Energy Sdn Bhd	Generation -Private (Renewal)	1.20
41.	Jana Landfill Sdn Bhd	Generation-RE	1.07
42.	Cypark Suria (Negeri Sembilan) Sdn Bhd	Generation-RE	3.00
43.	Cypark Suria (Pajam) Sdn Bhd	Generation-RE	5.00

44.	Macglo Steel Service Centre Sdn Bhd	Generation-RE	0.47
45.	Alpha Automation (Selangor) Sdn Bhd	Generation-RE	0.18
46.	Exotic Access Sdn Bhd	Generation-RE	0.50
47.	Mujur Satria Sdn Bhd	Generation-RE	0.99
48.	Saujana Nagamas Sdn Bhd	Generation-RE	0.99
49.	KUB-Berjaya Energy Sdn Bhd (Biogas)	Generation-RE	3.12
50.	Dato' Ir. Dr. Dennis Ganendra	Generation-RE	0.81
51.	En. Tew Peng Hwee	Generation-RE	0.72
52.	Rentak Raya Sdn Bhd	Generation-RE	2.00
53.	Synergy Solar Dev. Sdn Bhd -PLO 191, Johor Bahru	Generation-RE	0.86
54.	Synergy Solar Dev. Sdn Bhd -PLO 228, Kaw. Perindustrian Tebrau II, Johor	Generation-RE	0.17
55.	Synergy Solar Dev. Sdn Bhd -PLO 227, Industrial Area of Tebrau II, Johor	Generation-RE	0.17
56.	Synergy Solar Dev. Sdn Bhd -PLO 742, Industrial Area of Pasir Gudang, Johor	Generation-RE	0.17
57.	Broadway Victory Sdn Bhd	Generation-RE	0.99
58.	Kayangan Megajaya Sdn Bhd	Generation-RE	0.50
59.	Wibawa Harmoni Sdn Bhd	Generation-RE	0.99
60.	Kemuning Sumikin Bussan Sdn Bhd	Generation-RE	1.01
61.	KUB-Berjaya Energy Sdn Bhd (Solar Fotovolta)	Generation-RE	0.13
62.	Ambang Fiesta Sdn Bhd	Generation-RE	5.00
63.	Perak-Hanjoong Simen Sdn Bhd	Private	12.00
64.	Petronas Gas Berhad –GPP A, Kertih	Private	25.00
65.	Petronas Gas Berhad –GPP B, Paka	Private	25.00
66.	WRP Asia Pacific Sdn Bhd	Private	8.00
67.	Rompin Palm Oil Mill Sdn Bhd	Private (Renewal)	5.66
68.	Sabah Forest Industries Sdn Bhd	Private (Renewal)	79.50

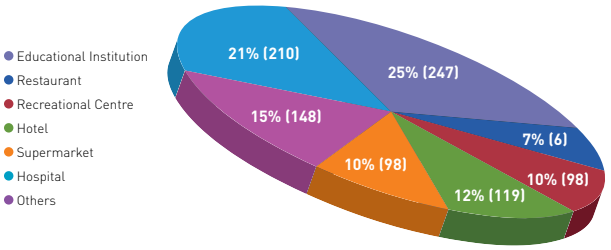
Issuance of Private Gas Licences

A private gas licence is granted to a person who supplies and uses gas through gas pipelines at his own premise or property or the premise of the owner or tenant. The number of new applications and renewals of private gas licences had increased to 988 in 2012 compared to 976 in the previous year.

NUMBER OF PRIVATE GAS LICENCE FOR 2008-2012



NUMBER OF PRIVATE GAS LICENCES BASED ON CONSUMER CATEGORIES 2012



ensuring legal compliance (continued)

REGISTRATION OF INSTALLATION

Certification of Electrical Installation Registration

For registration of electrical installations in 2012, there was an increase of 10.2% compared to 2011. A total of 11,068 electrical installations had been registered in 2012 compared to 10,045 installations in 2011.

REGISTRATION CERTIFICATION OF ELECTRICAL INSTALLATIONS IN 2012

States	Total
Perlis	23
Kedah	370
Pulau Pinang	850
Perak	600
Selangor	2,756
Wilayah Persekutuan Kuala Lumpur and Putrajaya	2,090
Negeri Sembilan	356
Melaka	322
Johor	1,463
Kelantan	178
Terengganu	252
Pahang	447
West Coast of Sabah	740
East Coast of Sabah	621
Total	**11,068**

Approval of Gas Installation

Total applications for Approval to Install (ATI) and Approval to Operate (ATO) for both natural gas and LPG installations increased slightly to 1,865 applications in 2012 compared to 1,817 in 2011. The approvals issued include approval to install metering stations, distribution stations and additional gas installations. The approval are classified as Class I, II and III based on the maximum operating pressures of the gas installations.

APPROVALS FOR INSTALLING & OPERATING OF NATURAL GAS INSTALLATIONS

Approval	Category	2008	2009	2010	2011	2012
Installing (ATI)	Industry	61	41	88	33	60
	Commercial	87	48	51	65	77
	Residential	34	14	11	10	9
	Total	**182**	**103**	**150**	**108**	**146**
Operating (ATO)	Industry	83	39	73	41	38
	Commercial	77	79	45	70	58
	Residential	27	37	15	20	6
	Total	**187**	**155**	**133**	**131**	**102**

APPROVALS FOR INSTALLING & OPERATING OF LPG INSTALLATIONS

Approval	Category	2008	2009	2010	2011	2012
Installing (ATI)	Industry	0	0	0	0	1
	Commercial	636	601	846	850	885
	Residential	22	28	35	19	20
	Total	**658**	**629**	**881**	**869**	**906**
Operating (ATO)	Industry	0	0	0	0	1
	Commercial	549	404	660	678	694
	Residential	31	21	19	31	16
	Total	**580**	**425**	**679**	**709**	**711**

APPROVALS FOR INSTALLING & OPERATING OF GAS INSTALLATIONS BASED ON CLASS OF INSTALLATIONS

Gas Installation	Approval to Install (ATI)			Approval to Operate (ATO)		
	Class I	Class II	Class III	Class I	Class II	Class III
Natural Gas	47	15	84	24	15	63
LPG	4	36	466	3	30	678

REGISTRATION OF CONTRACTOR

Electrical Contractor Registration

The number of electrical contractors that were registered by ST in 2012 was 3,528 (new and renewal of registration). This number is a slight decrease compared to 2001 in which 3,787 electrical contractors were registered with ST.

ELECTRICAL CONTRACTOR REGISTRATIONS IN 2012

States	Total
Perlis	47
Kedah	251
Pulau Pinang	260
Perak	256
Selangor	759
Wilayah Persekutuan Kuala Lumpur and Putrajaya	355
Negeri Sembilan	153
Melaka	142
Johor	450
Kelantan	184
Terengganu	170
Pahang	208
West Coast of Sabah	212
East Coast of Sabah	91
Total	**3,538**

Gas Contractor Registration

Gas contractors are divided into four categories, Class A, Class B, Class C and Class D. Each class has different work scope of gas installations. In 2012, 3 new gas contractors were registered compared to 6 gas contractors in 2011. Overall, the gas contractors registered in 2012 was 121 compared to 132 in 2011.

NUMBER OF REGISTERED GAS CONTRACTORS IN 2012

Type of Application	Class A	Class B	Class C	Class D	Total
Renewal	42	52	19	5	118
New	2	1	0	0	3

CERTIFICATION OF COMPETENCY

Issuance of Electrical Certificate of Competency

In 2012, the total number certificate of competency issued was 6,281. From that amount, 84.2% or 5,286 certificates were issued by the accredited institutions while the remaining 15.8% or 995 certificate were issued the by ST.

TOTAL OF ELECTRICAL COMPETENCY CERTIFICATES ISSUED IN 2012

	Certificate Category								
	PW	Endorsed	PJ	Certificate Replacement	PK	PE	JPE	JEK	Total
Through ST	240	85	522	106	7	5	4	26	995
Through accredited institution	3,676	0	1,606	1	0	0	0	0	5,286
Total	**3,916**	**85**	**2,131**	**107**	**7**	**5**	**4**	**26**	**6,281**

ELECTRICAL COMPETENCY CERTIFICATES ISSUE THROUGH ACCREDITED INSTITUTIONS IN 2012

Institution	Certificate category								
	PW	Endorsed	PJ	Certificate Replacement	PK	PE	JPE	JEK	Total
ABM	199	-	17	0	0	-	-	-	216
IKM	980	-	754	1	0	-	-	-	1,735
ILP/ADTEC	887	-	209	0	0	-	-	-	1,096
GIAT	924	-	11	0	0	-	-	-	935
INSTEP	0	-	33	0	0	-	-	-	33
INPENS	62	-	0	0	0	-	-	-	62
IKTBNS	0	-	83	0	0	-	-	-	83
KKBNP	79	-	0	0	0	-	-	-	79
YBK	0	-	0	0	0	-	-	-	0
IKBN	438	-	431	0	0	-	-	-	869
KEDA	16	-	0	0	0	-	-	-	16
KYM	52	-	56	0	0	-	-	-	108
ILSAS	0	-	0	0	0	-	-	-	0
BAITULMAL	12	-	0	0	0	-	-	-	12
KISMEC	0	-	15	0	0	-	-	-	15
ITYNS	27	-	0	0	0	-	-	-	27
TESDEC	16	-	0	0	0	-	-	-	16
IKB	14	-	0	0	0	-	-	-	14
Total	**3,676**	**0**	**1,606**	**1**	**0**	**0**	**0**	**0**	**5,286**

ensuring legal compliance (continued)

Comparison of Issuance of Competency Certificates by ST and Accredited Institutions

NUMBER OF CERTIFICATES ISSUED BY ST 2007 - 2012

TOTAL CERTIFICATES ISSUED BY INSTITUTIONS 2007 - 2012

STATISTICS OF ELECTRICAL CERTIFICATES OF COMPETENCY ISSUED BY ST

Year	Competency Certification Category								
	PW	Endorse	PJ	Replace Cert.	PK	PE	JPE	JEK	Total
2007	416	265	792	79	1	4	6	18	**1,581**
2008	470	198	734	64	8	10	5	15	**1,504**
2009	250	250	788	63	2	15	6	22	**1,396**
2010	222	121	675	116	9	0	6	30	**1,179**
2011	185	94	654	120	6	8	7	20	**1,094**
2012	240	85	522	106	7	5	4	26	**995**

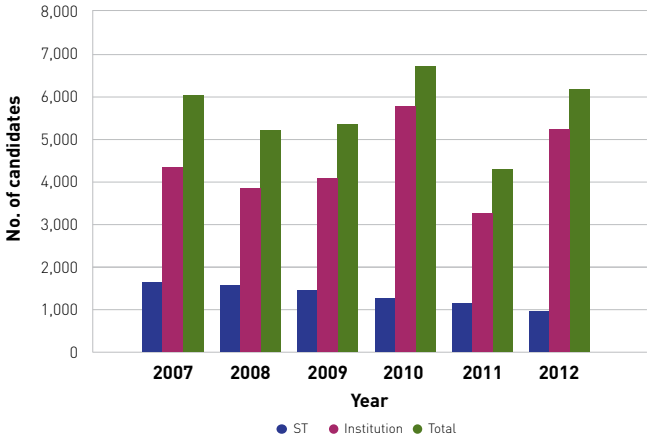
STATISTICS OF ELECTRICAL CERTIFICATES OF COMPETENCY ISSUED THROUGH ACCREDITED INSTITUTIONS

Year	Competency Certification Category								
	PW	Endorse	PJ	Replace Cert.	PK	PE	JPE	JEK	Total
2007	3,044	0	1,383	29	28	0	0	0	**4,484**
2008	2,592	0	1,240	13	0	0	0	0	**3,845**
2009	2,696	0	1,403	4	0	0	0	0	**4,103**
2010	3,917	0	1,705	7	0	0	0	0	**5,629**
2011	2,362	0	884	1	77	0	0	0	**3,324**
2012	3,676	0	1,606	1	0	0	0	0	**5,286**

STATISTICS OF ELECTRICAL CERTIFICATES OF COMPETENCY ISSUED (OVERALL)

Year	Competency Certification Category								
	PW	Endorse	PJ	Replace Cert.	PK	PE	JPE	JEK	Total
2007	3,460	265	2,175	108	29	4	6	18	**6,065**
2008	3,062	198	1,974	77	8	10	5	15	**5,349**
2009	2,946	250	2,191	67	2	15	6	22	**5,499**
2010	4,139	121	2,380	123	9	0	6	30	**6,808**
2011	2,547	94	1,538	121	83	8	7	20	**4,418**
2012	3,916	85	2,128	107	7	5	4	26	**6,278**

STATISTICS OF ELECTRICAL CERTIFICATES OF COMPETENCY ISSUED 2007 – 2012



This total number consists of 219 Electrical Services Engineer (ESE) certificates of competency, 1109 Electrical Competent Engineers (ECE), 196 Electrical Supervisors (ES), 38,514 Chargemen (C), 56,142 Wiremen (W) and 312 Cable Jointers (CJ).

Issuance of Gas Competent Person Certificates

Until the end of 2012 the number of certified gas competent persons produced was 769 (an increase of 51 from 718 in 2011) certifications which comprises the categories of Gas Engineers, Gas Engineering Supervisors and Gas Fitters.

The total number of competent persons registered with ST in 2012 was 320 which is 42% of the 769 certifications issued by the end of 2012.

NUMBER OF NEW GAS COMPETENT PERSON REGISTRATION CERTIFICATIONS

Qualification	Till 2006	2007	2008	2009	2010	2011	2012
Gas Engineer	73	3	0	0	3	0	0
Gas Engineering Supervisor	227	6	6	5	11	9	6
Gas Fitters – Class I	151	14	15	4	2	7	3
Gas Fitters – Class II	85	3	2	0	1	0	0
Gas Fitters – Class III	55	6	6	8	7	9	12
Total	**591**	**32**	**29**	**17**	**24**	**25**	**21**

NUMBER OF RENEWALS OF GAS COMPETENT PERSON CERTIFICATIONS

Qualification	2007	2008	2009	2010	2011	2012
Gas Engineer	32	37	35	30	32	25
Gas Engineering Supervisor	74	83	86	100	110	101
Gas Fitters – Class I	91	93	99	119	106	123
Gas Fitters – Class II	31	48	39	42	31	32
Gas Fitters – Class III	60	6	10	12	14	18
Total	**199**	**267**	**269**	**303**	**293**	**299**

EXAMINATION OF COMPETENCY

Electrical Competency Examination

ST issues certificate of competence for candidates who are eligible by having the relevant experience and have undergone an assessment process conducted by ST or by accredited institutions. This is to meet the requirements of Section 23 of the Electricity Supply Act 1990, which requires that an electrical installation shall be handled or worked under the supervision of a competent person.

The types of competency certificates issued are as follows:

- Electrical Services Engineer;
- Competent Electrical Engineer;
- Electrical Supervisor;
- Chargeman;
- Wireman; and
- Cable Jointer.

In 2012, 8 competency examinations for Electrical Services Engineers, Electrical Engineers and Competent Electrical Supervisors were conducted. 37 eligible applicants had sat for the examinations in 2012 and 28 candidates passed the examinations.

Meanwhile the competency examinations (theory) for Wireman and Electrical Chargeman in 2012 session were conducted on 27 and 28 March 2012. A total of 3,000 private candidates had sat for the examinations simultaneously throughout the peninsula and Sabah.

NUMBER OF PRIVATE CANDIDATES FOR COMPETENCY EXAMINATION (THEORY) FOR ELECTRICAL WIREMAN AND CHARGEMAN IN 2012 ACCORDING TO ST REGIONAL OFFICES

Area	PWI	PW3	A0	A0	A4-2	A4-1	A4	B0-2	B0-1	B0 TNB	B0	B1	B4	Total
Johor	31	18	110	110	52	12	9	11	5	11	9	1	0	297
Melaka and Negeri Sembilan	11	22	30	30	9	4	23	1	0	7	18	0	0	127
Selangor and Wilayah Persekutuan	3	219	373	373	23	9	162	13	8	15	138	0	3	1,017
Perak	7	61	96	96	15	10	8	4	3	6	11	1	4	249
Kedah, Perlis and Pulau Pinang	20	97	229	229	37	8	44	14	3	17	76	0	1	568
Kelantan and Terengganu	1	44	6	6	0	0	20	0	0	10	24	0	0	154
Pahang	6	43	58	58	7	4	24	3	0	9	13	0	0	180
Kota Kinabalu	10	52	61	61	4	1	17	1	0	0	1	2	0	160
Sandakan	26	32	99	99	1	2	40	0	1	1	9	1	0	213
TNBD/G	-	-	-	-	-	-	-	-	-	15	-	-	-	15
INSTEP	-	-	-	-	-	-	8	-	-	5	7	-	-	20
Total	**115**	**588**	**1,062**	**1,062**	**148**	**50**	**355**	**47**	**20**	**96**	**306**	**5**	**8**	**3,000**

ensuring legal compliance (continued)

STATISTICS OF PRIVATE CANDIDATES FOR COMPETENCY EXAMINATION FOR ELECTRICAL WIREMAN AND CHARGEMAN FROM 2008 TO 2012

Year	Category													Total
	PW1	PW3	A0	A1	A4-2	A4-1	A4	B0-2	B0-1	B0 TNB	B0	B1	B4	
2008	212	674	1,187	210	114	54	424	53	31	13	201	3	12	**3,180**
2009	149	823	1,209	191	90	40	364	41	21	197	231	1	11	**3,345**
2010	215	676	1,190	210	113	55	432	53	22	119	258	4	28	**3,375**
2011	177	578	1,137	232	148	70	460	58	24	134	327	2	10	**3,357**
2012	115	588	1,062	200	148	50	355	47	20	96	306	5	8	**3,000**

WM - WIREMAN

Category	Restriction
PW1	Phase 1
PW2	Phase 1 & test endorsement
PW3	Phase 3
PW4	Phase 3 & test endorsement
PW5	Phase 3 & signage
PW6	Phase 3 & signage & test endorsement

CM - CHARGEMAN

Category	Restriction
A0	Low voltage system (w/out aerial line & generator station)
A1	Low voltage system (w/out generator system)
A4-2	Low voltage system (w/out aerial line & synchronising generators)
A4-1	Low voltage system (w/out synchronising generators)
A4	Low voltage system
B02	Above low voltage system (w/out aerial line & generator station above low voltage & w/out low voltage generator synchronising & low voltage aerial line)
B0-1	Above low voltage system (w/out aerial line & above low voltage generator system & w/out low voltage generator synchronising)
B0	Above low voltage system (w/out aerial line & generator station of above low voltage)
B1	Above low voltage system (w/out generator station of above low voltage)
B4	High voltage system up to 33kV

CJ -CABLE JOINTER

Category	Restriction
PK1	up to 1 kV
PK2	up to 11 kV
PK3	PK3 up to 22 kV/33 kV
PK4	up to 66 kV
PK5	up to 132 kV
PK6	up to 75 kV

ES - ELECTRICAL SUPERVISOR

Category	Restrictions
PE1	up to 1 kV

CE - COMPETENT ELECTRICAL ENGINEER/SE – ELECTRICAL SERVICES ENGINEER

Category	Restrictions
JK0	up to 1 kV
JK1/JP1	up to 11 kV
JK2/JP2	up to 22 kV/33 kV
JK3/JP3	up to 66 kV
JK4/JP4	sup to 132 kV
JK5/JP5	up to 275 kV
JK6/JP6	no restrictions (500 kV)

Candidates sitting for theory examinations

To speed up the results, answer papers were checked by ST officials in an Answer Booklet Marking Workshop held from 9 until 13 April 2012 and 16 to 20 April 2012.

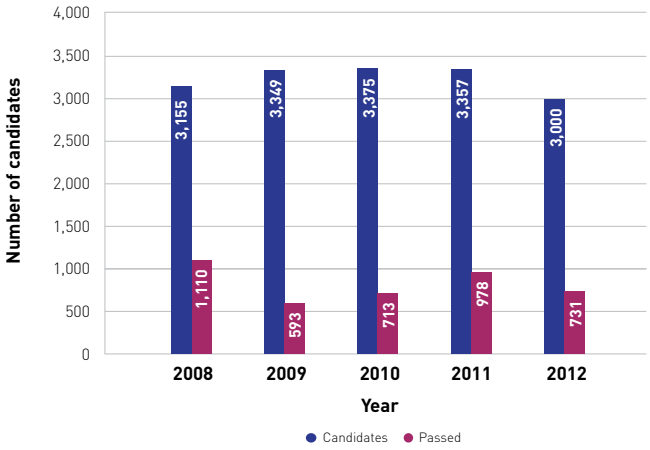
Panel for marking answer papers

In 2012, ST had also conducted 8 Electrical Services Engineer, Competent Electrical Engineer and Electrical Supervisor examinations. 37 eligible applicants sat for the examinations in 2012 and 28 candidates passed.

