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TENAGA LINK

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Regional Illumination

TNB Lights New Paths Across Asia





**Protect our fireflies.
Nature's priceless treasure.**

The firefly is symbolic of TNB's commitment to our customers and the country. TNB supports the conservation of the *Lampyridae* firefly colony found along riverbanks of Kampung Kuantan, Kuala Selangor. The area turns magical as the sun sets and the sky is enveloped in darkness. The fireflies will then flash their lights in unison, creating a spectacular light show only nature could provide.

TENAGA NASIONAL BERHAD (200866-W)





A community project by





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Looking back at the growth of Tenaga Nasional Berhad (TNB) since our inception, we are very proud of what we have achieved and even more excited about our prospects for the future. We have garnered business from across the nation, while earning our clients' trust along the way.

We are also pleased that our achievements and efforts were recognised last November by global energy information provider, Platts. For the category *Electric Utilities in Asia*, TNB was awarded first place in the *Platts Top 250 Global Energy Companies Rankings* for 2013. This is a clear progression from being in third place in 2011.

We are committed to providing efficient power to countries in Asia and around the world – earlier in the year, we collaborated with power utilities in Indonesia, Yemen, Pakistan and Kuwait. Additionally we are also in Brunei, Saudi Arabia and the UAE and plan to have a presence in Iraq and Nigeria by 2025, which will bring the total number of countries we are in to 10.

To underline our resolve and dedication in this regard, we have chosen to pursue PAS 55/ISO55000 accreditation. This certification confirms that we undertake excellent asset management practices, from lifecycle strategy to everyday maintenance, and is awarded by the British Standards Institution. This will strengthen international recognition of TNB's dedication to distinction.

Customer satisfaction is another hallmark by which we measure our performance. Building on 2013, we are strategically positioned, driven and ready to achieve even more in 2014. From leaving our footprint in more countries in the region to creating more innovative products and solutions, we aim to meet and exceed the needs of our customers. 

Datuk Ir. Baharin Din
Vice President (Distribution)
Tenaga Nasional Berhad






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Publisher

Tenaga Nasional Berhad
(386965-A)
129, Jalan Bangsar,
59200 Kuala Lumpur, Malaysia
Tel: +603 2296 5566
Fax: +603 2283 3686
Email: dist_news@tnb.com.my
Website: <http://www.tnb.com.my>

Conceptualised and Produced by

AMG Holdings International Sdn. Bhd.
(356247-V)
No. 10-3A, Jalan PJU8/3
Damansara Perdana, 47820 Petaling Jaya
Selangor Darul Ehsan, Malaysia
Tel: +603 7729 4886
Fax: +603 7729 4887
Website: www.amginternational.net

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TNB'S RISE TO THE TOP

Southeast Asia's largest power company with over 8.4 million customers, Tenaga Nasional Berhad (TNB) recently received the Top Ranking Award for Electric Utilities in Asia at the Platts Top 250 Asia Awards Dinner which was held in Singapore. The result was based on the Platts Top 250 Global Energy Company Rankings for 2013, an annual survey of energy companies around the world.

Launched in 2002, the award is given to the best financial performers in energy, based on asset worth, revenue, profit and Return on Invested Capital (ROIC) for the previous financial year. Thanks to the rapid growth of the market in Asia, it has become one of the most coveted accolades in the industry.

Representing TNB at the event was Chief Corporate Officer (CCO) Dato' Roslan Ab Rahman who received the award on behalf of President and CEO Datuk Seri Ir Azman Mohd. Speaking at the ceremony, the CCO paid tribute to the entire TNB team, saying "This award is dedicated to all our employees, wherever they are, for making this company the pride of the nation," he said. 

TNB's CCO Dato' Roslan Ab Rahman (second from left) accepted the Top-Ranking Award for Electric Utilities in Asia from Platts officials.



MORE HYBRID SOLAR STATIONS




To provide a continuous source of power, TNB Energy Services (TNBES) recently completed a hybrid solar station in Kemar, Perak that switches to gas-powered turbines after dark. This has led to parent company Tenaga Nasional Berhad (TNB) making plans to build more of these stations in the country. Construction began in November 2011, with the full RM54m cost sponsored by the government. The power station has already benefited over 3,100 people in 15 villages.