In line with the ST outsourcing policy in 2010, ST had issued the Electrical Safety Regulatory Circular No 01/2010: Examinations of Chargeman Competency, Wireman and Cable Jointer for Accredited Institutions, informing the public that the competency examinations for Chargeman category A0, A1 and Wireman Phase 1 and Phase 3 will have to be applied for through accredited institutions.

ensuring legal compliance (continued)

STATISTICS OF ELECTRICAL CHARGEMAN AND WIREMAN COMPETENCY EXAMINATION (THEORY) 2008 – 2012



The transition period of a half year ended in July 2012. However, in 2012 candidates had begun to take the examination through the accredited institutions, showing a reduction of candidates by 10.6%. The number of candidates is expected to increase in 2013 when ST no longer conducts private competency examinations for the above categories.

Gas Competent Personnel Examination

During the year 2012, ST had organised the gas competent personnel examination consisting of written examination and oral exam (interview). Written examination must be taken by candidates who do not meet the specified exemption criteria. Candidates who pass the written examination will be called for an interview for the purpose of issuance of a Certificate of Competency.

In addition, candidates qualified to attend an interview consists of candidates who have been excluded from the requirement of written examination or who have passed the pipeline gas courses conducted by recognised institutions.

A written examination session was conducted in 2012 in which four candidates sat for the examination held on 6 November 2012. 2 candidates in the Gas Fitter Class I category passed the exam while 1 candidate of Engineering Supervisor and Gas Fitter Class III category failed. 24 interview sessions were conducted and 68 candidates attended the interview.

NUMBER OF CERTIFIED COMPETENT GAS PERSONNEL

Competent Gas Personnel Examination	Until 2006	2007	2008	2009	2010	2011	2012
Written Examination	17	3	2	1	3	1	4
Oral Examination (interview)	182	16	18	4	11	60	68

Till the end of 2012, there were no new accreditation for gas competency courses and the accreditation for 6 courses from 3 institutions remained.

ACCREDITATION OF GAS COMPETENCY INSTITUTIONS 2006 - 2012

Accreditation of Competency Institutions	Until 2006	2007	2008	2009	2010	2011	2012
Number of Institution of Learning	2	1	-	-	-	-	-

The total certifications issued to gas competent personnel was 769 (an increase of 51 from the 718 in 2011) certifications that include Gas Engineers, Gas Engineering Supervisors and Gas Fitters.

The total number of registered competent personnel with ST in 2012 was 320 which is 42% from the 769 certification that have been issued until the end of 2012.

NUMBER OF NEW CERTIFICATIONS FOR REGISTRATION OF COMPETENT GAS PERSONNEL

Approval	Until 2006	2007	2008	2009	2010	2011	2012
Gas Engineer	73	3	0	0	3	0	0
Gas Engineering Supervisor	227	6	6	5	11	9	6
Gas Fitters – Class I	151	14	15	4	2	7	3
Gas Fitters – Class II	85	3	2	0	1	0	0
Gas Fitters – Class III	55	6	6	8	7	9	12
Total	**591**	**32**	**29**	**17**	**24**	**25**	**21**

NUMBER OF RENEWALS OF CERTIFIED GAS COMPETENT PERSONNEL

Approved	2007	2008	2009	2010	2011	2012
Gas Engineer	32	37	35	30	32	25
Gas Engineering Supervisor	74	83	86	100	110	101
Gas Fitter – Class I	91	93	99	119	106	123
Gas Fitter – Class II	31	48	39	42	31	32
Gas Fitter – Class III	60	6	10	12	14	18
Total	**199**	**267**	**269**	**303**	**293**	**299**

Institutional Accreditation

To increase the number and the skills of competent electrical certificate holders and to meet the needs of the industry, ST also accredits training institutions that train and assess candidates. Successful candidates will be recommended by ST and recommendations will be validated in a Competency Examination Committee meeting chaired by the ST Chief Executive Officer.

In 2012, a total of 38 new approvals (including new institutions and existing accredited institutions) were given permission to run competency courses and examination. ST stipulates that the training institutions have to meet the criteria set before any accreditation is given. Among them:

- Educational equipment in suitable ratio with the number of students;
- Limited number of students in any one session;
- The total time for theory learning, practical and industrial training;
- Adequate number of teachers at all times;
- Student intake in line with the requirements of the Electricity Regulations 1994; and
- Compliance to other policies stipulated from time to time.

LIST OF TRAINING INSTITUTIONS ACCREDITED IN 2012 BASED ON CATEGORIES

Institution	Category	Date of Accreditation
ILP Jitra	PW2 (FT) – Increase number of trainees to 30	5 April 2012
GIATMARA Raub	PW2 (FT/PT)	5 April 2012
ILP Pasir Gudang	PW4 (FT/PT) – Increase number of trainees to 30	5 April 2012
ILP Pasir Gudang	A4 (FT/PT)	5 April 2012
ILP Pasir Gudang	Modul JKSVR – (FT/PT)	5 April 2012
GIATMARA Batu	PW2 (FT/PT)	5 April 2012
ILSAS Malim Nawar	Modul TAVT (FT/PT)	5 April 2012
GIATMARA Maran	PW2 (FT/PT)	5 April 2012
PUSPATRI Johor	PW2 (FT/PT)	23 May 2012
ILSAS Bangi	Modul TAVT (FT/PT)	23 May 2012
ILSAS Bangi	Modul JKSVT – (FT/PT)	23 May 2012
ILSAS Malim Nawar	PK 1 (FT)	23 May 2012
ILSAS Malim Nawar	PK 2 (FT)	23 May 2012
ILSAS Malim Nawar	PK 3 (FT)	23 May 2012
PSDC Kuantan	PW2 (FT/PT)	14 August 2012
PSDC Kuantan	PW4 (FT/PT)	14 August 2012
PSDC Kuantan	A0 (FT/PT)	14 August 2012
IKBN Bukit Mertajam	A1 (FT) – Increase number of trainees to 40	14 August 2012
ILP Kuantan	PW4 (FT) – Increase number of trainees to 50	14 August 2012
ILP Kuantan	A0 (PT) – Increase number of trainees to 30	14 August 2012
ILP Labuan	PW2 (FT) – Increase number of trainees to 30	14 August 2012
ILP Labuan	PW2 (PT)	14 August 2012
ILP Labuan	PW4 (FT/PT)	14 August 2012
ILP Kota Kinabalu	PW2 (PT)	14 August 2012
INSTEP	Modul JKSVR – (FT/PT)	14 August 012
INSTEP	Modul JKSVT – (FT/PT)	14 August 2012
ILSAS Bangi	A1 (Restricted) to SESB officer	14 August 2012
ILP Ipoh	PW2 (FT) – Increase number of trainees to 40	1 October 2012
ILP Ipoh	PW2 (PT)	1 October 2012

ensuring legal compliance (continued)

REGULATION OF ELECTRICAL EQUIPMENT

Issuance of Certificates of Approval (COA) for Electrical Equipment

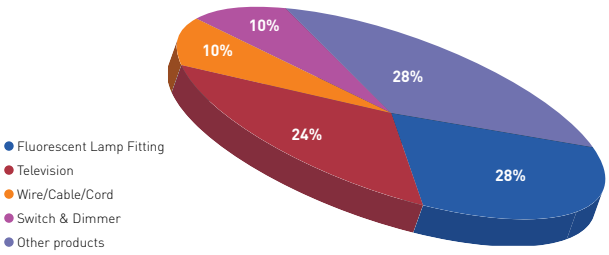
In 2012, ST had issued 9,381 Certificates of Approval and Letters of Release for electrical equipment, an increase of 1,078 certificates compared to 2011.

TOTAL CERTIFICATES OF APPROVAL AND LETTERS OF RELEASE FOR ELECTRICAL EQUIPMENT 2001 - 2012

Year	COA Importing	COA Manufacturing	COA Exhibition	Importing and Manufacturing COA Renewal	Letter of Release From CUSTOMS Custody		Total
					Control Item	Uncontrolled Item	
2001	2,214	913	19	3,670	1,224	514	8,554
2002	2,030	791	15	2,608	2,315	1,023	8,782
2003	3,113	1,334	15	3,327	955	334	9,078
2004	3,150	891	38	5,076	935	363	10,453
2005	3,786	450	43	2,562	822	222	7,885
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**

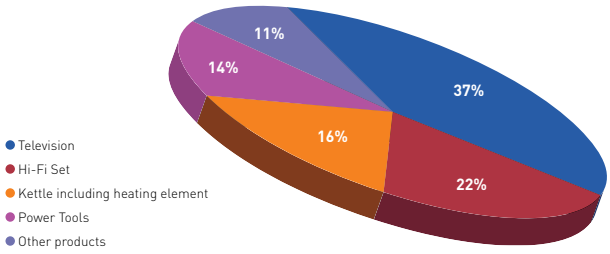
The issuance of COA for importing had increased by 10.1% in 2012 compared to 2011. Imported goods from China (65%) led the goods of other countries such as Thailand (24%), Germany (3%), Taiwan (3%) and other countries (5%). COA for manufacturing had reduced 11:04% in 2012 compared to 2011.

CATEGORY OF EQUIPMENT FOR MANUFACTURING (2001 - 2012)



For exhibitions, only approved equipment by ST is allowed to be displayed during the the exhibition period. After the exhibition, the equipment should be sent back to the country of origin.

TYPE OF EQUIPMENT FOR EXHIBITION 2001 - 2012



Purpose of Letter of Release

A COA is required for controlled equipment. However in certain situations, a letter of release from Customs custody is issued.

A letter of release for uncontrolled items is issued when the equipment is:

- not in the list of 34 controlled items.
- not used at home but only used at industrial or commercial premises. Examples of uncontrolled equipment are street lights, large-sized vacuum cleaners etc.
- operated by specialised skilled people.

Release letter for uncontrolled equipment by ST had increased by 41.34% in 2012 compared to the previous year. To improve its customer service, ST has developed an online application system for importing and manufacturing electrical equipment. Since 1 October, 2010, all applications are processed online through the e-Permit system operated by Dagang Net Technologies Sdn Bhd (DNT).

Issuance of Certifications of Approval for Gas Fittings, Appliances and Equipment

In the year 2012, 2 applications for gas equipment manufacture, 2 for importing equipment and 43 for gas appliances had been approved. The total number of approval for gas appliances that had been issued until 2011 for all three categories were 41,112 and 736 respectively.

Approved gas appliances include gas installation components such as pipes and fittings, polyethylene fittings, meters, ball valves, pressure regulators and gas-leak detectors.

NUMBER OF APPROVALS FOR MANUFACTURER INSTALLATION OR GAS FITTING IMPORTER OR GAS EQUIPMENT

Type of Approval	Until 2006	2007	2008	2009	2010	2011	2012
Approval for installation or gas fitting, appliances, or equipment manufacturer	32	5	0	0	1	1	2
Approval for gas fittings, appliances and equipment importer	82	3	1	14	5	5	2
Total	**114**	**8**	**1**	**14**	**6**	**6**	**4**

NUMBER OF APPROVALS FOR GAS FITTINGS, APPLIANCES AND EQUIPMENT

Type of Approval	Until 2006	2007	2008	2009	2010	2011	2012
Approval for gas fittings, appliances, and equipment	428	32	11	83	29	110	43

MONITORING OF GENERATION ACTIVITIES

Inspection of Premises for Regularisation Cases

The regularisation of unlicensed installations was continued with constant inspections of premises that are supplying electricity for their own use or to third parties.

Inspection of premises that were listed in the regularisation files had been implemented as one of the steps to determine whether the premises are complying with the licensing requirements.

STATUS OF CASES FOR REGULARISATION

	Year 2011 Updating Cases	Year 2012
1.	Universiti Tenaga Nasional Sdn Bhd	Already licensed
2.	Tesco Stores (M) Sdn Bhd	Already licensed
3.	Magnificent Diagraph (Carrefour) Sdn Bhd	Already licensed
4.	GCH Retail (M) Sdn Bhd	Already licensed
5.	Nineteen Management Services Sdn Bhd (Rhythm Avenue Mall)	Already licensed
6.	Brunsfield Properties Management Sdn Bhd (Subang Avenue Mall)	Already licensed
7.	Econsave Cash & Carry Sdn Bhd	In progress of whitening

Among the issues raised during the inspections were:

- Licence requirements for distribution activity in accordance with the Electricity Supply Act 1990;
- Inspection on installation capacity at the premise;
- Inspection of documents such as tenant bills and applicable tariff; and
- Safety inspection on installations and premises especially in the meter and installation rooms.

ensuring legal compliance (continued)

Inspection of Licensee Activities

ST also undertakes random inspections on licensed installations. Among the problems identified were:

- Change of ownership of complex and electricity supplier buildings;
- Revocation of licence or licensees operations terminated;
- Bulk supply problems with utilities;
- Increase of area for distribution;
- Review of consumer bills and supply contract;
- Late payment of licence fees; and
- Compliance with laws, regulations and related license conditions.

MANAGEMENT AND ENGINEERING AUDIT (M & E AUDIT)

Based on to the requirements of the licence issued by ST to public licensees, Management and Engineering (M & E) Audits should be conducted once every four years or at intervals as stipulated. Among the objectives of the audit are as follows:

- Conducting independent and detailed evaluation of the performance of the licensee;
- Assessing the achievement of the licensee on the aspect of engineering, finance and management of generator stations or licensed activity;
- Ensuring that the licensee meets the conditions of the licence issued by ST; and
- Recommending improvements on services and performance of the licensee.

Tenaga Nasional Berhad (TNB)

Subsequent to the audit by TNB for the period 2004 to 2008, continuous monitoring of the audit recommendations was conducted. Apart from the submission of the monitoring report format to TNB, a meeting was held on 11 May, 2012 to update the implementation status of the recommendations.

The next audit of TNB is for the period from financial year 2009/2010 to 2011/2012. Up to 5 October, 2012, 97.8 % of the audit recommendations were implemented by TNB .

Sabah Electricity Sdn Bhd

For monitoring the audit recommendation, ST has provided a report monitoring format and requested SESB to report periodically. SESB had submitted the follow-up report on 6 March, 2012.

In view of the fact that several matters required further clarification from SESB, ST had a meeting with SESB management on 17 May, 2012.

Based on the audit findings, SESB was required to prepare Service Level Agreements (SLA) between SESB and SESB owned power plants. Apart from that, SESB was also required to conduct special training programmes for young executives without affecting the power stations operations, so as to enhance their technical experience.

IPP in Peninsula

M & E Audits for the following IPPs have been implemented since 27 October, 2011 and continued in 2012. The report of audit findings and consultants' recommendations were finalised on 28 August, 2012 .

AUDIT PERIOD FOR IPP STATIONS

No.	IPP Station	Audit Period
i	Powertek Berhad	Feb 2006 – Jan 2011
ii	Pahlawan Power Sdn Bhd	Feb 2006 – Jan 2011
iii	Panglima Power Sdn Bhd	Feb 2006 – Jan 2011
iv	Genting Sanyen Power Sdn Bhd	Jul 2005 – Jul 2010
v	Port Dickson Power Sdn Bhd	Jan 2006 – Jun 2011
vi	Teknologi Tenaga Perlis Power Consortium Sdn Bhd	Apr 2005 – Apr 2010
vii	YTL Power Sdn Bhd	Nov 2005 – Nov 2010
viii	NUR Generation Sdn Bhd	May 2006 – Dec 2010
ix	NUR Distribution Sdn Bhd	Jan 2006 – Dec 2010

In general, the audit findings indicated that IPPs of the peninsula operate properly and comply with the requirements of the licences and PPAs. Suggestions for improvement from the consultants were used as a reference to improve and enhance future IPP performance.

Centralised Utility Facility (CUF), PETRONAS

The M & E Audit on CUF was undertaken by the consultant on 15 October, 2012. The first draft of the report of the audit for the period from financial year 2006/2007 to 2009/2010 was presented to ST on 21 June, 2012.

The second draft of the report was presented to ST on 1 November, 2012, after taking into account the comments and viewsfrom ST.

The final report was submitted to ST on 6 December, 2012. The results and recommendations from the consultant would be the industry benchmark of electricity generation through co-generation .

The audit findings indicate that CUF is at a good and satisfactory level for the aspects of operations and maintenance of the co-generation plant, financial management, safety practices as well as personnel management .

Kapar Energy Ventures (KEV)

KEV had already submitted the follow-up reports on 1 March, 2012 as well the latest update on the follow-up report on 27 August, 2012. The site visit on 19 September, 2012 to KEV had indicated that about 20% of the consultant's proposals were still in the implementation process. During the meeting, among the improvements that were still in the process include the upgrading of the financial system of MAXIMO & SUN to the latest version which is still in the tender stage.

In addition, KEV was still awaiting the decision from Allianz, the insurance company, to allow them to improve the gas-air pre-heater protection system. Apart from that, the seawater silt filtration recovery system work undertaken by KEV suffered some damages and until now, KEV is still in discussions with the supplier to repair the damage.

TNB Janamanjung

In early February 2012, ST has met TNB Janamanjung on the follow up action to improve the performance of the power station. Among the follow up actions to be taken were the power quality test, work instruction prioritised, fuel and material management, work instruction procedures, routine island testing and others.

On 11, May 2012, TNB Janamanjung had presented the follow up actions taken and on 4 September, 2012 they have completed all the proposed follow-up actions.

Other Generation Licensees

The audit on Sepangar Bay Power Corporation and Musteq Hydro Inc. will begin in early 2013 in which both parties have appointed consultants to implement the M & E Audit.

Meanwhile the audit terms of reference for TNB, TNB Janamanjung, KEV and KKIP Power have been finalised and submitted to the parties concerned.

AUDIT PERIOD FOR IPP STATION

No.	IPP Station	Audit Period
i	Musteq Hydro Sdn Bhd	Jan 2004 – Dec 2012
ii	Sepangar Bay Power Corporation Sdn Bhd	Dec 2008 – Jan 2012
iii	TNB Janamanjung	Sept 2008 – Aug 2012
iv	Tenaga Nasional Berhad	Sept 2008 – Aug 2012
v	KKIP Power Sdn Bhd	Jan 2008 – Dec 2011
vi	Kapar Energy Venture	Sept 2008 – Aug 2012
vii	Sabah Energy Sdn Bhd	Sept 2008 – Aug 2012
viii	Jimah Energy Ventures	Jan 2009 – Dec 2012

ensuring legal compliance (continued)

IMPLEMENTATION OF SAFETY AUDIT

Electrical Safety Audit at the Utility Installation

As a consequence of several electrical accident cases occurring at utility-owned installations, ST has taken the initiative to perform security audits at all utility installations'. TNB Pulau Pinang was chosen as the first location for the safety audit.

The implementation of the safety audit began with a series of discussions and explanations from the Asset Management Department, TNB Distribution Division, on the Standard Operating Procedures (SOP) and Maintenance & Switching work procedures in High Voltage Substations (11 kV & 33 kV) adopted by TNB staff while on duty.

The TNB Safety Audit in Pulau Pinang was undertaken from 5 to 8 November 2012. The scope of the audit included review of all documents related to safety such as training, list of competent personnel, the works in substations and site visits undertaken while doing switching activities.

5 substations were visited for the audit purpose when switching works and maintenance were conducted. The substations were Main Distribution Substation (PPU) Tanjung Bungah, PPU Batu Ferringhi, PPU Perdau, PPU Kota Permai and Electrical Substation at Bukit Jambul Secondary School.

Preliminary results of the safety audit conducted discovered that the work procedures documentation were in accordance with the Electricity Supply Act 1990 and Electricity Regulations 1994 and the licence conditions-Condition 23. However, there are several matters that can be improved such as the use of personal protective equipment (PPE) to ensure safety on the work site.

Initial meeting with TNB Pulau Pinang Management before starting the safety audit.

Briefing for the purpose of the safety audit to the work group of PPU. Kota Permai.

Study on Domestic Consumers' Level of Compliance to Electrical Regulations in 2012

The main purpose of the study was to assess fellow consumers' level of compliance to electrical regulations, particularly in relation to domestic electrical wiring as well as electrical equipment usage. The study was conducted upon 1,000 domestic consumers in the Klang Valley, including those from traditional villages, residential area and multi-storey houses.