According to the Managing Director of TNBES, Ir Mohd Azhar Abdul Rahman, the company will now focus on the construction of more hybrid solar stations in the interior regions of Sabah and Sarawak. Since 2001,

Hybrid solar stations provide power to surrounding communities.

TNB has successfully built more than 50 hybrid solar stations in Malaysia.


Mohd Azhar said that construction of these stations required a lot of effort, as materials often needed to be transported through the forest, requiring two to three days to reach the construction site. However, TNB remains committed to this project, as it is a major component of the company's social responsibility effort. 

ONE BIG TNB FAMILY

Tenaga Nasional Berhad (TNB) broke a Malaysian record in October when it brought together 30,500 families in 54 venues throughout the country during its Family Day. Themed 1TNB, the event was the first time the celebrations at TNB offices across Malaysia were held at the same time. As such, it was named The Largest Simultaneous Family Day Event in the country by the Malaysia Book of Records.

The achievement was marked by the presentation of a certificate from Malaysia Book of Records CEO Abdul

Aziz Hamdan to TNB President and CEO Datuk Seri Ir Azman Mohd, who said, “1TNB is one big family gathering of everyone in TNB. The strong spirit it creates ensures the foundation for higher productivity as it nurtures the relationships of our team members with one another.”

TNB’s Family Day, which is held once every two years, provides TNB employees and their family members the opportunity to bond with their peers and enjoy activities that include games, music, sports and lots more. 



Above: Carnival games like ring tossing added to the celebrative atmosphere and providing a chance for participants to demonstrate their skills.



Above: The bi-annual family day was a fun filled event for all ages.



Above: TNB employees and family members surround the Malaysian Book of Records certificate, which was presented for the “largest simultaneous family day event” during the 1TNB celebration. The event gathered 30,500 families to simultaneously held events in 54 locations across Malaysia.

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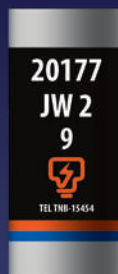
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Step **2**
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Step **3**
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THE BEST OF PRACTICES

Tenaga Nasional Berhad (TNB) subsidiary TNB Repair and Maintenance Sdn. Bhd. (REMACO) won the award for Malaysia's Power Plant Service Provider of the Year for 2013 at Frost & Sullivan's Asia Pacific Best Practices Awards. This awards programme recognises companies in various industries that have advanced in the global marketplace through their commitment to innovative business strategies.

The ceremony was held at St Regis Hotel, Singapore in October, where Frost & Sullivan's Managing Director Manoj Menon paid tribute to the nominees. "These extraordinary industry performers demonstrate a drive to excel, innovate continuously, and focus on talent development, which allow them to surpass industry expectations in this ever-changing business climate.

Tonight, we celebrate the success of such remarkable top-performers."

TNB REMACO was selected to receive the honour, thanks to its ability to evolve, adapt and develop in new markets, as well as its wide reach and strong customer relationship. The award validates the achievements of TNB REMACO in the energy & power sector. 

Frost & Sullivan's Managing Director Manoj Menon (left) presents Corporate Affairs & Communications Senior General Manager Datuk Ir Mohd Aminuddin Mohd Amin with the Frost & Sullivan's Asia Pacific Best Practices Award for their excellent performance in 2013.



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OFFICIALLY PAS 55-CERTIFIED

Tenaga Nasional Berhad (TNB) has become the first company in Southeast Asia to be certified with PAS 55-1:2008 (the British Standards Institution's Publicly Available Specification for Asset Management) when its Transmission Division received accreditation in mid-2013.

Awarded to organisations that meet stringent asset management criteria, PAS 55 is a recognition that assets are operating optimally and risks are mitigated early, in order to reduce costs and time constraints. This will result in improved safety, efficiency and productivity.

TNB's Transmission Division is responsible for the main electricity transmission grid throughout Malaysia, and as such, PAS 55 certification is vital.