RESULTS OF STUDY ON THE LEVEL OF COMPLIANCE TO ELECTRICAL LEGAL COMPLIANCE REQUIREMENTS BY DOMESTIC CONSUMERS (1,000 RESPONDENT)

Among the Matters Studied	Most Response	Extra Response
Awareness on electricity law	62% (162 respondent) understand something on electricity law	38% respondent unsure
Awareness on appointing registered electrical contractor	74% aware of appointing non registered electrical contractor is against the law	11% unaware/know nothing 15% unsure
Method of getting services from registered electrical contractor	64% did not know how to get services from registered electrical contractors	36% know (refer to TNB portal)
Safety level of electrical installation	95% aware that their home electrical wiring is safe	5% quite sure
Situation that need re wiring	65% did not know of conditions requiring re wiring.	35% respondents aware and depend on age & test
Respondents repairing wiring or connecting by themselves	67% aware that action will be taken if they do risky wiring at home	33% respondents unaware or ignorant
Enforcement on sale of electrical equipment	60% (606 respondents) did not know that the ST enforces provisions on sales of electrical equipment 17% (174 respondent) unsure	22% (225 respondent) aware and know that ST enforces provisions on sales of electrical equipment
Method to test Residual Current Devices	64% unsure on the easy way to test Residual Current Devices	36% aware and experienced in testing Residual Current Devices
Check on SIRIM-ST label on electrical equipment	94% respondent check for SIRIM-ST label before purchasing	6% less aware of this matter

In conclusion, the level of consumer compliance, understanding, attitudes and practices on electrical safety is moderately high and require strategies by ST and related agencies to increase consumer awareness.

ensuring legal compliance (continued)

MONITORING AND ENFORCEMENT ACTIVITIES

Inspection of Electrical Installations

To address the current issues relating to the supply of electricity and prevalent electricity theft incidents, ST had intensified enforcement activities to ensure compliance with the laws.

ST ENFORCEMENT ACTIVITIES IN 2012

State	Installation Inspection	Contractor Inspection	Inspection of Sales/Importer/ Manufacturer Premises	Total
Perlis	10	0	5	**15**
Kedah	34	0	19	**53**
Pulau Pinang	29	0	9	**38**
Perak	13	7	10	**30**
Selangor	80	5	0	**85**
Federal Territory of Kuala Lumpur and Putrajaya	63	2	0	**65**
Negeri Sembilan	28	9	3	**40**
Melaka	41	11	4	**56**
Johor	37	11	4	**52**
Kelantan	31	4	4	**39**
Terengganu	7	0	4	**11**
Pahang	78	17	5	**100**
West Coast of Sabah	70	27	11	**108**
East Coast of Sabah	146	17	11	**174**
Total	**667**	**110**	**89**	**866**

Enforcement activity of house construction under 33kV high voltage cable Kubang Rawa, Salor, Kelantan

Gas safety audit in progress by ST officers

Gas Installation Inspection by ST Officers

Monitoring of Accredited Institutions

Monitoring of accredited institutions is implemented through monitoring of examinations, implementation of audits at the accredited institutions through an Institutional Level Examination Committee chaired by ST.

24 inspections were made on ongoing competency examinations at the accredited institutions in 2012. The monitoring was aimed at ensuring that all competency examinations are done according to the correct procedures as determined to ensure the quality of the holders of the Certificate of Competency.

Monitoring cable man competency examination

Monitoring charge man competency examination

A total of 11 audits on accredited institutions had been conducted in 2012. The audit was aimed at ensuring that institutions comply with all the terms of accreditation such as learning facilities, students intake, adequate number of competent teachers and other conditions that have been made known to the institutions from time to time.

Audited institutions were given reprimands and advice to upgrade the facilities available in their respective institutions.

Through the Institutional Level Examination Committee chaired by ST, the emerging issues pertaining to accreditation activities and competency examinations were discussed. The committee was responsible for ensuring that all accredited institutions always comply with the accreditation conditions .

In addition, ST held 4 seminars, briefings and dialogues throughout 2012. These were aimed as enhancing the teaching staff understanding on policies, procedures and implementation of the learning activities as prescribed by ST officials.

Inspection of a motor starter by ST Officers

A briefing on a generator set to ST officer by the teaching staff of the institution

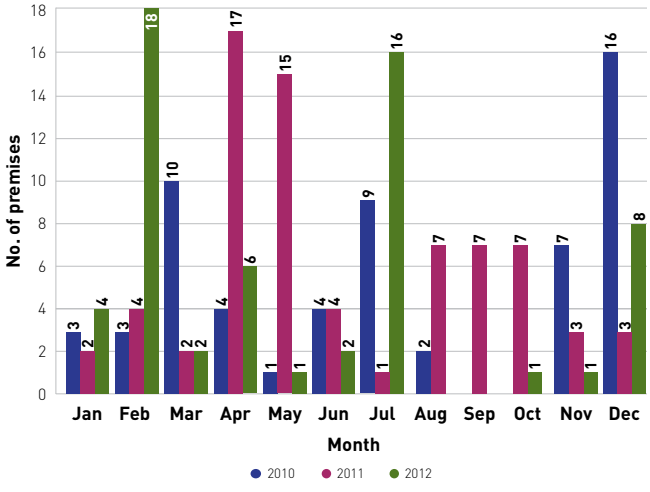
ensuring legal compliance (continued)

Electricity Theft Cases

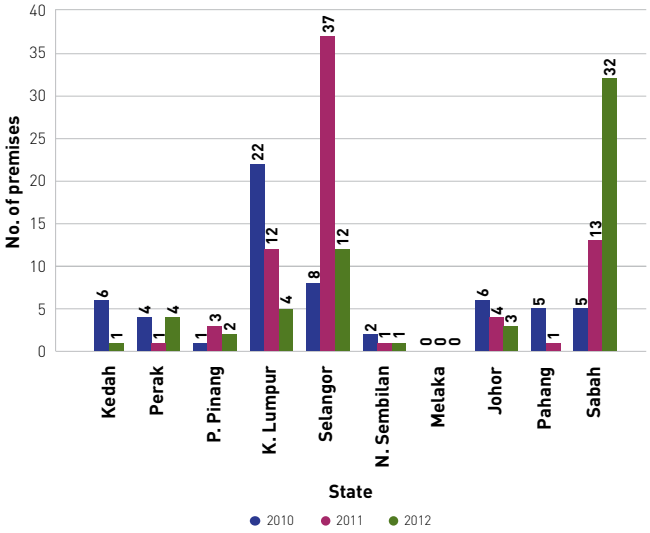
In 2012, ST had increased enforcement exercises on suspected premises where dishonest use of electricity under the Supply Electricity Act 1990 were undertaken. There were a total of 59 premises suspected of dishonestly using electricity while 31 cases were under investigation. ST directed TNB to take action on the rest under Subsection 38, Electricity Supply Act 1990.

Investigation being undertaken

MONTHLY STATISTICS ON ENFORCEMENT ON ELECTRICITY THEFT



STATISTICS OF ELECTRICITY THEFT ENFORCEMENT BY STATES



Electrical Equipment Without Approval or Label

In 2012, 3 cases were investigated after warning notices were issued. In addition, there was an increase in monitoring and issuance of notices to premises of manufacturers', importers and sellers of electrical equipment who failed to get approval or label electrical equipment.

ST then forwarded its recommendations to revoke the approvals if they were found to have violated legislative provisions.

Certificates of Installation and Public Licences

ST had increased monitoring and issuing notices to the owners or management of installation to register or renew their certificates of installation as well as getting public licences for activities to supply electricity. The number of compound cases and prosecution had also increased as a method of fostering awareness and prevention.

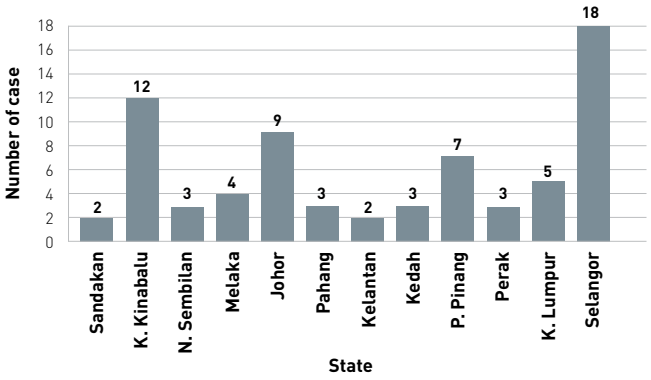
For gas installations, enforcement operations were conducted in the Klang Valley area, especially in places patronized by the public.

INVESTIGATION AND PROSECUTION

Investigation

In 2012, ST had investigated 71 new cases of offences under the Electricity Supply Act 1990, Electricity Regulation Act 1994, Gas Supply Act 1993 and Gas Supply Regulations 1997.

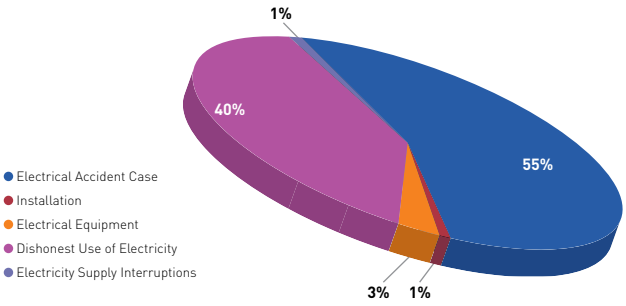
INVESTIGATED CASES IN 2012



ST's target was to shorten the investigation period of the cases and improve the quality of investigations. ST conducts audits to achieve the targets from time to time.

For high profile cases, ST had established a special committee to ensure that the investigations can be implemented quickly and efficiently.

BREAKDOWN OF INVESTIGATED CASES IN 2012



Prosecution

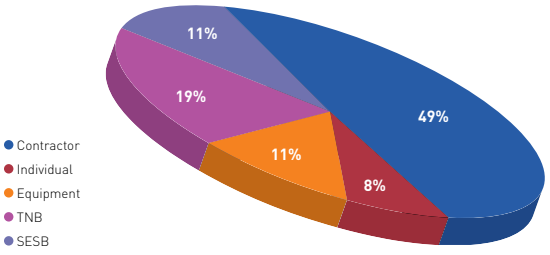
In 2012, 6 investigated cases were registered in court and 3 persons involved (Persons Charged) were penalised for offences committed by the company. The total fines imposed by the court was RM71,000.00. The Companies punished were as follows:

- Beh Ice Enterprise.
- Bright Rims Manufacturing Sdn Bhd.
- Gen-Color Technology Sdn Bhd.

Compounding

In 2012, 37 compounds were issued by ST amounting to RM60,500.00 and the entire compound were paid to the ST. Almost half of the compounds issued by ST involved offences by contractors.

COMPOUNDS IN 2012



Protecting Consumers' Interests

ST always ensures that consumers' interests are protected. Among the initiatives that have been and are being established include enforcement of Performance Standards of Tenaga Nasional Berhad (TNB) Electricity Services, effectively handling customer complaints and improving community awareness about energy consumption through the mass media, dialogues, seminars and publications.

protecting consumers interests

ENFORCEMENT OF TNB'S ELECTRICITY SERVICES PERFORMANCE STANDARDS

Guaranteed Service Level (GSL) is a level of performance set by ST to ensure the quality of electricity supplied by Tenaga Nasional Berhad (TNB). TNB's failure to comply with the service performance standards will result in a penalty rebate to the consumer. The Minimum Service Level (MSL) is the minimum level of performance set to measure the efficiency of TNB as required by the consumer.

With effect from 1 January 2012, GSL 3, GSL 4 and GSL 5 were enforced on TNB. GSL 3, GSL 4 and GSL 5 include:

- Provision of supply, including:
  - Time taken to provide a supply line (GSL 3) of 7 working days for overhead lines and 21 working days for underground lines.
  - The time taken for connecting new electricity supply for low voltage consumers (GSL 4) of 5 working days.

- Communication with consumers, i.e no mistakes in disconnection of electricity supply (GSL 5).

TNB performance on GSL and MSL for the year 2012 were respectively 96.8% and 97.2%. 11 GSL rebate applications have been received by TNB, where 10 applications were approved for payment and one rebate application was not approved since it was made more than 2 months after the non compliance occured.

GSL REBATE APPLICATION

	Total Rebate Applications	Rejected Applications	Approved Applications	Approved Rebate (RM)
GSL 3	9	1	8	400
GSL 4	2	0	2	100
GSL 5	0	0	0	0
	11	**1**	**10**	**500**

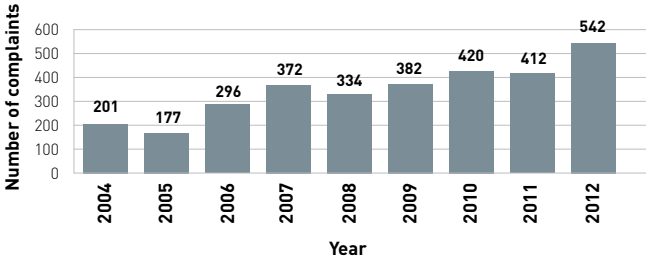
GSL promotion was made by TNB through GSL related posters and displayed at the Customer Service Centers in the peninsula. The circular on GSL has also been distributed at each ST office area and is featured in the ST portal.

GSL and MSL are also the elements of service performance achievement targets in the IBR, which will be implemented by ST on TNB. It is hoped that with the elements of GSL and MSL being in IBR, it would increase TNB's customer service.

CUSTOMER COMPLAINTS

In 2012, 542 complaints were received. This represented an increase of 32% compared to the 412 complaints received in 2011. Of this number, 92% of the complaints were resolved leaving complaints that required further action.

NUMBER OF COMPLAINTS RECEIVED IN 2012



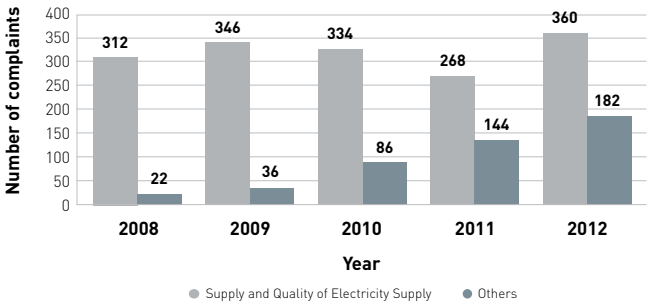
292 complaints (54%) received were electricity supply related, 68 complaints (13%) were on electricity quality and 12% on electrical installations.

ST ENFORCEMENT ACTIVITY IN 2012

Category	Percentage
Electricity supply	54%
Electricity supply quality	13%
Electrical installation	12%
Electrical equipment	7%
Electrical competency	6%
Electrical contractor	5%
Competency and gas supply	2%
Energy management	1%

The complaints on electricity supply and electricity supply quality have recorded an increase of 34% (360 complaints) compared to 268 complaints in the previous year. Other categories of complaints also showed an increase of 26% from 144 in 2011 to 182 in 2012.

COMPLAINTS ON SUPPLY, QUALITY OF ELECTRICITY SUPPLY AND OTHER CATEGORIES (2008–2012)



There are three sub-categories on the complaints on Electricity Supply namely billing, supply interruptions, meter tampering, public lighting and consumer affairs, transmission lines rentice, dangerous wiring/installation, supply connection, licensing and electricity prices.

Meter Reading and Replacement Issue

142 (33%) billing complaints which were recorded was the highest in the subcategories. This was followed by the issue of consumer dissatisfaction with TNB bimonthly meter reading system which often created confusion among consumers. In addition, it was driven by the programme to replace old meters, which were said to be the cause of dramatically rising bills after the change of meters .

TNB has taken steps to stop the replacement of old meters since the middle of October 2012 except for cases of defective meters and tampering of meters. In addition, estimated bill readings (e-bill posted) were stopped in stages from November 2012. TNB followed up by updating the new Standard Operating Procedure (SOP) and encouraging a more comprehensive and responsive communications plan while providing transparent and friendly services to the consumers.

Until 31 December, 2012, 498 or 92% of the complaints were successfully attended to and 44 complaints or 8% were still in the process of action being taken and investigation by the relevant officers.

PROMOTING COMMUNITY AWARENESS

Display in Mass Media

During the year 2012, ST actively continued in spreading news and information through Radio Television Malaysia (RTM) and Media Prima station network including local print media. Among thetopics or news angle emphasised were:

- Energy-efficient methods and practices.
- Dishonest use of electricity.
- Sales of electrical equipment without ST-SIRIM label.
- Installations that were not registered.
- Contractors who were not registered.
- Failure in appointing Competent Personnel by the contractors.
- Meter Inspection.
- Piped gas inspection.
- Encroachment of TNB overhead line rentice.

ST disseminated information through the print and electronic media and internet through Paid Advertorials, Exclusive Editorials and appearance in forums such as 'Selamat Pagi 1Malaysia' on TV1, TV3's 'Malaysia Hari Ini' and 'Nasi Lemak Kopi O' on TV9.

Director of Regulatory Electrical Safety being interviewed in Selamat Pagi 1Malaysia

ST also received several media coverage in its operations to reduce theft of electricity and the issue electrical equipment without ST-SIRIM labels through '999 plan' of TV3. In addition to the enforcement aspects, features about the ST's Diamond Building were also featured in several local print media.

protecting consumers interests (continued)

ST, with the Ministry of Energy, Green Technology and Water (KeTTHA) and the National Water Services Commission (SPAN) had launched a media campaign "Save Water, Save Energy" from September 2012 to November 2012.

Extensive media monitoring was done daily so that the news, issues and complaints regarding the local energy industry can be dealt with appropriately.

Dialogue Between ST and TNB

The dialogue between ST and TNB is an annual event held to discuss issues of electricity supply in Peninsular Malaysia. The dialogue is not only held at the highest level of the ST and TNB but includes those between ST regional offices and state TNBs.

In 2012, the dialogue between ST and TNB at the corporate level was held on 25 September, 2012. Besides discussing issues of electricity supply, the latest developments related to the electricity supply industry were also discussed. Among the matters discussed in the dialogue were:

- Boundry Management Guidelines and Maintenance of Electrical Installations and Piped Gas Systems approved for use;
- Review of incentives for high power factor;
- The issue of Horizontal Directional Drilling (HDD);
- Charges for reconnection of electricity supply;
- Bi monthly meter reading;
- Conversion of electric meters;
- Testing of electricity meters;
- Enforcement of the GSL and MSL;
- Substation land area;
- SAIDI improvement in several states;
- Registration of a competent personnel;
- Safety Audits;
- Electrical accident cases;
- Chargemen competency certificates;
- Over voltage incidents;
- Harmonic pollution and voltage dips;
- The need to restructure TNB generation;
- Bulk Supply Tariff;
- The current status of competency programmes conducted by ILSAS;
- Way leave issues; and
- Encroachment issues.

Industry Bulletin Publication

For the first time ST published the BULLETIN ST on June and followed up with a second issue on December 2012. This energy industry magazine focuses on key initiatives and the ST's main programmes that have been and are being implemented to improve efficiency, security and transparency in the energy sector of Malaysia. In addition, it is a platform for industry players to submit ideas and suggestions for improvement on the duties and roles of the ST as a regulatory body.

The first issue of Bulletin ST, released in June 2012

The second issue of Bulletin ST, released in December 2012

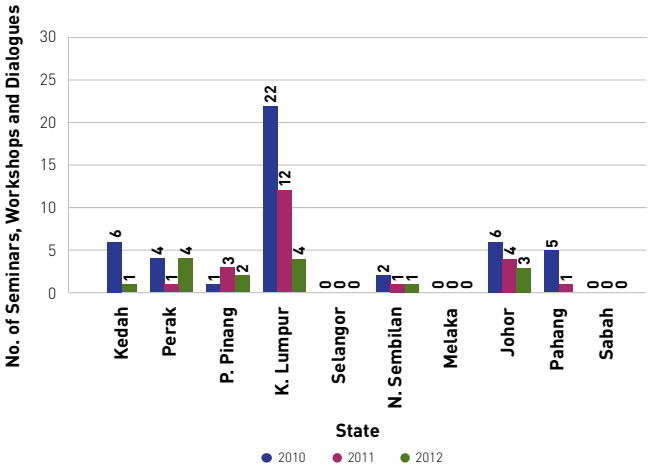
Apart from being distributed to Government agencies, industry players and non-governmental organisations (NGOs), they were also distributed to foreign embassies, public universities and private training institutions.

Organising Seminars, Workshops and Dialogues

Throughout 2012, ST was committed to the conducting of seminars, workshops and dialogues on electricity safety to the public, industry and school students.

A total of 107 seminars and 63 dialogues were organised throughout 2012 in collaboration with other agencies such as TNB, Sabah Electricity Sdn Bhd (SESB), Ministry of Domestic Trade, Cooperatives and Consumerism (Ministry), SIRIM, NGOs and Local Authority Councils.

SEMINARS, WORKSHOPS AND DIALOGUES IN STATES



As a result of organising such programmes, the electrical accident cases recorded a decline especially among school students, institutions of higher education and construction sites.

Domestic accidents cases have also shown a reduction from 16 cases in 2011 to 6 cases in 2012.

Executive Talk: Risk Management in the Power Sector

An Executive Talk Programme titled 'Risk Management in the Power Sector' was held on 7 May, 2012. The program was funded by the Electricity Supply Industry Trust Account (AAIBE) where it was an initiative of MEGTW to increase knowledge, skills and industry professionalism in the industry in performing the duties and responsibilities in the field of energy.

The main objective of organising the talks was to improve exposure of participants in risk management developments and operation of electricity power generation projects. The programme was participated by nearly 100 participants from among the energy industry stakeholders including the technical and asset management of companies and electricity suppliers, policy makers and members of the MESITA .

Seminar Co-organised with Local Agency

During 2012, ST had been harnessing the efforts of several agencies, industry representatives, educational institutions and non-governmental organisations (NGOs) to organise seminars and conferences or participated in exhibitions. Among the seminars organised with other organisations were:

- APEC Energy Working Group on 13 January, 2012 jointly organised with KeTTHA.
- National Energy Security Conference 2012: "Closing the Energy Supply-Demand Gap" on 28 February, 2012 jointly organised with KeTTHA and IEPRe, UNITEN.
- International Construction Week on 14-17 February 2012 by CIDB.

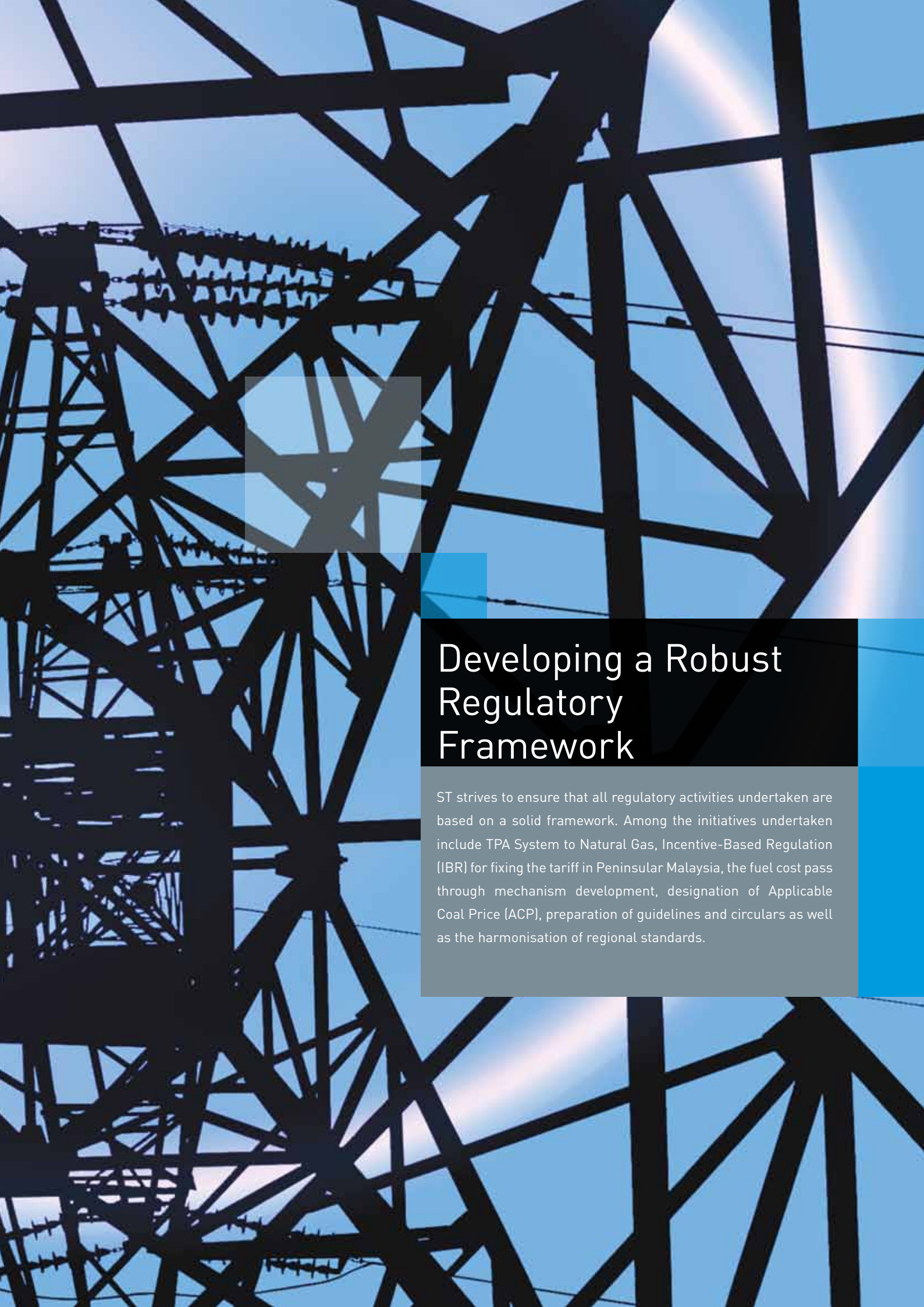
A Day with Consumers Programme

In an effort to increase public awareness towards the role of ST in aspects such as efficient energy consumption as well as supply of safe electricity and piped gas, a Day with Consumers program (DCP) was held in Sabah, Johor, Perak and Pahang.

Venue	Date
Cempaka Sari Hall, Ipoh, Perak	5 July 2012
Jubli Intan Hall, Kluang, Johor	12 July 2012
Library Auditorium, Tawau, Sabah	13 September 2012
Mahkota Trade Complex, Indera Mahkota, Kuantan, Pahang	27 September 2012

In addition to the dissemination of information, this programme also had counter services to provide relevant advice on issues faced by the customers. DWC also got cooperation from various groups, including TNB, SESB, Fire and Rescue Services, Department of Health and Pusat Giat Mara. The target groups were the public and students.

'A Day with Customers' programme with the visitors at Kluang, Johor.



Developing a Robust Regulatory Framework

ST strives to ensure that all regulatory activities undertaken are based on a solid framework. Among the initiatives undertaken include TPA System to Natural Gas, Incentive-Based Regulation (IBR) for fixing the tariff in Peninsular Malaysia, the fuel cost pass through mechanism development, designation of Applicable Coal Price (ACP), preparation of guidelines and circulars as well as the harmonisation of regional standards.

developing a robust regulatory framework

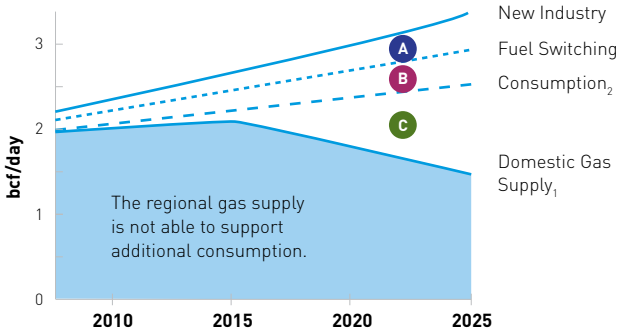
IMPLEMENTATION OF THIRD PARTY ACCESS (TPA) SYSTEM

Currently, the Gas Supply Act 1993 (Act 501) is used on natural gas supply activities in the distribution sector downstream of the city gate station to consumers. The economic aspects in the upstream natural gas supply activities from the production platform to the city gate station is under the jurisdiction of PETRONAS in accordance to the provisions of the Petroleum Development Act 1974 (not including security aspects).

This year, the quantity of natural gas in Peninsular Malaysia regulated by ST through the Gas Supply Act 1993 was 380 million cubic feet per day, comprising 18% of the total overall gas supply in the peninsula compared to 70 million cubic feet per day in 2002, while the quantity of gas regulated by PETRONAS through the Petroleum Development Act 1974 is far higher at 1,750 million cubic feet per day or 82% of total gas supply in the peninsula.

Based on the Economic Transformation Program (Oil, Gas and Energy Sector), an additional gas supply of 1,230 million cubic feet per day was expected to be required in Peninsular Malaysia in 2020 as shown in the following diagram. The additional gas supply is to meet the growing gas demand besides the decline in gas production from domestic gas fields.

DEMAND AND SUPPLY OF GAS IN PENINSULAR MALAYSIA



A Approx. 270 mmscfd[3] in 2020 of unrealised industrial activity (glass, plastic, etc) due to unavailability of gas, but able to pay liberalised, unsubsidised market prices.

B Approx. 260 mmscfd[3] in 2020 equivalent of diesel being used as industrial fuel; switching to natural gas at liberalised, unsubsidised price makes economic sense (assumes 50% switching factor).

C Approx. 700 mmscfd in 2020 supply-demand deficit.

1. Includes JDA and Indonesia.
2. Growth is based on 2001 - 2010 gas consumption from power at 1.5%.
3. Growth rate of 6% assumed on the 2010 volume based on historical GDP growth. In 2010, demand from new industries and fuel switching is 150 and 180 mmscfd respectively.

Due to the decline in gas production from the domestic gas fields and constraints in increasing imported gas through the pipeline, one of the alternatives to meet the gas shortage was to bring in LNG from Sarawak or imported LNG from foreign countries through the RGT. In line with this, the Government, through PETRONAS, will develop the facility in Sungai Udang, Melaka; Lahad Datu, Sabah and Pengerang, Johor.

TPA System Concept

Definition of TPA is as follows:

"A party other than the asset owner/operator gaining access to and using the excess capacity in the natural monopoly infrastructure of the asset owner".

TPA system allows entities other than PETRONAS to bring in LNG using RGT and channel the gas through the transmission pipeline system or online distribution pipeline system for supplying gas to the users' premises. This would create competition among gas suppliers, thus promoting growth of the country's gas industry. Among the factors that contribute to the success of the implementation of the TPA concept is the creation of a conducive, transparent and fair gas industry environment. The TPA concept is in line with the Government's efforts to create an open gas market which is expected to be implemented in the peninsula when the price of domestic gas achieves market prices.

In ensuring that the gas market is administered transparently and fairly, ST has been recommended to implement regulatory activities related to the competitive gas market.

Measures Taken to Implement TPA System

i. Gas Supply Act Amendments (GSA), 1993

Based on the analysis conducted, the existing Gas Supply Act 1993 needs to be amended to allow TPA system for the RGT, the transmission and distribution system to be implemented and monitored by ST.

From the safety aspect, ST is responsible for regulating downstream activities from the city gate station while upstream activities are still regulated by the Occupational Safety and Health Department under the provisions of the Factories and Machinery Act 1967 and the Petroluem (Safety Measures) Act 1984.

In the process of preparing the proposed amendments to the Gas Supply Act 1993, ST held a series of consultations with the stakeholders in the gas industry including related agencies/ bodies, the gas facilities operator, gas suppliers and major gas consumers in the energy and non-energy sectors.

Overall, based on the feedback given, the Government's decision to implement the TPA system for the gas facilities which include RGT, the gas transmission and distribution system was supported as it was a good step to develop the country's gas industry.

The proposed draft amendments to the Gas Supply Act 1993 were submitted to the Economic Planning Unit to be finalised and tabled in the Parliament in 2013.

ii. Development of the Code, Guidelines and the Tariff Structure for TPA

In accordance with the provisions of the proposed amendments, ST is empowered to provide the codes, guidelines and instructions for carrying out the provisions contained in the Act, including Malaysia's gas market competition aspects and third parties access system for the supply of natural gas systems in Peninsular Malaysia and Sabah .

With regards to the above, Arthur D. Little, as the lead consultant with Skrine & Baker Botts have been appointed for 12 weeks to achieve the identified deliverables as follows :

- Development of the Competition Guidelines for Malaysian gas market in accordance with the provisions of the proposed amendments to GSA 1993.
- Development of TPA Code for RGT, and gas transmission and distribution.
- Development of the tariff structure for the use of RGT infrastructure, and the gas delivery and distribution systems.

The Competition Guidelines and TPA Code draft for the gas transmission and distribution were circulated to the interested parties (stakeholders) for getting feedback before the documents were finalised.

Meanwhile, the tariff structure for the use of RGT, the gas transmission and gas distribution systems infrastructure is still in progress and is expected to be completed in early 2013.

ii (a). Competition Guidelines for the Malaysian Gas Market

The preparation of the Competition Guidelines for the Malaysian Gas Market aims to:

- Provide more detailed definitions and explanations of provisions relating to competition found in the GSA 1993 proposed amendments.
- Ensuring a level playing field among industry players.
- Increasing the confidence of new industry players in the Malaysia gas market.
- Reducing uncertainties in the gas market laws.
- Increasing transparency in the enforcement carried out by the regulatory officers.

The Competition Guidelines document was developed based on the following methodology:

- Reference to the Malaysian Competition Act 2010.
- Referrence to the Competition Guidelines provided by the Malaysian Competition Commission.
- Reference to the GSA 1993 proposed amendments especially Part VI (A) - General Competition Practices.
- Study on the unique features of the current gas industry structure.
- Providing a benchmark for the provision of competition being implemented in other countries to ensure that best implementation measures are undertaken.

developing a robust regulatory framework (continued)

IMPORTANT ITEMS IN THE COMPETITION GUIDELINES

Chapter	Topic	Summary
A	Market and Relevant Market	• The market and relevant market concept is introduced to identify parties that compete in the same market, assess the agreement which have anti-competitive effects and assess market power as well as the dominant parties involved. • The method for determining the relevant market, namely Hypothetical Monopolist Test (HMT) and Small But Significant Increase In Price (SSNIP) is described in the guidelines.
B	Anti-Competitive Agreement	• Section 12C of the amendment to GSA 1993 draft prohibits any agreements (vertical and horizontal agreement) with the objective or effect of which can significantly prevent or restrict competition. • The definition of the agreement in the guidelines is broad, and can include written and oral agreements and attendance at meetings to discuss a decision. • The market share of the party that made the agreement serves as a guide to determine whether an agreement has the objective or significant effect. • Proposed Safe Harbour Thresholds is less than 20% of the total market share for the same relevant market and less than 25% of the market share for each of the relevant markets involved. • Among the agreement that can be categorised as anti-competitive is fixing prices, sharing markets, restricting output and falsifying bids. • Provision for liability relief may be granted in accordance with section 12D of the GSA 1993 amendment draft which includes exemptions for individuals or groups.
C	Abuse of Dominant Position	• Section 12G of the amendment to GSA 1993 draft prohibits an enterprise from being involved in the act/behavior and abuse of dominant position. • Measures to investigate whether an enterprise has abused a dominant position are as follows: - Identify relevant markets involved. - Determine whether the enterprise is in a dominant position in the relevant identified markets. Among the methods of determination is based on the market share. If the market share is more than 60%, the company is dominant. If the market share is less than 40%, the probability for the company to be dominant is low. - Determine whether the abuse of dominant position has been done and among the acts categorised as abuse are price discrimination, exclusive business dealing, predatory action, refusal to supply, squeezing profit and bonding and merging. • The guidelines also list the justifications that allow abusive action in accordance with Section 12G (3).

ii (b). TPA Code for the Gas Transmission and Distribution System in Malaysia

The objective of the TPA Code is to provide a regulatory framework for:

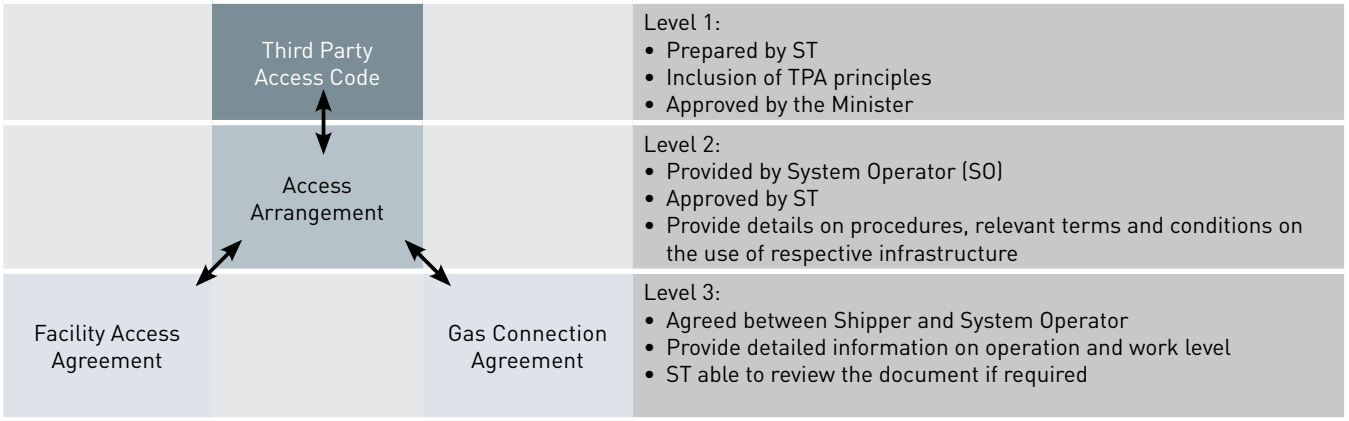
- Promoting the development of competitive gas market with the development of similar principles for the operators and users of the gas transmission and distribution system;
- Ensuring transparency, fairness and non-discrimination in the use of the system;
- Preventing abuse of dominant position and anti-competitive acts; and
- Ensuring a safe and reliable gas supply.

The TPA Code was developed based on the following methodology:

- Reference to the proposed draft of the amended GSA 1993.
- Reference to the Network Code for Peninsular Gas Utilisation Transmission System document published by PETRONAS Gas Berhad in December 2011.
- Provision of benchmarks in relation to TPA system being implemented in other countries to ensure best operating practices.

The following diagram shows the proposed TPA system where it consists of 3 levels:
(Level 1) TPA Code, (Level 2) Access Arrangement
dan (Level 3) Party-to-Party Operational Agreements:

Recommended Malaysian TPA Regime



Documentation Structure for TPA System

Infrastructure	Regasification Terminal	Transmission System	Distribution System
TPA Code	Regasification Code	Transmission Code	Distribution Code
Access Arrangement	Development by Regasification Terminal Operator	Developed by Transporter	Developed by Distributor
Facility Access Agreement	Regasification Agreement (RGTA)	Gas Transmission Agreement (GTA)	Gas Distribution Agreement (GDA)
Gas Connection Agreement	Gas Connection Agreement signed between various connected parties. (e.g. between Transporter and Distributor, Transporter and End-user, Transporter and Terminal Operator,etc.)		

developing a robust regulatory framework (continued)

Among the important characteristics in the TPA Code are as follows:

Principle	Description
Capacity Allocation Mechanism	• Based on the first-come-first-served basis. • Fixed capacity with a minimum booking of 12 months period. • ST can issue directives to amend the minimum booking period.
Constraints Management	• Interruptible Capacity with minimum booking period of 12 months. • Allocation based on use-it-or-lose-it principle. • Allowable switching of special fixed capacity. Transfer of allocated fixed capacity is allowed. • Rental of capacity is not allowed. • Shipper may build new facility as addition to the existing system with the permission from the system operator (SO). The facility has to be transferred to the SO. • Open Season procedure - SO needs to implement Open Season if there are physical constraints or every 5 years.
Metering	• SO should prepare Metering Philosophies. • SO should measure the gas quantity at all entry and exit points. • SO should measure gas quality at all points of entry but need not measure the gas quality at all exit point. • SO to ensure reliability and accuracy of the gas quality measurements obtained.
Gas Quality	• Gas quality specifications need to be clarified in the Access Arrangement. • Provision for handling Off-Specification Gas.
Balancing Mechanism	• Is a critical element in the TPA system. • Line pack has to be owned by the SO and SO is responsible to manage and implement line pack balancing on the gas transmission/distribution system. • SO can get back the cost of gas used to start the preparation of the line pack through the applicable tariff.
Internal Gas Consumption (IGC)	• SO manages IGC to ensure a reliable and safe gas supply. • The gas cost for IGC may be included as part of the tariff calculation.
Penalty and Surcharge	• Shipper must ensure that the gas quantity at the entry and exit point is equal (balanced). • SO will impose surcharges and penalties if the shipper fails to rebalance their gas portfolios. • There are 3 types of surcharges imposed: - Imbalance - Variance - Overrun
Maintenance	• SO is responsible for preparation of a plan for scheduled maintenance. • SO can perform unscheduled maintenance if maintenance is required for ensuring the integrity and security of the system.
Gas Transport Day	• Nomination and Intra-day procedure.
Gas Quantity Allocation	• Calculation formula for gas quantity allocation to be distributed at the entry and exit points where one meter can be shared by more than one Shipper.
Others	• Related to communications and confidentiality, liability and damages as well as dispute resolution process.