To get certified, the company went through two stages of assessment – one to examine the design of TNB's asset management system, and another to test that system across the company's transmission division.

The President and CEO of Malaysia's largest utility, Datuk Seri Ir Azman Mohd said, "We are very proud to be the first company in Southeast Asia to achieve this certification. It will set a good example and I expect many more companies in the region to follow our approach and achieve this milestone." 


TNB President and CEO Datuk Seri Ir Azman Mohd congratulates the company for being the first in Southeast Asia to be PAS 55-certified.



JOINT EFFORT FOR RENEWABLE ENERGY

In October, representatives from the 21 members of the Asia Pacific Economic Co-operation (APEC) economic forum converged in Bali, Indonesia for a conference on clean, sustainable energy use. There, they agreed to establish a joint effort for the development of renewable power supply in the region.

Member nations are collaborating to lower the cost of alternatives and attract investment in them, to overcome some of the region's key challenges in green development.

APEC economies represent around 60% of the global demand for power, which is expected to surge in tandem with economic growth. A report by the Asia Pacific Energy Research Centre also projected an increase in fossil fuel usage by more than 80% in the region, which will result in a 46% rise in carbon dioxide emissions by 2035. 

Representatives of APEC member economies (whose leaders are pictured here) agreed to work together to push for green, sustainable energy.



THE PSA 55:2008 ACCREDITATION PROCEDURE

1. PLAN

Asset management strategy, objective and contingency plans

2. Do

Outline structure and responsibilities, outsource activities and train for competence.

3. Implement

Put plans into action life cycle activities and tools facilities and equipment.

4. Check

Performance assessment and evaluation of compliance.

5. Act


Management review and improvement actions.

CLEAN ENERGY FUND

In partnership with Japan-based Asian Energy Investments, the Malaysian government has launched a US\$100m venture capital fund to invest in clean energy projects across Southeast Asia. The fund was announced by Prime Minister Datuk Seri Najib Tun Razak at a meeting with sustainable development experts in San Francisco, United States.

Putra Eco Ventures, a Malaysian fund management company, will channel the investment into small and medium-sized companies and green technology.

The fund will also help to supply cheaper biodiesel feedstock to manufacturing plants which have previously relied on expensive crude palm oil.

Malaysia aims to reduce its carbon emissions by 40% by 2020 compared to 2005 levels. The nation also intends to increase its renewable energy production capacity to 4,000MW by 2030. 

The new venture capital fund will give plants in Malaysia the opportunity to produce biodiesel from sources that are more cost-effective than crude palm oil.


DOUBLE ENERGY AWARDS

TNB Janamanjung (TNBJ), a wholly-owned subsidiary of Tenaga Nasional Berhad (TNB), was presented with two awards at the 2013 ASEAN Energy Awards held in Bali, Indonesia. Organised by the ASEAN Centre for Energy, the award programme was created in 2000 to recognise excellence in the development of renewable energy production and best practices that promote energy efficiency.

Both the awards were in the category of ASEAN Best Practise in Coal Projects. Specifically, they were for Corporate Social Responsibility and Quality Journey to attain PAS 55 (the British Standards Institution's Publicly Available Specification for Asset Management).

TNBJ's Sultan Azlan Shah coal-fired power plant in Seri Manjung, Perak produces 2100MW of electricity from its three 700MW units and has been

fully-operational since 2004. Environmentally compliant features include sprinkler systems and enclosed conveyors to minimise dust pollution, and the utilisation of pulverised low-sulphur and low-bitumen coal to enhance efficiency and reduce impact. The plant exceeds ASEAN emission standards by emitting only 50mg/Nm³.

TNBJ received PAS 55 certification in July, making the Sultan Azlan Shah plant the first power generating facility in Southeast Asia to achieve the standard. Assessment and certification was carried out by PricewaterhouseCoopers The Asset Partnership, who considered existing management systems and processes, and tested the suitability of PAS 55 for the plant. The standard provides specifications for managing physical assets and guides businesses on how to apply the specifications in their specific context. 