Current Status and Way Forward

The Competition Guidelines for the Malaysian natural gas market has been distributed to interested parties on November 2, 2012. Subsequently, the Malaysian Competition Commission (MyCC) has expressed their agreement to the guidelines, while TNB, PETRONAS, PGB and MyPower have submitted their respective comments and suggestions for the reference of the ST. The guidelines have also been presented and approved at the ST Top Management meeting on November 7, 2012. Subsequently, on December 7, 2012 an internal briefing was held to expose ST employees to the contents and concepts in the guidelines.

For the TPA Codes, a series of discussions were held with PGB and GMB as the infrastructure owner of the gas transmission and distribution systems in Malaysia before the briefing on the code to interested parties on December 12, 2012. Following that, the draft codes have been distributed to interested parties on December 19, 2012 to get their feedback.

The feedback received will be reviewed before the codes are finalised and submitted to the Prime Minister for approval. However, the approval from the Honourable Prime Minister will only be applied after the Gas Supply Act (Amendment) 1993 is approved and gazetted.

In addition, in the effort to enhance the ability of the ST in regulating the TPA system, a series of visits were held in 2012 as follows:

8-9 March 2012:

Technical visit to the LNG Regasification Terminal at Sungai Udang, Melaka to look at the progress of the project developed by PETRONAS Gas Berhad.

developing a robust regulatory framework (continued)

2-4 October 2012:

Technical visit to the Petronas LNG Complex in Bintulu, Sarawak to study the LNG production process.

IMPLEMENTATION OF INCENTIVE- BASED REGULATION (IBR) FOR ELECTRICITY TARIFF IN PENINSULAR MALAYSIA

In 2012, ST actively conducted a trial-run to implement the revised tariff in Peninsular Malaysia based on the IBR framework for the financial year of 2013 till 2014. The implementation of the IBR trial-run was initiated with the following actions:

- Issuance of the Final Rule Implementation Guidelines (Electricity Regulatory Implementation Guidelines-RIGs) on February 13, 2012 to TNB for the preparation of the IBR framework.
- Finalising the principle of fuel cost relief mechanism (Imbalance Cost Pass-Through-ICPT) and TNB Key Performance Indicator (KPI) under IBR regime with stakeholders through a consultation session held in June 2012.
- Obtaining approval of the Minister of Energy, Green Technology and Water on the of fuel cost pass through review of the first half year (Dec 2011-May 2012) as a result of ICPT negotiation and arrangement process being implemented.
- Finalising the proposed TNB Key Performance Indicators based on the Regulatory Implementation Guideline No. 6 for TNB's transmission and distribution business entity.

TNB has also submitted its first revised proposal on electricity tariff revision based on IBR requirements on November 30, 2012 through 'TNB-IBR and Tariff Review Submission FY2014-FY2017' prepared in accordance with the RIGs guidelines.

If the result of revised electricity tariff trial-run based on IBR resolution is well received by consumers and the Government, the period from September 2013 to August 2014 can be the period to improve the process for IBR full implementation beginning in September 2014 till the end of August 2017 or any date as determined by the Government.

The IBR concept will be the pioneer of a new change in the review and determination of electricity tariff where only efficient costs will be included in the proposed revisions of the electricity tariff. At the same time, a reasonable rate of return will be given to the utility to incentivise their performance. It will also strenghten transparency in the Government's decision making, the formulation of the mechanism and provide clear guidance to utilities. This also indirectly guides the consumers and for the Government to inform of any tariff adjustments made from time to time.

DEVELOPMENT OF FUEL COSTS PASS-THROUGH (FCPT) MECHANISM

In principle, the Government has approved the principle for the adjusted fuel cost pass through mechanism to consumers to be done every 6 months. With regards to this, ST has initiated arrangements for determing the cost of fuel from December 2011 to May 2012, for the review of electricity tariffs for the period from 1 June 2011 to 30 November 2012.This initiative is among the steps taken towards implementing the IBR, which has been agreed upon by the Government on October 18, 2011 as the new tariff fixing policy in Peninsular Malaysia. One of the components in the IBR implementation is the implementation

of the Imbalance Cost Pass-Through mechanism, which determines principles and the formula to calculate actual fuel cost for electricity generation which is beyond TNB's control that need to pass-through to consumers through the electricity tariff.

This estimate was made by using the assumption of an increase in gas prices of RM3/mmBtu every 6 months according to the subsidy rationalisation plan and also taking into account the increase of coal price for the entire period of December 2011 to May 2012. In making this revision, ST has made an in-depth study into the fuel cost pass through calculation, taking into account only efficient costs of electricity generation. The study included:

- Least-cost dispatch scheduling in the Grid Code for electricity generation so that only efficient costs will be considered for fuel cost pass through;
- Heat rate performance recorded by each power station, especially TNB's stations;
- Actual gas volume used for each gas based generation station;
- Quantity and price of coal used for each coal based generation station; and
- Calculation to be based on a predetermined formula in the IBR guidelines .

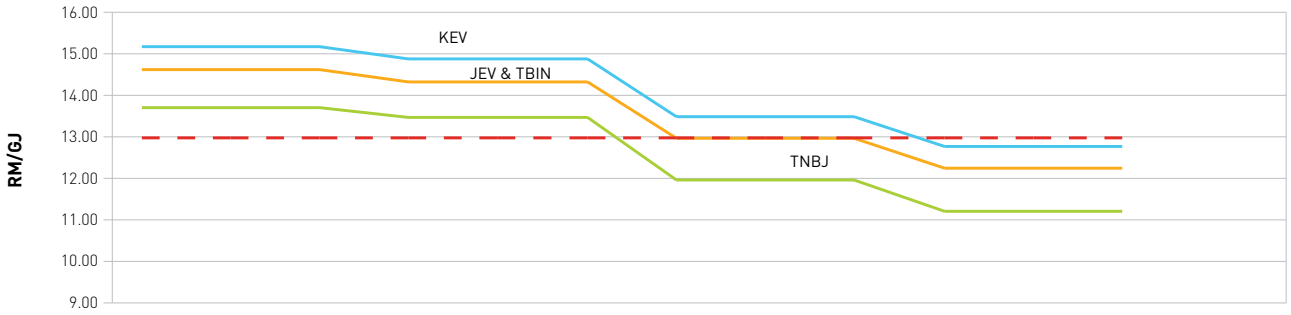
IMPLEMENTATION OF APPLICABLE COAL PRICE (ACP) MECHANISM

The year 2012 witnessed the scenario of a decline in the world coal price due to abundance of supply compared to demand. Specifically, there were no high demands from the Asia major coal buyers China and India, where the countries' domestic coal supply was able to accommodate their industrial needs. This was coupled with the passive purchases of coal by the United States and Japan .

The matter was discussed in the coal price and cost monitoring committee that was established in 2011, to monitor pricing and coal acquisition especially on matters related to supply and pricing mechanism from time to time .

Compared to the year 2011, ACP began to decline begining at the second quarter till the fourth quarter of 2012. In 2012, the average ACP at the second quarter was RM14.15 /GJ, RM12.73/GJ for the third quarter and the RM12.01/GJ at the fourth quarter. For the first time since the ACP mechanism was implemented, the average coal price in the third quarter year of 2012 was RM12.01/GJ, that is, lower than the price of gas for the power generation at RM 12.99/GJ. With regards to this, the coal consumption in the fuel mix was the maximum since the third quarter year of 2012 for optimising the generation cost in Peninsular Malaysia.

COAL FIXED PRICE



	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12
TNBJ	13.61	13.61	13.61	13.35	13.35	13.35	11.97	11.97	11.97	11.24	11.24	11.24
TBIN	14.78	14.78	14.78	14.47	14.47	14.47	13.03	13.03	13.03	12.31	12.31	12.31
KEV	15.28	15.28	15.28	14.95	14.95	14.95	13.48	13.48	13.48	12.77	12.77	12.77
JEV	14.78	14.78	14.78	14.47	14.47	14.47	13.03	13.03	13.03	12.31	12.31	12.31
Gas Price	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99	12.99

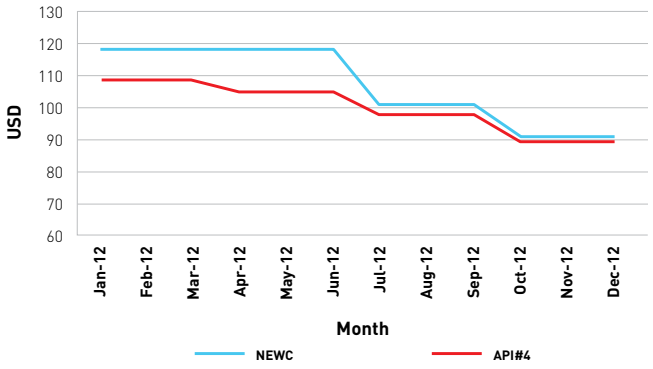
developing a robust regulatory framework (continued)

The price determination based on the ratio of different types of coal in the PPA is as follows:

Station	Bituminous	Sub-Bituminous
Kapar	100%	-
Manjung	-	100%
Tanjung Bin	70%	30%
Jimah	70%	30%

The world coal price indices, NEWC and Argus McCloskey Coal Price Index (API # 4) continuously showed a decrease of 10.4% and 9% respectively caused by the softer world economy and coal markets in the Europe. This has impacted the world market and influence the coal price determinantion to be lower in the generation sector.

MARKET TREND INDEX



The cost of coal shipments in the first and second quarter indicated a little increase based on the Bunker Adjustment Factor where it increased to 7%. However, in the third and fourth quarters of 2012, the Bunker Adjustment Factor showed an overall decrease of 8% thus lowering the shipment cost. This price determination is based on long-term contracts agreed between TNBF with coal suppliers.

CATEGORIES OF ELECTRICAL EQUIPMENT

In line with the increasing rapid development of technologies, production of electrical equipment also increased with a variety of designs with new technologies. Consequently, ST has added new electrical equipment categories and sub-categories of equipment that need to be controlled from 31 categories to 34 categories.

The 3 new categories of electrical equipment to be controlled by ST include Electric Massage Machines, Air-Conditioners and Adapters. In addition, among the sub-category of equipment added were LED lights, door bell switches and chimes, portable cable reels, Edison screw lamp holders, night lamps integral with direct in plug, portable LED lamps, bottle warmers, sterillisers, water dispensers/filters, dish washers, decorative fans, bladeless fans, ionic facial steamers, audio/video recorders (up to 4 channels).

The notice on the additional category of Electrical Equipment Requiring Certificates of Approval has been made known to interested parties such as the Royal Malaysian Customs which controls the entry of goods at the entry points and SIRIM QAS which deal with manufacturers and importers.

The announcement notice was also made through ST portal on 15 June 2012 and through local newspapers such as Berita Harian and the New Straits Times on 18 August, 2012 .

PRINT MEDIA NOTICE ANNOUNCEMENT ON ADDITIONAL TYPE OF EQUIPMENT

Suruhanjaya Tenaga

PEMBERITAHUAN

PENAMBAHAN KATEGORI KELENGKAPAN ELEKTRIK YANG MEMERLUKAN PERAKUAN KELULUSAN

Di bawah peruntukan Peraturan 97 (1) Peraturan-Peraturan Elektrik 1994, adalah menjadi tanggungjawab pengilang dan pengimport kelengkapan elektrik untuk mendapatkan Perakuan Kelulusan terlebih dahulu dari Suruhanjaya Tenaga (ST) bagi kelengkapan elektrik yang hendak dikilang atau diimport sebelum boleh dijual di pasaran. Sebelum ini, ST telah mewajibkan sebanyak 31 kategori kelengkapan elektrik yang dikawal. Demi meningkatkan tahap keselamatan kelengkapan elektrik yang semakin bertambah di pasaran, ST telah menyemak semula dan menambah tiga (3) lagi kategori baru dan beberapa jenis kelengkapan di bawah kategori sedia ada yang wajib mendapatkan Perakuan Kelulusan. Senarai baru bagi 34 kategori kelengkapan elektrik adalah seperti di **Lampiran A.**

LIST OF REGULATED ELECTRICAL EQUIPMENT

Item	Category Equipment	Types of Equipment
1	**PLUG TOP/PLUG (15A and below)**	Flat Non-Rewirable Two Pole Plug with supply cord (max. 2.5A)
		13 A Fused Plug
		15 A Plug
		Appliance Coupler
		Interconnection Coupler
		Adaptor (Multiways)
		Integrated Adaptor
		Electrical Connector (connecting device)
		Connecting device with screw type clamping unit
		Connecting device with screw-less type clamping unit
		Connecting device with insulation-piercing clamping units
		Twist-on connecting device
		Connecting boxes
2	**SWITCH AND DIMMER**	General Purpose Switch, Door Bell
		Electronic Switch
		Remote-control Switch
		Time Delay Switch
		Cooker Control Unit
3	**SOCKET OUTLET (15A and below)**	Electric Shaver Socket Outlet
		13A Switch & unswitch socket outlet
		15A socket outlet & Plug
		Portable 2 pin socket outlet class II
		***Portable cable reel**
4	**FLUORESCENT LAMPHOLDER / STARTER HOLDER**	Lamp holder for tubular fluorescent lamp
		Starter holder for tubular fluorescent lamp
5	**CEILING ROSE**	Ceiling Rose
		***Edison Screw Lamp holder**
6	**BAYONET CAP and MULTIWAYS ADAPTOR**	Bayonet cap Lampholder, Bayonet Lamp Adaptor.
7	**LAMP FITTING**	Fixed general purpose Luminaries (excluding Tube/Bulb), ***Batten Luminaries (excluding Tube/Bulb), *Luminaries with self-ballasted florescent lamp.**
		Recessed Luminaries (excluding Tube/Bulb)
		Glow-starter for tubular fluorescent
		***Self-ballasted Compact Florescent Lamp (CFL) with Edison screw or bayonet caps**
		***LED General and safety for lamp contolgear for use on dc supplies up to 250V and or ac supplies up to 1000V**
		***Lamp controlgear:**
		Particular requirements for d.c or a.c supplied electronic controlgear for LED modules
		***LED Lampholder (Connectors for LED-modules)**
		***LED Modules for general lighting (eg. Double capped self-ballasted LED lamp)**
		***Self-ballasted single capped LED-lamps for general lighting services by voltage > 50V**
8	**CAPACITOR for FLUORESCENT LAMP**	Capacitors for use in tubular fluorescent lamp and other circuits.
9	**BALLAST / CONTROL GEAR / DRIVER FOR LAMP**	Magnetic Ballast for tabular fluorescent lamp
		Electronic Ballast for fluorescent lamp

Item	Category Equipment	Types of Equipment
10	**CIRCUIT BREAKER including AC CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER and MINIATURE CIRCUIT BREAKER**	Residual Current Circuit Breaker (RCCB)
		Residual Current Breaker with Overcurrent Protection (RCBO)
		Miniature Circuit Breaker (MCB) for ac
		Miniature Circuit Breaker (MCB) for ac & dc
		Fuse Base & Carrier up to 32A
		Fuse/Fuse Link up to 63A
		Switch fuse up to 63A.
11	**PORTABLE LUMINAIRE LAMP**	Standing Lamp with detachable or non-detachable mains supply flexible cord, Standing Lamp & adaptor, Table lamp with detachable or non-detachable mains supply flexible cord, Table Lamp & adaptor, ***Night Lamp integral with direct in plug. *Portable LED Lamp**
		Hand Lamp & adaptor,
12	**KETTLE including HEATING ELEMENTS IF SUPPLIED SEPARATELY**	Warming Plate
		Deep Fryer
		Heating Liquids such as: Coffee / Tea Maker, Food Steamer, Egg Boiler, Jug, Slow Cooker, Steam Boat, Kettle, Airpot, ***Bottle Warmer, *Sterilizer.**
		Multi-purpose cooker
		*Water Dispenser/Filter
		Water Dispenser - Hot
		Water Dispenser - Cold
		Water Dispenser – Hot and Cold
		Built in Hob
13	**KITCHEN MACHINE**	Blender, Chopper, Food Processor, Juice Extractor, Grinder , Mixer.
14	**TOASTER / OVEN (Cooking Appliance)**	Stationary Electric Oven, Induction Hob.
		Bread Maker, Bread Toaster, Portable Oven, Induction Cooker, Grill, Sandwich Maker/ Waffle Maker, Roaster.
		Microwave Oven
15	**RICE COOKER**	Rice Cooker
16	**REFRIGERATOR**	Refrigerator, Freezer, Minibar.
17	**IMMERSION WATER HEATER**	Fixed Immersion Heater
		Portable Immersion Heater
18	**WATER HEATER including HEATING ELEMENTS IF SUPPLIED SEPARATELY**	Storage Water Heater
		Instantaneous Water Heater
19	**WASHING MACHINE**	Washing Machine having drying
		Washing Machine with separate spin container
		Tumbler Dryers
		Cloth Dryers *(on rack located)*
		***Dish Washer and other utensils.**
20	**FAN**	Moving-louver fan, Ceiling fan, Auto fan, Pedestal fan, Table fan, Wall fan & applies to their separate regulators and with blade.
		Ventilating fan, ***Decorative fan & applies to their separate regulators and fan without blade.**
		Range Hood
		Cleaning Appliances (eg. Air Purifier)
		Humidifiers (eg. Air Cooler)
21	**HAND OPERATED HAIR DRYER/ HAIRCARE/ SKIN CARE**	Hair Dryer, Hair Styling Set, ***Ionic Facial Sauna or similar to it.**

Item	Category Equipment	Types of Equipment
22	**IRON**	Iron
		Fabric Steamer
23	**SHAVER**	Shaver, Hair Clippers.
24	**VAPORISER**	Mosquito Matt Vapor, Aroma Vapor (eg. Air Freshener)
25	**VACUUM CLEANER**	Vacuum Cleaner, Water Suction Cleaning.
26	**HI-FIDELITY SET**	Sub-woofer, Amplifier, Cassette Player, Equalizer / Mixer, Hi-Fi System, Karaoke, PA System, Portable Hi-Fi System, Portable Radio Cassette, Player / Recorder, Radio, Radio Alarm, Tuner / Receiver, Turn tables / Record Players, Compact Disc Player, ***Audio/Video Recorder up to 4 channels.**
27	**VIDEO and VISUAL DISPLAY UNIT**	Electronic appliances such as: LCD, LED, Plasma, CRT, and similar to it.
28	**AUDIO and VIDEO PLAYER UNIT**	VCD , Laser Disc, Video Cassette Recorder, DVD , Video Rewinder, Children Video Game.
29	****MASSAGER**	***Foot Massagers, *Massage Bed, *Massage Chair, *Massage Pads, *Handheld Massagers, *Massage Belts.**
30	****AIR CONDITIONER (up to 4hp)**	***Split Air-conditioner, *Portable Air conditioner, *Ceiling Air-conditioner.**
31	**CHRISTMAS LIGHT**	Lighting Chain, Rope Light, Decorative / Festive Light.
32	**DOMESTIC POWER TOOLS (Portable Type)**	Drill (Drill bit size up to 15 mm)
		Grinder (up to 100 mm)
		Sander (up to 300 W)
		Circular Saw and circular knife (Cutting Blade up to 160 mm)
		Spray gun for non-flammable liquid (up to 100 bars)
		Jig and Sabre Saw (up to 60 mm)
		Planer (up to 500 W)
		Trimmer (up to 300 W) Hedge trimmer and Grass shears (up to 750 W)
		Router and trimmer (up to 500 W)
		High Pressure Cleaner
		Sewing Machine
		Portable Heating Tool such as: Soldering Gun, Soldering Iron, Heat Gun, Hot Air Firelighters, Glue gun.
33	***ADAPTOR / CHARGER**	Portable Battery Charger (up to 12 V)
		*Adaptor for IT Equipment (up to 20V)
		General electrical appliances,
		*Switching mode power supply
		*Electric toys
		Audio video equipment
		*IT & Office products
		Shavers
34	**WIRE / CABLE / CORD (non-armoured) 0.5mm² to 35mm²**	Polyvinyl chloride (PVC) Insulated flexible cord and cable
		Rubber insulated cord and flexible cables
		PVC-insulated cable (non-armoured) for electric power and supply: - non-sheathed
		PVC-insulated cable (non-armoured) for electric power and supply: - sheathed

Sila hubungi pegawai berikut untuk keterangan lanjut:

IR. Fairus bt. Abdul Manaf
No. Tel : 8870 8605 No. Tel: 8870 8605
E-mail: fairus@st.gov.my

Suruhanjaya Tenaga
No. 12, Jalan Tun Hussein, Presint 2, 62100, Putrajaya
Tel: (8870 8500 Faks: (603) 8888 8637
www.st.gov.my

developing a robust regulatory framework (continued)

ADDED EQUIPMENT SUB CATEGORIES

The additional new electrical equipment categories has been widely made known in 2012 to interested parties as follows:

BRIEFING ON ADDITIONAL ELECTRICAL EQUIPMENT

Interested Parties	Briefing Date
TEEAM, MEADA & PERKEM	5 June 2012
SIRIM QAS International	1 - 17 October 2012
Malaysian Air Conditioning & Refrigeration Association (MACRA)	18 October 2012
Sabah Royal Malaysian Custom	18 December 2012

GUIDELINES AND CIRCULARS

Electrical Meter Guidelines

As a result of action being taken by TNB to change the old meters of more than 15 years of age, consumer complaints were received resulting from the high increase in electricity bills. Consumers had questioned the accuracy of the installed meters and also had begun to raise up the issue of the party responsible for testing and verifying the meters. Looking at the scenario then, a lot of electrical meter complaints made were on the consumers' level of trust towards the integrity of the meter itself. The many complaints pointed to the need for an independent body with the responsibility to conduct more effective verification of meters.

In early 2012, ST took the initiative to streamline the process of monitoring the electrical meters and began developing electrical meters guidelines which set out the necessary processes to test and verify electrical meters. The development of the electrical meters guidelines is in line with the ST responsibilities as an independent body to monitor the use of electrical meters to improve transparency in the approval, testing and calibration of electrical meters by an independent, competent party.

At present, the testing and calibration of electric meters complies with EN ISO/IEC 17025:2005-General Requirements for the Competence of Testing and Calibration Laboratories under the Laboratory Accreditation Scheme of Malaysia (SAMM). This scheme is supervised by the Department of Standards Malaysia, Ministry of Science, Technology and Innovation which is responsible for accrediting testing and calibration laboratories. All electric meters laboratories of meter manufacturers including TNB vendors have been accredited under this accreditation scheme. These laboratories have been accredited for testing and calibrating of electrical meters process based on the following standards:

- MS IEC 62053-11: Electromechanical meters for active energy (classes 0.5, 1 and 0.2).
- MS IEC 62053-21: Static Meters for active energy (classes 1 and 2).
- MS IEC 62053-22: Static Meters for active energy (classes 0.2S and 0.5S).
- MS IEC 62053-23: Static Meters for reactive energy (classes 2 and 3).
- MS IEC 62052-11: Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 11: Metering equipment.

The implementation of the electrical meter guidelines, would emphasise more on the integrity of the electrical meters from a legal perspective (legal requirement). Three new process were introduced to enhance the regulation of electrical meters namely:

- Patent Approval-handled by the National Metrology Laboratory (NML), SIRIM Berhad or in the National Measurement System Act 2007 being interpreted as the National Measurement Standards Laboratory ;
- Product Certification - conducted by International SIRIM QAS as the Certification Body that possess the competency levels for conducting the Product Certification process; and
- Labelling of electrical meters with SIRIM - ST labels.

By April 2013, new electrical meters used by TNB will be equipped with SIRIM - ST labels when approved in the process that is stipulated in the existing electrical meter guidelines.

Guidelines on the Boundry for Management and Maintenance of Electricity and Piped Gas System Installation

Frequent disputes are raised by consumers, owners and management of installations in relation of the management and maintenance responsibilities of electrical and gas installations at the consumer premises, especially in high rise buildings. There are ambiguities in the boundry of responsibilities between the utility with the management and the owners of their respective installations. The guidelines for the Boundry for Management and Maintenance of Electrical and Piped Gas System Installations was developed to set the boundaries of responsibility between the parties involved with electrical and piped gas installations within building and was first adopted on March 19, 2012.

Electrical Safety Circular

ST has also issued a circular, entitled "Use of 1.5mm^2 Copper Power Cable For Lighting Circuit Wiring", which is aimed at explaining to all consultants, electrical contractors, competent personnel, cable manufacturers and importers as well as all the other parties involved in the design and installation of wiring and electrical systems, on the need of at least 1.5mm2 copper cable for lighting circuit in wiring systems in buildings.

The installation of 1.5mm^2 copper wiring for lighting circuits was stipulated in the Guidelines for Electrical Wiring in Residential Buildings that has been issued by ST and the guidelines were developed in accordance with the requirements of the following Malaysian standards:

- MS IEC 60364 - Electrical Installations of Buildings;
- MS 1936:2006 - Electrical Installations of Buildings - Guide to MS IEC 60364; and
- MS 1979:2007 - Electrical Installations of Buildings - Code of Practice.

These guidelines have also been made mandatory through ST's Circular No. ST. 2/2008 of 1 July, 2008. However, ST has discovered that there were still cables of size less than 1.5mm^2 used for lighting circuits in buildings. ST has also found that there are local cable manufacturers still producing 1:25mm^2 sized copper cables for permanent wiring.

Action To Be Taken

Consultants, electrical contractors, competent personnel and all other parties involved should ensure that copper cable wiring with a size of at least 1.5 mm^2 only are used for permanent wiring lighting circuits. The following sources of information and markings can be used to identify whether the cable used is in compliance with the set standards:

- information of the cable in the label on the cable package;
- embossed marks on the cable that state the size, standard and the relevant accredited cable testing laboratory; and
- direct physical examination of a cross section of the cable which shows the number of cable strands, type of conductor and insulation.

Cable standards used for permanent wiring is MS 2112:2009. The use of copper cable with the size of at least 1.5mm^2 for lighting circuits is to avoid the occurrence of overheating, voltage drop or damage to the cable insulation. Wiring system for lighting circuits should use copper cable of at least 1.5mm^2 throughout the installation (from the fuse or MCB) at the distribution board up to the light point without any joints in between.

Enforcement Actions

All consultants, electrical contractors, competent personnel, cable manufacturers and importers and all parties involved in the design and installation of electrical wiring installations are reminded to adhere to the ST Circular No. 2/2008. Stern action could be taken against any parties who fail to comply with the circular.

developing a robust regulatory framework (continued)

RE-EVALUATING EXISTING STUDIES

Study on Effectiveness of Gas Odorant System in Gas Transmission Pipeline for Commercial and Residential Sectors in Peninsular Malaysia

Recently, several gas explosion accidents had caused loss of life and damage to property at commercial and residential premises. One of the possible factors that contributed to the accidents is the ineffectiveness of the gas odorant system.

Subsequently, ST had conducted a Study on the Effectiveness of the Gas Odorant system in Gas Transmission Pipelines For Commercial and Residential sectors in Peninsular Malaysia starting from May 2012 which aimed to determine the effectiveness of the Gas Odorant in Gas Transmission Pipelines. The Gas Technology Centre (GASTEG), UTM was appointed to carry out the study.

Among the main objectives of this study were as follows:

- To determine the odorant level in predetermined locations from the city gate stations till the gas consumers, particularly in commercial and residential premises.
- To determine whether the current odorant levels comply with local standards and standards practised internationally.
- To assess the suitability of different types of odorants used in the odorant system.
- To determine the cause of inadequate odorant levels and non uniform odorant diffusion and to provide suitable recommendations to achieve an effective odorant level at all times to ensure the safety of the gas installation.

In this study, the measurement of odorant levels were conducted at several locations in the identified area such as condominiums, terrace houses, bungalows, hotels and shopping complexes. Among the locations are Hampshire Park Condominium, Kiara Condominium Green, Berjaya Times Square, the National Golf Club and others. Odorant level reading were also obtained at the city gate stations of Capital Station Glenmarie and Serdang and district, regional and service gas stations. 3 types of odorant level measuring devices had been used namely Electrochemical Sensors (Sewerin ExTEC OD4), Length of Stain Tube and Suction Pump (Gastech) and Odorator System (Health Tech Odorator).

Odorant level measurement using Electrochemical Sensors and reading example

After the measurement of odorant levels was carried out, the simulation process to study the spread of the gas molecules was carried out by using the Flame Acceleration Simulator (FLACS) software while the odorant flow patterns simulation process in the pipeline were carried out by using the Computational Fluid Dynamics (CFD) software. The data obtained from the results of the measurement of odorant levels were used in the simulation processes.

Based on the measurement of the odorant levels and the simulations conducted, the conclusions that could be drawn are as follows:

- The amount of odorant in the gas transmission pipeline system at the city gate station is sufficient.
- The composition of TBM and DMS respectively of 80% and 20% that were found in the gas transmission pipeline system is effective and suitable for the use in the natural gas odorant system.
- There are two factors that directly affect the loss of odorant namely the gas flow rate and altitude. However, the gas flow rate is the bigger factor for the odorant loss.
- At low gas consumption rates, the loss of odorant is higher in the high rise residential buildings such as condominiums.

Based on the study conducted, it was found that gas users in high-rise residential buildings have very low rates of gas consumption. This would affect the effectiveness of the natural gas odorant and it is feared that gas leakages would not be sensed in the premises. In this connection, GASTEG has recommended the following to improve gas system safety particular for consumers in high-rise residential buildings:

- Due to the low rate of gas consumption in the high-rise residences, installation of natural gas leakage tracking system is highly recommended in each consumer unit.
- Back-Check Valve installation along the the gas transmission pipelines in high-rise residences is also recommended to maintain the level of odorant at higher altitudes.
- The addition of odorant into the gas transmission pipeline system in residential building of over 15 stories is also needed and may be done at building roof tops.
- Increase the rate of gas consumption among consumers in high-rise residences through continual promotion on the use of gas as well as awareness of safety aspects.
- Have continuous monitoring of the level of the odorant especially in high-rise residential buildings.

Study on Revision of Tenaga Nasional Berhad Reconnection Charges

The imposition of consumer connection charges by TNB has first introduced in 1995. As of today, the charge rates have yet to be revised taking into account the change in prices and the current inflation rates. The last proposal to revise the connection charges was submitted by TNB in the electricity tariff restructuring proposal in 2009. However, the proposed revision of connection charges was postponed to enable the adjustment of electricity tariff in Peninsular Malaysia which was decided in June 2011.

To ensure the rates to be charged to consumers is in line with the costs to be borne by TNB, ST has initiated steps to study TNB reconnection charges from early 2012. For this, TNB has sent a consumer connection charges proposal in March 2012. Till the end of 2012, discussions with TNB on the proposal were still ongoing. This study is expected to be completed in 2013 and will be brought to the Government for consideration and approval.

Study on Power Quality Baseline in Peninsular Malaysia

A Power Quality Baseline Study which started in April 2010 has been extended till February 2013 to obtain the recorded data by PQ Monitors till January 2013 for the Central and Southern areas. This study was conducted to measure the level of power quality in the Malaysian environment to be incorporated in the related power quality standards. Data collection for the Electricity Supply Quality Baseline Study in Peninsular Malaysia through the installation of PQ Monitors for a period of one year have been completed for 25 locations in the Northern and the Eastern Coast. PQ Monitor Installations at 25 locations for the Southern and Central region has been completed and will record the data till January 2013. Data collection through the installation of data logger has already been done for 500 installations across Peninsular Malaysia.

The data collected up to October 2012 have been analysed and presented in the Power Quality Stakeholders Workshop which was held on October 22, 2012 at PWTC, Kuala Lumpur. A total of 167 participants attended the workshop.

Addressing the Issue of Power Quality Advocated by the American Chamber of Commerce (AMCHAM)

In PEMUDAH meeting No. 10/2012 on 6 November 2012 chaired by the Chief Secretary, AMCHAM had presented a white paper on their concerns on current trends relating to power quality especially on voltage dips that affect the operation of semiconductor factories and recommended that this matter be attended to immediately.

On 19 November 2012, the Working Group on Power Quality was set up and held meetings to discuss power quality issues faced by AMCHAM and companies under their fold. The meeting was attended by AMCHAM, Texas Instruments, Western Digital, Freescale Semiconductor, TNB and ST.

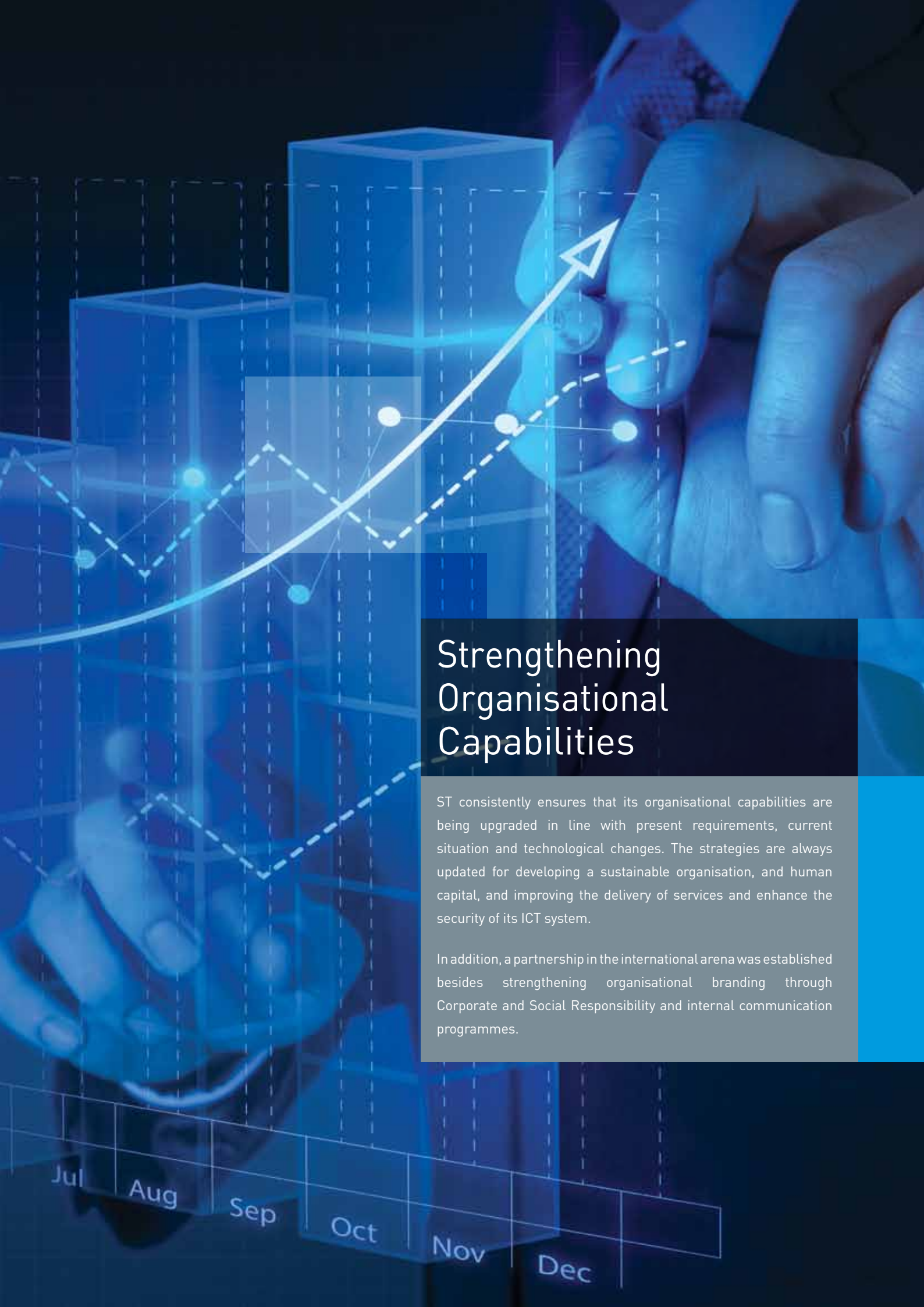
Subsequently, ST had organised the Stakeholder Engagement Workshop on Power Quality Management at Equatorial Hotel, Bangi. This workshop was attended by 40 participants representing ST, KeTTHA, MIDA, TNB , AMCHAM and the industry, NUR and GTIM (ST consultant for the study). The workshop was held to share current information on power quality, identify related issues on power quality and possible solutions to reduce risks associated with power quality. From the workshop, several recommendations were made and these will be discussed with PEMUDAH.

developing a robust regulatory framework (continued)

HARMONISING STANDARDS AT REGIONAL LEVEL

Electrical and Electronics Equipment Standard for ASEAN Region

ST has been involved in several meetings at ASEAN level in 2012. Among other things, the Joint Sectoral Committee on Electrical and Electronic Equipment (JSC EEE) standard discussed the harmonising of standard of electrical equipment testing, laboratories acceptance and certification of electrical equipment in promoting free trade between the countries in the ASEAN region. Throughout 2012, JSC EEE meeting were conducted at Phnom Penh, Cambodia on 30-31 May, 2012 and at Yogyakarta, Indonesia on 20-22 November, 2012.



Strengthening Organisational Capabilities

ST consistently ensures that its organisational capabilities are being upgraded in line with present requirements, current situation and technological changes. The strategies are always updated for developing a sustainable organisation, and human capital, and improving the delivery of services and enhance the security of its ICT system.

In addition, a partnership in the international arena was established besides strengthening organisational branding through Corporate and Social Responsibility and internal communication programmes.

strengthening organisational capabilities

ENSURING SUSTAINABILITY OF ORGANISATION

Revised Fees and Charges

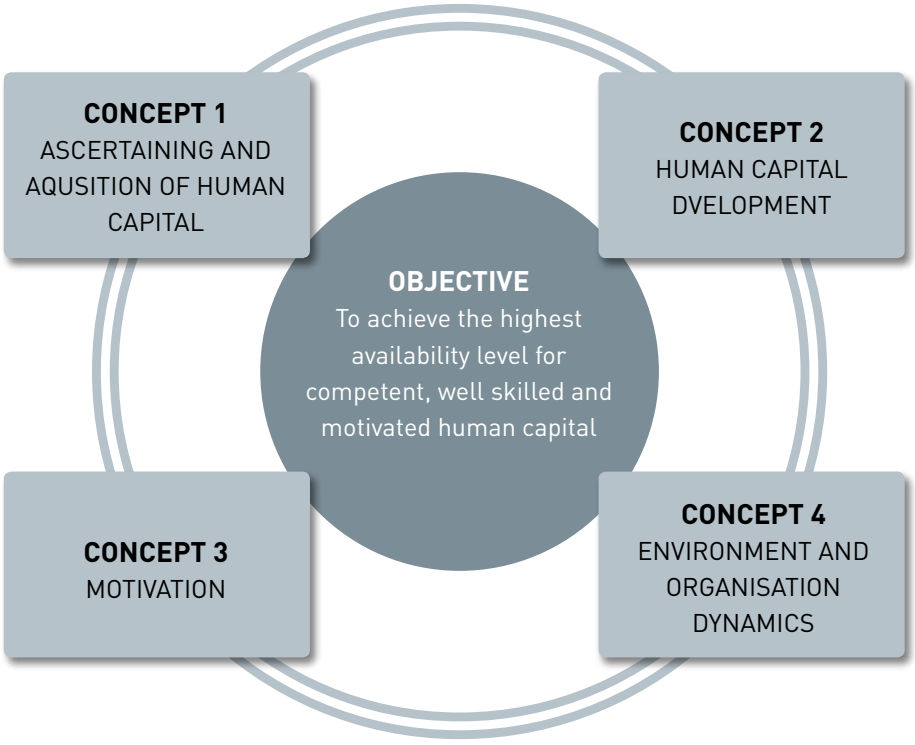
ST has undertaken an analysis on the fees and charges for certifications under the Electricity Supply Act 1990 and the Gas Supply Act 1993. The analysis was executed after considering the impact of the increased operating expenses for the sustainability of ST by taking into account the increasing ST's responsibilities since a few years ago and which is expected to increase further when the program under the Malaysian Electricity Supply Industry (MESI) Reforms being prepared by MyPOWER is fully implemented.

Furthermore, most of the fees and charges that are being imposed at present have not been revised since it being gazetted. In 2000, several fees and charges have in fact been reduced by fifty percent based on the directive from the National Economic Action Council (NEAC) following the financial crisis that hit Asian region in 1998 and the fees and charges have remained till now.