EXEMPLARY EMPLOYER

Tenaga Nasional Berhad (TNB), Malaysia's largest energy utility was again recognised as one of the best employer brands in the region when it was presented with *Asia's Best Employer Brand Award 2013*.

Mohd Seth Alias from TNB's Human Resource Department represented TNB at the ceremony, which was held on the 31st of July at Hotel Pan Pacific Singapore. It was the third time that TNB has received this award after 2010 and 2011.

The event was hosted by the Employer Branding Institute, with the World HRD Congress, and Stars of the Industry Group and CMO ASIA as strategic partners and was endorsed by the Asia Confederation of Businesses. The *Asia's Best Employer Brand Award* is given to companies which are socially responsible, have a workplace environment that is conducive to innovation, practise enlightened human resource policies, and are developing competent leaders for the future. 



EFFICIENT SOLUTIONS


In the wake of rising public concerns over several price-increase announcements in the country last year, the Malaysian government announced in December 2013 that it will implement 11 cost-cutting measures in the public service sector. One of these is to reduce the electricity bills of its ministries and departments by 5%.

In line with this, Tenaga Nasional Berhad Energy Services (TNBES) is planning to advance the government's effort by encouraging each ministry to deploy TNBES energy-efficient solutions in their premises. According to TNBES Managing Director, Mohd Azhar Abd Rahman, the company's solutions can assist the government in reducing its spending by using less.

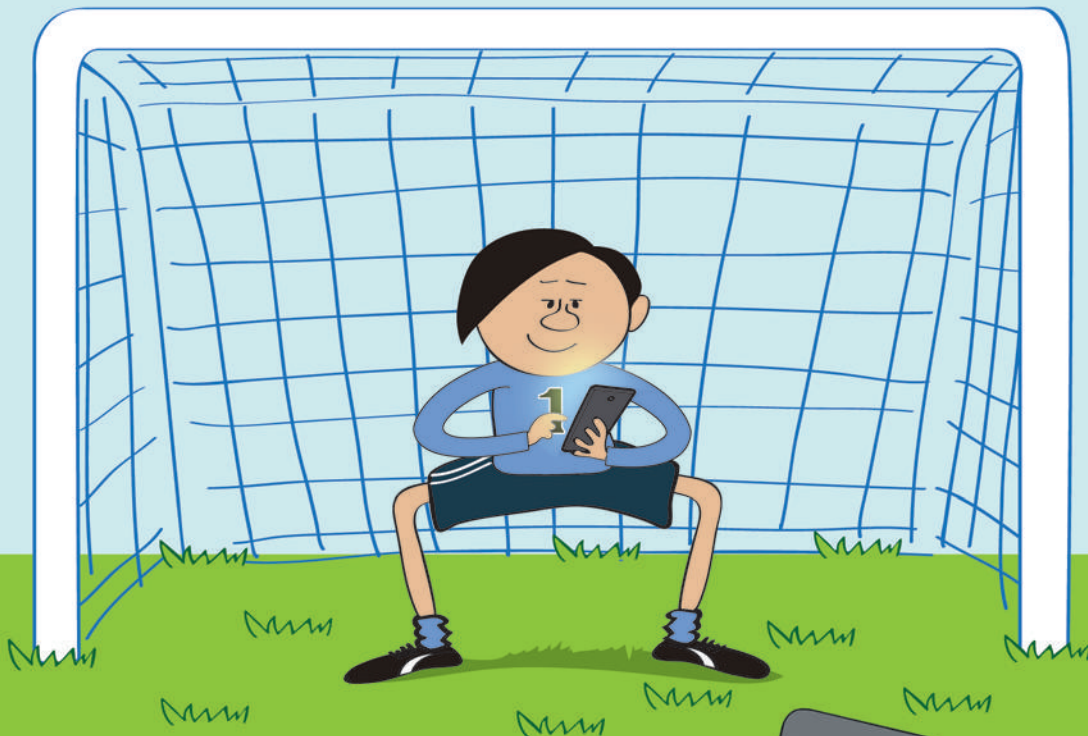
One example he gave was to replace incandescent bulbs with light-emitting diode (LED) lamps – which have a longer lifespan, are several times brighter and more efficient thus leading to reduction in costs.