DEVELOPMENT OF HUMAN CAPITAL

Human Capital Development Framework

The ST's Human Capital Development Framework was first developed in 2011 and its initiatives have been implemented since 2012. The framework is used as the main guideline for the preparation of policies, main activities and also procedures related to the management and development of human capital in ST. Preparation of ST Human Capital Development Framework is based on 4 key concepts, as follows:



In line with the main objective of ST Human Capital Development Framework which aims to provide competent, well trained and highly motivated human capital, several initiatives have been implemented starting in 2012. These initiatives were aimed at creating a robust and comprehensive guidelines about the policies, activities and procedures that need to be improved or to be established to develop human capital in a more comprehensive and well-structured manner.

Development of Training Policy of Energy Commission

To strengthen the planning and implementation of human resource development programmes in ST, ST Training Policy has been formulated and developed based on the need to fully implement ST functions and is aimed to provide competencies for each staff towards achieving the ST Transformation Plan.

This policy is used as the main guideline in developing staff knowledge and skills in the technical and behavioral aspects in a comprehensive and well-organised manner. It also sets the duties and responsibilities of all parties involved in the development of human capital in ST, including duties and responsibilities of the superiors and the employees themselves. Through this policy, the minimum training man days for Executives is set at 7 days in a year while the minimum number of days for training of support staff has been set for at least 4 days a year.

Implementation of Management Performance Based on Key Performance Indicators

In line with the effort to create a performance based work culture, annual performance evaluation of the staff is being implemented based on the achievements in terms of the annual Key Performance Indicators (KPI) of the ST. The first phase of the process involved the evaluation of staff in the Top and Middle Management beginning in 2011 and was continued in 2012. From 2012, all employees at both levels are required to use the computerised performance management system (e-PMS) in monitoring the achievements of themselves from time to time. This system which was developed from 2010 started operating since early 2011, allowing staff performance to be evaluated objectively whereby both the aspects of the task and also appropriate competency aspects are evaluated by the superiors and reviewed by a higher officer. The system also allows self-appraisal by the personnel themselves who will assess themselves while providing an opportunity for the employees to display and inform their superior on the tasks that have been implemented in a more detailed and personal manner .

Development of Career Development Mechanism

To provide promotional opportunities for good performing staff but not given the opportunity to be promoted to vacant posts, an initiative to develop their career development mechanism began in 2012. This mechanism allows eligible employees to be considered to undergo evaluation to determine whether they can be raised to a higher level of their career without the need to fill any higher vacancies. The guidelines for the initiative has been completed and the initiative has been implemented in 2012 for staff in the Support Group .

Review of Terms and Conditions of Service

In 2012, ST had completed a study on the existing Terms and Conditions of Service including the conditions of service, entitlements and salary and grading structure in ST as well as the grade and salary structure in ST. It was also to ensure that the ST could provide a set of competitive and up to date Terms and Conditions of Services, in line with the roles and responsibilities of ST, as a body to monitor the supply and security of electricity and piped gas which is becoming more challenging. This is to ensure that the services package provided by the ST can retain and attract talents which are of high competency and expertise with positive attitudes. The proposal on the revision of the terms and conditions of the Energy Commission has been approved by the Energy Commission and the Minister of Energy, Green Technology and Water for implementation in 2013.

At the same time, following the announcement of a salary increase by the Prime Minister on 8 March, 2012 in which an increase of salary of between 7% to 13% was given to Government servants based on categories of the posts, ST also took a similar step in implementing a salary increase of the employees effective of 1 January 2012, upon the approval from the Minister of Energy, Green Technology and Water. However, the increase only involved the employees' gross salary and do not involve the amending of the existing wage structures. This was because the ST is in the process of reviewing the Terms and Conditions of Services including revising the existing grade structures and salaries.

strengthening organisational capabilities (continued)

Competency Development and Training

To further enhance the capacity and capabilities of the ST, in the year 2012, the total (100%) of the budget for implementing training programs and competency development training, comprising 99 programmes was used. The development programme involved staff participation in local and overseas programmes, including participation in seminars, meetings and discussions concerning the regulatory functions of the energy industry.

The training programmes attended by ST staff in 2012 included 6 programmes in the field of law and the regulatory process, 75 technical programmes, 12 programmes in related regulatory practices and 6 programmes on effective personal image.

Among the training programmes organised in 2012 were:

- Workshop on Understanding and Interpreting the Electricity Supply Act (1990) and the Electricity Supply Regulations.
- Electricity Supply Regulations Training - organised with cooperation of KEMA Consulting GMBH.
- Workshop on the Power Purchase Agreement Study.
- Official Document Writing Training - conducted by Dewan Bahasa dan Pustaka.
- Induction and Teambuilding Program.

In addition, the staff were also sent to training programmes organised by external parties.

IMPROVEMENT OF DELIVERY SERVICES

Online Application System Services

A portal providing Online Application System (OAS) has been developed and put into operation in 2012. The OAS portal includes e-Gas and e-Electricity systems. The e-Gas system provides services for Gas Licence Application, Equipment Approval, Gas Lines and Installations Approval, and Gas Competent Personnel and Gas Contractor Registrations. The e-Electricity system provides for the application of Public Licence, Private Licence (5 MW above) and Utility Licence. The e-Gas system has been fully operational from August 2012 while the e-Electricity was ready for pilot test in December 2012.

Automated Financial Services

ST Electronic Fund Transfer (EFT) enhances the payment process where payment through cheques to the ST service provider and staff can be reduced. Instead, payment is made directly to the accounts of the company and staff. Indirectly it avoids delay in claims payment. EFT implementation at the head office has been fully implemented.

To improve service delivery, the online payment services involved permits for electrical equipment made through the e-Permit system. This service is in the form of Business to Business (B2B) while services improvement efforts for Business to Consumer (B2C) will be implemented in 2013.

Energy Commission Operating System (ECOS) Online

The ECOS system has been used through the intranet involving the head office and 9 ST regional offices for the last 10 years. ST had appointed a consultant company to improve the on-line application services system. The on-line system, that is still in the development phase, will assist and accelerate the administrative process for the applications for the examinations for a certificate of electrical competency, competent personnel registration, registration of private licence below 5 MW, contractor registration, registration of electrical installations, energy manager registration and monitoring of ST certification registration as a whole.

Data Sharing with SIRIM

The integration of information on consignment tests between ST and SIRIM in relation to COC had been approved by ST. This assisted SIRIM in undertaking consignment test for electrical equipment received from the applicants. Information on the consignments will be sent to the ST through web services which will facilitate easy monitoring of approved electrical equipment with SIRIM labels. The integration of SIRIM consignment information was implemented in March 2012.

Strengthening ICT SECURITY

Cyber Security

In 2012, ST had received several directives and reminders from the National Security Council on ensuring that the electricity and gas supply systems are not affected by hackers hacking the Malaysian portal. Upon receiving such directives, all of the Critical National Information Infrastructure–(CNII) under the control of ST will be informed about the matter. All CNII are required to constantly monitor the electricity and gas generation and supply systems so that they are under control and alerted against any attempt of cyber assault.

The following were some of the attacks that took place in 2012:

Date	Matter
13 Feb 2012	Had received email from MKN on probable DDOS attack. All parties were required to be on alert.
14 Nov 2012	MKN had received information that hackers have launched attacks on the Malaysian portal. Several portals were paralysed by the attacks.
16 Nov 2012	The hackers had launched a second attack. The hackers successfully extracted information from several attacked portal application databases.

So far, the supply of electricity and gas operations are not affected by the attacks. CNII has taken vigilant steps and monitored the respective systems to avoid the invasion.

The Implementation of MS ISO/IEC 27001:2007 Information Security Management System-ISMS)

In accordance with the decision made by the Cabinet on February 24, 2010 that all CNII organisations should get ISMS certification within 3 years, ST will monitor the implementation of CNII under its jurisdiction.

Until December 2012, there were 20 organisations regulated by ST implementing ISMS to get the certification within the prescribed period. At present, only Jimah Energy Ventures Sdn Bhd and Malakoff Berhad were successful to obtain the certification. There are several organisations that are in the audit process and the rest are still in the implementation of ISMS at their respective organisation.

ICT Security Policy

The increase of IT data management and ICT security was enhanced by an ICT security policy draft which was initiated in early 2012. The ICT Security Policy will be first launched and implemented in the second quarter of 2013 so as to improve the delivery services.

Recognition for Information Security System Management

Being an agency responsible for a critical infrastructure in the energy sector, ST has been working to obtain the MS ISO IEC 27001: 2007 certification for ISMS. By focusing on effective delivery services to customers, the initiative towards quality assurance of the information technology management system had started. The study and requirements for the Information Security Management System - (ISMS) certification have been implemented in April 2012.

Off-Site Backup

To increase productivity and an efficient operational approach on ICT infrastructure, the setting up of an Off-Site Backup (Cold Site) for application and ST system servers has already been implemented. This is in line with the ST security requirements to prepare for an ICT Disaster Recovery Plan and Business Continuity Plan to ensure that the ST data systems, files and ICT operating system (OS) are safe and can be continued to be used in the event of damage and unexpected disasters. The storing of duplicates or copies of existing data external to the ST premises is aimed at protecting all assets (data) in the central server and for it to be more secure and safe. The preparation for the Off-Site Backup is in the development stage and will be fully implemented during the quarter second of 2013.

INTERNATIONAL RELATIONS

Memorandum of Understanding between the Energy Commission and the California Energy Resources Conservation and Development Commission

To strengthen ST as a regulatory body, a Memorandum of Understanding (MoU) between ST and the California Energy Resources Conservation and Development Commission (CEC) on cooperation on energy related policies and programmes, had been signed on 17 May, 2012 in Sacramento, United States.

Among the focus in the memorandum is to develop cooperation between both sides on energy policies and energy efficiency and renewable energy programmes.

strengthening organisational capabilities (continued)

Visit by Foreign Agencies

In addition, ST has received visits from foreign public agencies and companies aimed at deeper understanding of the energy industry and the role of ST in regulating the energy sector. Among the visits received were:

Date	Overseas Agencies
19 April 2012	Russian Energy Agency.
19 June 2012	Board of Judges Renewable Energy Project Competition for ASEAN Energy Awards 2012.
21 June 2012	Ministry of Communication and Prime Minister Department, Brunei.
27 June 2012	Kenya Private Sector Alliance (KEPSA).
05 July 2012	TYT Thomas Chalupa, Environment Minister, Czech Republic.
24 August 2012	Thailand Government Officers.
02 October 2012	TYT Viktor Sigly, Economy Minister Government of Upper Austria.
09 October 2012	Electricity Regulatory Authority of Vietnam (ERAV).
20 October 2012	Bahamas.
21 November 2012	Ministry of Energy, Republic of Kenya

Overseas Meetings and Working Visits

Overseas meetings and overseas working visits that the ST participated in 2012 include:

- Hitachi Young Leaders Initiative on 9 January, 2012 in Hanoi, Vietnam.
- Asian Energy Regulators Network on 2 March, 2012 in Bangkok, Thailand.
- Workshop on "Developing a Harmonised Electrical Equipment Regulatory Risk Assessment Tool" on 15 to 16 May 2012 in Singapore.
- 5th World Forum on Energy Regulation 17 May, 2012 in Quebec City, Canada.
- 17th Meeting of the Asia Pacific Economic Cooperation (APEC) Joint Regulatory Advisory Committee (JRAC) For Mutual Recognition Arrangement (MRA) on Conformity Assessment for Electrical and Electronic Equipment (EEE) on May 17 to 18 2012 in Singapore.
- Accompanying the Minister of Energy, Green Technology and Water to attend the APEC Energy Ministers 10th at St. Petersburg and a working visit to Moscow on 25 June, 2012.
- Accompanying the Minister on the visit to Brunei on 5 July, 2012.
- Participating in the Malaysian delegation to the 30th ASEAN Ministers On Energy on 11 September, 2012 in Phnom Penh, Cambodia.
- 76th International Electrotechnical IEC General Meeting on October 5, 2012 in Oslo, Norway.
- East Asia Summit Energy Market Deregulation Forum on 23 October, 2012 in Singapore.
- Accompanying the Minister for a working visit on November 2012 to Algeria and France.

CORPORATE SOCIAL RESPONSIBILITY

Recognising that apart from unsafe wiring,most electrical accidents among the public is due to the failure of protection device (circuit breaker) to operate, a Touch Point program was organised to create awareness on the above factors. Chosen locations were temples, "tahfiz"/religion centers, houses in rural areas, old shop houses and others.

Among the free services provided throughout this ST program included:

- Checking on safety of electrical wiring.
- Checking on earthing arrangements.
- Distributing energy efficient lighting.
- Changing earth leakages circuit breakers.

A receipient of the Touch Point program at Pondok Tahfiz, Sandakan

Some of the occupants from 34 homes who received contributions from the Touch Point program

Mr Jesudian J. Isaac from Taman Permata, Ipoh received an earth leakage circuit breaker and a wiring system inspection at his home.

En Said Abdul Rashid from Tanjong Rambutan,Ipoh received a safe wiring system at his home during the Touch Point program

INTERNAL COMMUNICATIONS PROGRAMMES

ST had organised several internal and external events to strengthen the organisation's branding besides improving the perception of employees, customers and the media on ST's roles and responsibilities. Among them:

- Energy Commission Appreciation Night 2012 was held on 17 February, 2012 to honor ST citizens who had completed their services besides giving recognition to employees who have performed excellently throughout 2011. A total of 25 staff received Outstanding Services Award and 4 staff who completed their services also received appreciation from YB Datuk Seri Peter Chin Fah Kui, Minister of Energy, Green Technology and Water .

- 9 Monthly Assembly sessions for the staff were held during the year 2012 as a platform for the Chairman and Chief Executive Officer (CEO) to express their intentions, ST mandate and the current administrative development status and regulation of the energy industry directly to the employees from time to time.

- Innovation Project Competition 'Excellence for Customers' had been implemented where a proposal entitled 'QR Code for Labeling' for improving the control of electrical equipment market was declared the ultimate winner.

Key Performance Indicators (KPI) Report

ST centres its activities and efforts on ensuring that the Key Performance Indicators – (KPIs) for the following eight strategic objectives are implemented effectively:

- Ensuring Reliable and Efficient Energy Supply at Reasonable Prices.
- Ensuring Secure Energy Supply.
- Encouraging Transparency and Competitiveness in the Energy Industry.
- Ensuring Efficient and Safe Consumption of Energy.
- Ensuring Legal Compliance.
- Protecting Consumers' Interests.
- Developing a Robust Regulatory Framework.
- Upgrading Organisation's Capabilities.

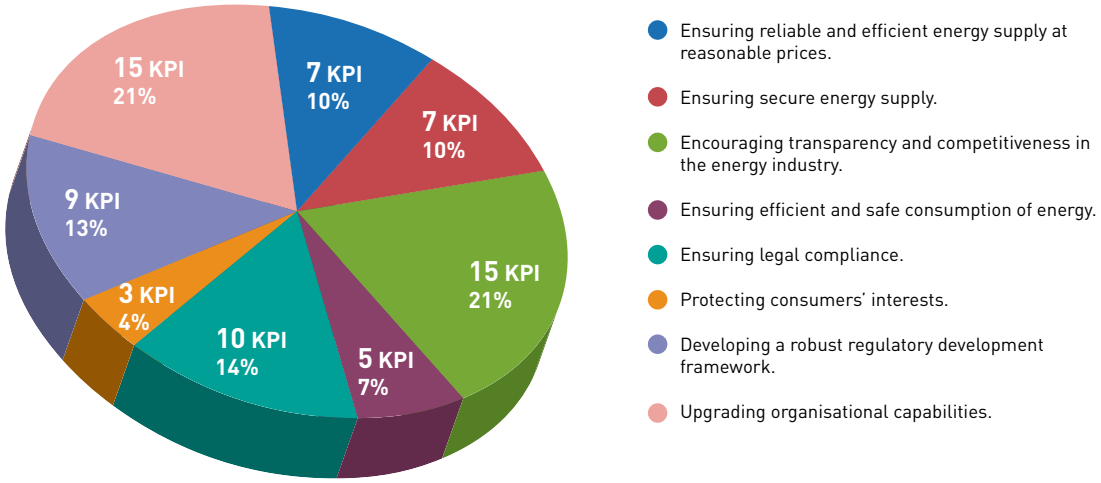
key performance indicators (kpi)report

KPI ACHIEVEMENT STATUS IN 2012

In line with the Government's desire to measure the performance of public sector agencies using methods such as Outcome Based Approach (OBA) and Outcome Based Budget (OBB), ST has implemented its performance measurement based on Key Performance Indicators (KPIs) from 2009. The KPI outlines 8 strategic objectives based on Energy Commission Transformation Plan.

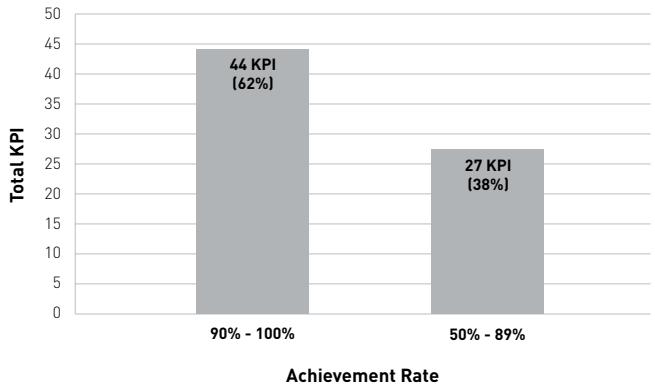
A total of 71 KPIs had been set for the year 2012 as compared to 51 KPIs for 2011. The increase is in line with the current requirements, the development of the industry and the rapid technology development.

TOTAL KPI FOR STRATEGIC OBJECTIVES (71 KPI)



Overall, a majority, that is 53 out of the 71 KPIs for the year 2012 has recorded an achievement of above 80%. Based on this achievement, 44 KPIs recorded an achievement of 90% to 100% (62%), while 27 KPIs were at the level of 50% to 89% (38%). This KPI achievement at a lower percentage, among others, is due to the postponement of several initiatives, such as the implementation of Incentives-Based Regulation (IBR) for gas, where the implementation has been postponed to 2014. The other KPIs, have already begun and will continue to be implemented and will be completed in early 2013.

KPI ACHIEVEMENT STATUS IN 2012




Way
Forward

way forward

ACHIEVEMENT STATUS OF ENERGY COMMISSION TRANSFORMATION PLAN

The transformation Plan of Energy Commission has outlined the implementation of high impact initiatives under 3 sub-plans for the period beginning in 2010 till 2020.

ECONOMIC, TECHNICAL AND SAFETY REGULATORY PLAN

The first sub-plan contains a total of 35 initiatives. Among the list of targeted initiatives in 2012, 56% have been implemented while 44% are still under implementation.

The initiatives that are still under implementation in the year 2012 include the development and implementation of several frameworks for the supply and safety in the electrical and gas sectors, open access to the gas network and cooperation among the agencies and associations related to regulatory activities.

Year	Initiative	Status
2010	International Bidding for New Capacity	✓
	Account unbundling under IBR	✓
	Technical and Financial Benchmarking	✓
	Proposal on Electricity Tariff Review Analysis	✓
	Transparency in Dispatching	✓
2011	Industry Awards Program	✓
	Energy Data Base (MEIH)	✓
	Industry Performance Monitoring Programme	✓
	Implementation of New Applicable Coal Price Mechanism	✓
	Development of Industry Code of Practice and Guidelines	✓
	Grid and Distribution Code Enforcement	✓
2012	Implementation of Service Standards Monitoring	✓
	Issuance of Regulatory Implementation Guidelines (RIGS)-Electrical	✓
	Single Buyer (SB) Framework and Grid System Operator (GSO)-Electrical	✓
	Operating a More Transparent and Well Managed Electrical and Gas Market	✓
	Implementing a New Framework for Electrical and Gas Supply and Safety	↑
	Having a Framework for Cooperation among Agencies and Associations in Regulatory Related Activities	↑
	Legal and Regulatory Framework for Open Access to Gas Network	↑
	Establishment of Regulatory Framework for Electricity Metering	✓
	Implementing Initiatives for Increasing the Reliability of the Electricity Supply Industry in Sabah	↑

Year	Initiative	Status
2013	Operationalising the Regulatory Framework for Open Access to Gas Network	↑
	Trial Implementation of IBR-Gas	↑
	Trial Implementation of IBR-Electrical	↑
	SB Regulation and Fencing of SB and GSO Function	↑
	Competitive Bidding for New Capacity	↑
	National Electricity Supply and Demand Forecast Framework	↑
	Continuation of the Development of Industry Code of Practice and Guidelines	↑
	Development of Policy and Legal Framework	↑
	Implementation of Industry Studies	↑
2014	Implementation of Competitive Bidding and Development Plan by Ring-Fenced SB	↑
	Initial Implementation of IBR-Electrical	↑
2015	Implementation of IBR-Gas	↑
2016 - 2019	Development of Regulatory and Legal Framework for Competitive Energy Market	O
	Establishment of Electrical Market Authority	O
2020	Operationalising Liberal market	O

Legend: √ Complete ↑ In Implementation O Not Started

way forward (continued)

RATIONALISATION PLAN FOR REGULATORY FRAMEWORK

The second sub plan that is Rationalisation Plan for Regulatory Framework contains 23 major initiatives and aims at optimising the use of organisational resources. 61% of these initiatives involve either outsourcing the activities or the realignment of organisational functions with other relevant regulatory agencies. 39% of it are initiatives and new function that have been implemented by the organisation.

Functions Implemented by the Institutions/Industry and Monitored by ST	Status
Electrical Competency Examination by Institutions	✓
Endorsement of Electrical Equipment Test Reports	↑
Monitoring of Electrical Equipment Market	✓
Capacity Planning	↑
Competitive Bidding	↑
Approval Process to Install and Approval to Operate Gas Pipes (ATI and ATO)	O
Promotional Activities	✓
Realignment of Functions with the other Related Regulatory Agencies	
Energy Efficiency and Renewable Energy Incentives Processing	✓
Renewable Energy Activities	↑
Accident Investigation	↑
Fire Investigation	↑
Electricity and Gas Theft	O
Contractor Registration	↑
Cancellation of Functions	
Registration of Licensed Installations	✓
New Functions Implemented by ST	
Competitive Bidding	✓
IBR-Electricity and Gas	↑
Malaysia Energy Information Hub (MEIH)	✓
Regulation of TPA - Gas	↑
Registration of Energy Service Company (ESCO)	✓
Promotion and Legislation related to Energy Efficiency	↑
Checking and Approval of Electrical Meters	↑
National Gas Task Force Operation	✓
Registration of Test Laboratories, Manufacturers and Importers of Electrical Equipment	↑

CORPORATE DEVELOPMENT PLAN

The Third Sub Plan that is, Corporate Development Plan covers 29 key initiatives and is aimed at strengthening the capability of the organisation and is divided into 3 main focus, namely human resource development, re-engineering of business process and increasing financial sustainability. For the year 2012, 22% of these initiatives have been completed, while 78% were still in progress.

Year	Initiative	Status
	Human Resource Development	
2010	Organisational Restructuring	↑
2011	Development of Human Capital Management Framework	✓
	Review of Terms and Conditions of Services	↑
	Implementation of on Line Performance Management	↑
2012	Development of Human Capital Management	↑
	Redistribution of Human Resources Based on Priorities	✓
2013	Development of Replacement Planning Programme	↑
	Establishment of Information Management System	↑
	Development of ST Learning Centre Plan	↑
2014	Establishment of ST Learning Centre	○
2015	Review of Terms and Conditions of Services	○
	Process Re Engineering	
2011	Rationalisation of Head Office and Regional Office Functions	✓
	Computerisation of Processes	✓
	Customer Charter Review	✓
	Centralising of Acquisition Process	✓
	Outsourcing of Event Management	✓
2012	Implementation of Online Banking and Online Payment	↑
	Outsourcing of Salary Process	↑
	Development of ICT Master Plan	↑
	Monitoring of Compliance to Customer Charter	↑
	Outsourcing of Law Services	↑
	Upgrading ICT Security System	↑
2013	Review of Complaints Management	↑
	Data Centre Virtualisation	↑
	Development of Strategic Communications Framework	↑
	Online Payment Implementation	↑
2014	Review of Organisational Structure and Human Resource Requirements	○
	Upgrading Finance Sustainability	
2011	Review of Financial Plan	✓
2012	Review of Licence and Certification Fees and Charges	✓

Legend: ✓ Complete ↑ In Implementation ○ Not Started


868.7
894.4
875.5
861.5
868.7
894.4
875.5
861.5
496.4

Financial Statements

SIJIL KETUA AUDIT NEGARA
MENGENAI PENYATA KEWANGAN
SURUHANJAYA TENAGA
BAGI TAHUN BERAKHIR 31 DISEMBER 2012

Saya telah mengaudit penyata kewangan Suruhanjaya Tenaga bagi tahun berakhir 31 Disember 2012. Pihak pengurusan bertanggungjawab terhadap penyata kewangan ini. Tanggungjawab saya adalah mengaudit dan memberi pendapat terhadap penyata kewangan tersebut.

Pengauditan telah dilaksanakan mengikut Akta Audit 1957 dan berpandukan piawaian pengauditan yang diluluskan. Piawaian tersebut menghendaki pengauditan dirancang dan dilaksanakan untuk mendapat kepastian yang munasabah sama ada penyata kewangan adalah bebas daripada kesilapan atau ketinggalan yang ketara. Pengauditan ini termasuk memeriksa rekod secara semak uji, menyemak bukti yang menyokong angka dan memastikan pendedahan yang mencukupi dalam penyata kewangan. Penilaian juga dibuat terhadap prinsip perakaunan yang digunakan, unjuran signifikan oleh pengurusan dan persembahan penyata kewangan secara keseluruhan. Saya percaya pengauditan yang dilaksanakan memberi asas yang munasabah terhadap pendapat saya.

Pada pendapat saya, penyata kewangan ini memberi gambaran yang benar dan saksama terhadap kedudukan kewangan Suruhanjaya Tenaga pada 31 Disember 2012, hasil operasi dan aliran tunainya untuk tahun tersebut berdasarkan piawaian perakaunan yang diluluskan.

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

PUTRAJAYA
05 Julai 2013

PENGAKUAN OLEH PEGAWAI UTAMA YANG BERTANGGUNGJAWAB KE ATAS PENGURUSAN KEWANGAN SURUHANJAYA TENAGA

Saya Datuk Ir. Ahmad Fauzi Bin Hasan, Ketua Pegawai Eksekutif yang bertanggungjawab ke atas pengurusan kewangan dan rekod-rekod perakaunan Suruhanjaya Tenaga dengan ikhlasnya mengakui bahawa Lembaran Imbangan, Penyata Pendapatan, Penyata Perubahan Ekuiti dan Penyata Aliran Tunai dalam kedudukan kewangan yang berikut ini beserta nota-nota kepada Penyata Kewangan di dalamnya mengikut sebaik-baik pengetahuan dan kepercayaan saya, adalah betul dan saya membuat ikrar ini dengan sebenarnya mempercayai bahawa ia adalah benar dan atas kehendak-kehendak Akta Akuan Berkanun, 1960.

Sebenarnya dan sesungguhnya)
diakui oleh penama di atas)
di ....BANDAR BARU BANGI)
pada.....04 JUL 2013)

.....

Di hadapan saya,

PESURUHJAYA SUMPAH
No. B 330
ZAHARIAH
BT. MAHYUDDIN
MALAYSIA

.....

PESURUHJAYA SUMPAH
31-1-1b, Tingkat 1, Jalan Medan PB 2B
Seksyen 9, 43650 Bandar Baru Bangi,
Selangor Darul Ehsan.
HP: 016-371 8212

financial statements (continued)

PENYATA PENGERUSI DAN SEORANG ANGGOTA SURUHANJAYA TENAGA

Kami, Tan Sri Datuk Dr. Ahmad Tajuddin Bin Ali dan Datuk Mohd Nasir Bin Ahmad yang merupakan Pengerusi dan salah seorang Anggota Suruhanjaya Tenaga dengan ini menyatakan bahawa, pada pendapat Anggota Suruhanjaya Tenaga, Penyata Kewangan yang mengandungi Lembaran Imbangan, Penyata Pendapatan, Penyata Perubahan Ekuiti dan Penyata Aliran Tunai yang berikut ini beserta nota-nota kepada Penyata Kewangan di dalamnya, adalah disediakan untuk menunjukkan pandangan yang benar dan saksama berkenaan kedudukan Suruhanjaya Tenaga pada 31 Disember 2012 dan hasil kendaliannya serta perubahan kedudukan kewangannya bagi tahun berakhir pada tarikh tersebut.

Pengerusi,

.....

Tan Sri Datuk Dr. Ahmad Tajuddin Bin Ali
Pengerusi

Tarikh : 4/7/2013

Tempat : Suruhanjaya Tenaga
Presint 2, Putrajaya

Bagi pihak Anggota,

.....

Datuk Mohd Nasir Bin Ahmad
Anggota

Tarikh : 04.07.2013

Tempat : Suruhanjaya Tenaga
Presint 2, Putrajaya

STATEMENT OF INCOME AND EXPENDITURE

FOR THE YEAR ENDED 31 DECEMBER 2012

	Note	2012	2011
		RM	RM
Revenue			
Fees and Charges	3	63,378,691	61,775,403
Interest Income		5,917,193	4,965,326
Other Income		582,243	83,998
		69,878,127	66,824,727
Expenditure			
Staff Cost	4	29,154,368	22,587,993
Administration Expenses		17,765,069	16,301,448
Depreciation		839,392	739,477
Other Operating Expenses		270,576	336,621
		48,029,405	39,965,539
Surplus Before Taxation	5	21,848,722	26,859,188
Taxation	6	(1,442,955)	(1,300,716)
Surplus For The Year		**20,405,767**	**25,558,472**

Energy Commission has no profit and loss other than the surplus net income for the current financial year.

financial statements (continued)

BALANCE SHEET

AS AT 31 DECEMBER 2012

	Nota	2012	2011
		RM	RM
Property, Fittings and Equipment	7	93,860,092	94,332,617
Current Assets			
Other Receivables	8	1,749,009	1,601,588
Cash and Cash Equivalents	9	210,703,788	187,717,422
		212,452,797	189,319,010
Current Liabilities			
Other Payables	10	8,634,290	6,542,440
Tax Payable		1,443,825	1,280,180
		10,078,115	7,822,620
Net Current		202,374,682	181,496,390
		296,234,774	**275,829,007**
Financed by:-			
Accumulated Funds		**296,234,774**	**275,829,007**

STATEMENT OF ACCUMULATED FUNDS

AS AT 31 DECEMBER 2012

	2012	2011
	RM	RM
At 1 January	275,829,007	248,899,018
Surplus Before Taxation	21,848,722	26,859,188
Taxation	(1,442,955)	(1,300,716)
Adjustment of Accumulated Funds	—	1,371,517
At 31 December	**296,234,774**	**275,829,007**

financial statements (continued)

STATEMENT OF CASH FLOW

FOR THE YEAR ENDED 31 DECEMBER 2012

	2012 RM	2011 RM
Cash Flows from Operating Activities		
Surplus Income Before Tax	21,848,722	26,859,188
Adjustment for:-		
Accumulative Funds	—	1,371,517
Interest Income	(5,917,193)	(4,965,326)
Depreciation	839,392	739,477
Operating Surplus Before Working Capital Changes	16,770,921	24,004,856
Working Capital Changes:		
Other Receivables	(147,421)	602,014
Other Payables	2,091,850	2,000,181
	18,715,350	
Cash Generated from Operating Activities		26,607,051
Income Tax Paid	(1,279,310)	(1,033,349)
Net Cash from Operating Activities	17,436,040	25,573,702
Cash Flow from Investing Activities		
Purchase of Property, Fitting and Equipment	(366,867)	(1,722,260)
Interest income received	5,917,193	4,965,326
Net Cash from Investing Activities	5,550,326	3,243,066
Net Increase/(Decrease) in Cash and Cash Equivalent	22,986,366	28,816,768
Cash and Cash Equivalent at the Begining of the Year	187,717,422	158,900,654
Cash and Cash Equivalent at the End of the Year	**210,703,788**	**187,717,422**
Cash and Cash Equivalent Consists of:		
Cash and Bank Balance	9,036,058	5,936,061
Deposit with Licensed Banks	201,667,730	181,781,361
	210,703,788	**187,717,422**

NOTES TO FINANCIAL STATEMENT

1. Principal Activities

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

Energy Commission is the sole regulatory agency for the monitoring 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.

2. Significant Accounting Policies

The following accounting policies have been adopted by the Energy Commission and remain consistent with the policies adopted in the previous year.

(a) Basis of Accounting

The financial statements were prepared under the historical cost convention and in compliance with approved accounting standards for private entities in Malaysia.

(b) Property, Fitting and Equipment and Depreciation

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

Depreciation of property, fitting and equipment are depreciated on a straight-line basis on the estimated useful life of the asset. Property, fitting and equipment under construction are not depreciated until the said asset are fully handed over.

The annual rates of depreciation are as follows:

Office equipment	15%
Application systems and computers	33 1/3%
Motor vehicles	20%
Furniture, fittings and renovations	20%

The residual values, useful life and depreciation method are reviewed at each financial year end to ensure the amount, method and period of depreciation are consistent with previous estimates and expected pattern of consumption of the future economic and benefits embodied in the items of property, fitting and equipment.

(c) Receivables

Other receivables are stated at cost and deduction for doubtful debts, if any.

(d) Cash and Cash Equivalents

Cash and cash equivalents comprise of cash and bank balances including fixed deposits with licensed banks, which high liquidity rates with insignificant risks of changes in value.

financial statements (continued)

2. Significant Accounting Policies (continued)

(e) Payables

Other payables are stated at fair value to be paid for goods and services that had been received.

(f) 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 recoverable amount is estimated. An impairment loss is recognised whenever the carrying amount of an asset's 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 a revalue amounts in which case the impairment loss is charged to equity.

Recoverable amount is the greatest 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 carring amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised. The reversal is recognised in the statement, unless it reverses and impairment loss on to a revalue asset, in which case it is taken to equity.

(g) Taxation

Tax on the income statement for the year comprises current and deferred tax. Income tax is recognised in the income statement except to the extent that is relates to items recognised directly in equity, in which case is recognised in equity.

Current tax expenses is the expected tax payable on taxable income for the current year, using tax rates enacted or substantially enacted at the balance sheet date, and any adjustment to tax payable in respect of previous years.

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.

2. Significant Accounting Policies (continued)

(g) Taxation (continued)

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.

(h) Employee Benefits

i) Short-term employee benefits

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

ii) Defined contribution plan

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

(i) Recognition of Income and Expenses

Income from fees and charges are calculated on cash basis which are considered cash in view of licence holders' responsibility to make annual payment. Meanwhile, interest income and all expenses are recognised on accrual basis.

3. Fees and Charges

	2012	2011
	RM	RM
Private and Public License	46,167,057	45,571,801
Registration/Renewal of Operating Fee	14,813,305	14,025,255
Other Operating Fees	2,398,329	2,178,347
	63,378,691	**61,775,403**

4. Staff Cost

	2012	2011
	RM	RM
Salary, Allowance and other Financial Benefits	23,448,092	18,037,010
Statutory Contribution	3,225,455	2,444,435
Travel and Subsistence Cost	2,480,821	2,106,548
	29,154,368	**22,587,993**

Included in the Statutory Contribution is contribution to the Employee Provident Fund of RM3,090,737 (2011:RM2,329,119) and contribution to PERKESO/SOCSO RM134,718 (2011:RM115,316). The number of employee of the Energy Commission at 31 December 2012 is 274 (2011:262 persons).

5. Surplus Before Taxation

The following amounts were included in obtaining the surplus before taxation:-

	2012	2011
	RM	RM
Employee Cost (Note 4)	29,154,368	22,587,993
Audit Fee	18,150	16,500
Professional and Consultant Fee	8,664,916	6,311,277
Association Membership	18,259	21,174
Cost of Development and Performance Management	384,039	544,539
Hospitality, Communication and Utility Cost	1,951,071	1,990,437
System Development and Maintenance Cost	1,755,716	1,319,752
Maintenance of Equipment and Office Building	1,955,815	2,397,573
Printing and Office Supplies	901,036	1,555,775
Rental of Office and Facilities	1,985,040	2,018,040
Depreciation of Property, Fitting and Equipment (Note 7)	839,392	739,477
Contributions to Research, Sponsorships and Development	270,576	336,621
Other expenses	131,027	126,380

6. Taxation

	2012 RM	2011 RM
Tax Expenses		
- Current year	1,443,825	1,300,716
- Over/under provision from prior years	(870)	—
Total	**1,442,955**	**1,300,716**
Reconciliation of Effective tax rate adjustment		
Surplus before tax	21,848,722	26,859,188
Tax rate at 26%	5,680,668	7,251,980
Tax Exemption Income	(4,236,843)	(5,951,264)
	1,443,825	1,300,716
Over provision from prior years	(870)	—
Tax Expenses	**1,442,955**	**1,300,716**

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

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

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

iii. donations or contributions received.

financial statements (continued)

7. Property, Fitting and Appliances

For The Year Ended 31 December 2012

Cost	Motor Vehicle RM	Furniture, Fitting and Renovations RM	Office Equipment RM	Application System and Computer RM	Work in Progress RM	Total RM
At 1 January 2012	3,351,485	373,434	1,086,617	2,679,540	92,034,758	99,525,834
Additions/Transfer	105,418	68,221	22,395	196,006	—	392,040
Disposals/Transfer	(204,089)	—	—	—	(25,173)	(229,262)
At 31 December 2012	3,252,814	441,655	1,109,012	2,875,546	92,009,585	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 31December 2012	2,138,462	274,390	943,869	2,471,799	—	5,828,520
Net book value						
At 31 December 2012	**1,114,352**	**167,265**	**165,143**	**403,747**	**92,009,585**	**93,860,092**
At 31 December 2012	**1,391,533**	**135,500**	**189,561**	**581,265**	**92,034,758**	**94,332,617**

For The Year Ended 31 December 2011

Costs	Motor Vehicle RM	Furniture, Fitting and Renovations RM	Office Equipment RM	Application System and Computer RM	Work in Progress RM	Total RM
At 1 January 2011	2,541,298	264,053	1,046,515	2,449,222	91,509,586	97,810,674
Additions	810,187	109,381	40,102	237,418	525,172	1,722,260
Disposals	—	—	—	(7,100)	—	(7,100)
At 31 December 2011	3,351,485	373,434	1,086,617	2,679,540	92,304,758	99,525,834
Accumulated Depreciation						
At 1 January 2011	1,676,099	222,773	845,547	1,716,421	—	4,460,840
Current year depreciation	283,853	15,161	51,509	388,954	—	739,477
Disposals	—	—	—	(7,100)	—	(7,100)
At 31 December 2011	1,959,952	237,934	897,056	2,098,275	—	5,193,217
Net book value						
At 31 December 2011	**1,391,533**	**135,500**	**189,561**	**581,265**	**92,034,758**	**94,332,617**
At 31 December 2010	**865,199**	**41,280**	**200,968**	**732,801**	**91,509,586**	**93,349,834**

7. Property, Fitting and Appliances (continued)

Work In Progress is the Head Office Building of the Energy Commission at Persint 2, Putrjaya worth RM95,186,596. The final payment will be paid in year 2013 amounting to RM3,177,011. The ownership of the building will be fully transferable to the Energy Commission in the year 2013.

8. Other Receivables

	2012	2011
	RM	RM
Staff Advances	8,800	3,150
Accrued Interest Fixed Deposit	1,421,850	1,273,589
Deposit of Rental and Parking	227,359	233,849
Club Membership Deposit	91,000	91,000
TOTAL	**1,749,009**	**1,601,588**

9. Cash and Cash Equivalents

	2012	2011
	RM	RM
Cash and Bank Balance	9,036,058	5,936,061
Deposits with Licensed Banks	201,667,730	181,781,361
TOTAL	**210,703,788**	**187,717,422**

10. Other Payables

	2012	2011
	RM	RM
Other Payables	6,745,311	3,823,310
Malaysian Electricity Supply Industries Trust Account (MESITA)/(AAIBE)*	1,161,443	2,164,843
Cash Award in Lieu of Accumulated Leave	692,886	537,787
Audit Fee	34,650	16,500
TOTAL	**8,634,290**	**6,542,440**

* Other payables for AAIBE is the fund given by the Ministry Energy, Green Technology and Water (KeTTHA) to the Energy Comission for the purpose of purchasing the data loggers and consultation service of the "Power Quality Baseline Study" in Peninsular Malaysia.

financial statements (continued)

11. Capital Commitment

	2012	2011
Property, Fitting and Equipment	**RM**	**RM**
Approved and contracted	261,783	105,417

www.st.gov.my

Suruhanjaya Tenaga (*Energy Commission*)
No.12 Jalan Hussein,
Presint 2, 62100 Putrajaya.

Tel	+603 8870 8500
Fax	+603 8888 8637
Toll Free	1 800 2222 78 (ST)