“We are ready to help the government save on electricity cost, and we want to educate the public sector and all Malaysians to consume energy efficiently.”

Mohd Azhar Abd Rahman,
Managing Director of TNB Energy Services

In addition to providing its cost-cutting measures to government departments in the country, TNBES plans to venture overseas – particularly to the Middle East. It aims to provide its services to Malaysian GLCs that have successfully integrated their operations there. 

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- Locate your nearest TNB customer service centre



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ADVANCING AWARENESS

Advocating Energy Efficiency

The Energy Efficiency for Sustainable Business Forum was held at four locations across Malaysia – in Selangor, Penang, Johor and Putrajaya – and was organised by Tenaga Nasional Berhad (TNB), in collaboration with the Malaysia Association of Energy Service Companies (MAESCO) and the Association of Water and Energy Research Malaysia (AWER). The seminar aimed to share knowledge and experience, as well as to increase awareness about subsidy rationalisation and optimising electricity usage among TNB's prime customers. It was attended by about 200 representatives from TNB's corporate clients, and also featured an exhibition on efficient practices, products and services.



Ir Kamaliah Abd Kadir, the Senior General Manager of Customer Service at TNB's Distribution Division, highlighted TNB's commitment to creating conducive electrical infrastructure for its customers. She also urged participants to utilise the cutting-edge expertise and products featured at the forum to reduce their power costs as well as their environmental impact.

Highlighting efficiency as achieving maximum productivity with minimum effort or expense, Ir Kamaliah stated, "Energy efficiency is not only beneficial to companies' profits, but also to the country and the environment." She also noted that if TNB customers plan their electricity consumption more resourcefully, everyone stands to gain from the additional financial savings.



The seminar also featured experts from MAESCO and AWER including Zulkifli Zahari, President of MAESCO, who spoke on *How to Sustain and Grow a Business in the Uncertain Energy Scenario and Fluctuating Energy Costs* while Piarapakaran Subramaniam, President of AWER discussed *Improving Business Efficiency via Energy Management and Case Study*.

Other speakers were Hishamudin Ibrahim, Market Investment Manager at Malaysian Green Technology Corporation and Ir Dr KS Kannan, the National Project Manager at the United Nations Industrial Development Organisation's (UNIDO) Industrial Energy Efficiency for Malaysian Manufacturing Sector. Hishamudin expounded on *Supporting Mechanism for Energy Efficiency* while Ir Dr Kannan gave an overview of the *Malaysian Energy Scenario and the Need for Subsidy Rationalisation*.

In his presentation, Ir Dr Kannan emphasised the negative effects of fossil fuel subsidies including their inefficiency and how they reduce the economic attractiveness of renewable energy. He indicated that subsidy reforms can lead to optimised resource rationing which

can stimulate higher economic growth while strengthening incentives for research and development into alternate power sources.

Ir Kamaliah Abd Kadir also said that there is still plenty of room to grow in terms of raising public awareness about the merits of optimal and prudent power usage. She revealed that "Even at a regulatory level, many believe that funds are not being optimised effectively. Hence, we urge industry players, particularly our customers who contribute a percentage of their monthly bills to the renewable energy fund to tackle this challenge. There are funds as well as solutions that we have made available. Together we should take up the call and play our part for our country and the environment."

The forum also featured exhibitions from a number of companies, including TNB Energy Services (TNBES) – a subsidiary of TNB – promoting energy-efficient consultancy services and products such as lighting systems. Other organisations which set up booths were MAESCO, Gading Kencana, Panasonic Eco, Energy One and Schneider Electric.

Previous page: Ir Kamaliah Abd Kadir, Senior General Manager of Customer Service at TNB's Distribution Division, argues that the return on investment for renewable energy projects is taking longer due to the subsidised tariff on fossil fuels. As subsidies reduce, the actual cost of such fuels will force the energy sector to be more vigilant and conservative in the distribution and consumption of energy.

Above: Third left to right: Hishamudin Ibrahim – Market Investment Manager at Malaysian Green Technology Corporation, Ar Zulkifli Zahari – President of MAESCO, Ir Kamaliah Abd Kadir – Senior General Manager of Customer Service, Dato' Mohandass Nair – General Manager of Customer Service at TNB's Distribution Division and Ir Dr KS Kannan – the National Project Manager at the UNIDO Industrial Energy Efficiency for the Malaysian Manufacturing Sector.

Apart from the Energy Efficiency for Sustainable Business Forum, TNB also has other awareness initiatives planned. The company has scheduled several programmes and dialogues with industry leaders such as the Federation of Malaysian Manufacturers (FMM), and the Real Estate & Housing Developers' Association of Malaysia (REHDA). 

BECOMING A GLOBAL ICON

TNB Ventures Outside Malaysia





When the National Electricity Board (NEB) was privatised in 1990 and became Tenaga Nasional Berhad (TNB), the stage was set for Malaysia's main electricity provider to grow as a company. Aside from opening up avenues for funding and thus boosting investment in equipment and technology, privatisation has also enabled the organisation to go beyond the shores of Malaysia, in particular to the rest of ASEAN. **TENAGALINK** looks at the measures that have been and are being put in place to position TNB as a regional champion in the power industry.

The geographical expansion of TNB's services is in line with the company's 20-Year Strategic Plan which was developed in 2005 and is the 2nd phase out of four. The first phase, 'Service Excellence' – was achieved in 2010 when the national power company managed to achieve targets to improve gearing as well as the System Average Interruption Duration Index (SAIDI), and reduce transmission & distribution (T&D) and System Minutes losses.

This phase was driven by four growth strategies. They were enhancing customer service, strengthening the consistency and availability of power supply, improving the productivity and capability of staff and ensuring optimal electricity costs.

Having established itself as a regional leader in the industry, TNB is now focused on "expanding works and services related to the energy sector" by "creating new revenue streams which leverage

on the company's know-how and competency in the industry."

One of the driving forces behind the decision to expand overseas is the realisation that TNB's growth is limited if it relies too much on the domestic market.

However, external ventures are not just to boost the company's revenue. They are also aimed at developing skills and technical abilities which can be used to deliver higher quality service to Malaysian customers. At the same time, by being the hub for technology, and being able to provide competent work forces to other regions, Malaysia is positioning itself as an international player.

A DEDICATED DIVISION

In order to spearhead the 'Geographical Expansion' phase, the Energy Ventures Division (EVD) was set up and entrusted with handling TNB's non-regulated businesses. Regulated businesses

Continued on page 23

Left: The Shuaibah power plant in Saudi Arabia is one of the most notable overseas projects managed by TNB Repair and Maintenance (REMACO).

TRANSMISSION EXCELLENCE

“PAS 55-1:2008 is the only internationally accepted standard to validate the efficiency of our operations. No significant gaps were found during implementation as we began consolidating our asset management practices quite a few years ago.”

*Datuk Rozimi Remeli,
Vice President of Transmission*



As one of the core divisions in Tenaga Nasional Berhad and the backbone of the National Grid, the Transmission Division is committed to managing TNB's assets which are valued at over RM60 billion, to fulfil the requirements of the Division's customers and stakeholders, while optimising performance, risks and costs throughout the life-cycle of these assets to ensure a safe, secure and reliable electricity supply.

In tandem with TNB's Strategic 20-Year Plan and its own 5-Year Strategic Plan of Gemilang 2015, TNB Transmission Division is moving towards achieving Asset Management excellence as aspired by TNB's CEO, Datuk Seri Ir Azman Mohammad. The challenge to sustain premium performance in the face of higher expectations from the stakeholders, i.e. the regulator, customers, the public and management, is supported by the adoption of enhanced Asset Management practices in every aspect of an asset lifecycle, from conception to final disposal.

The Transmission Division embarked on these enhanced Asset Management practices as early as 2006, when the Asset Management Department was formed to put in place sound policies and strategies to ensure that the Plan-Do-Check-Action (PDCA) cycle of the Transmission Division's business is done efficiently and effectively. The streamlining of the functions and processes among the business units within the Division has led to greater focus, clarity and synergy.

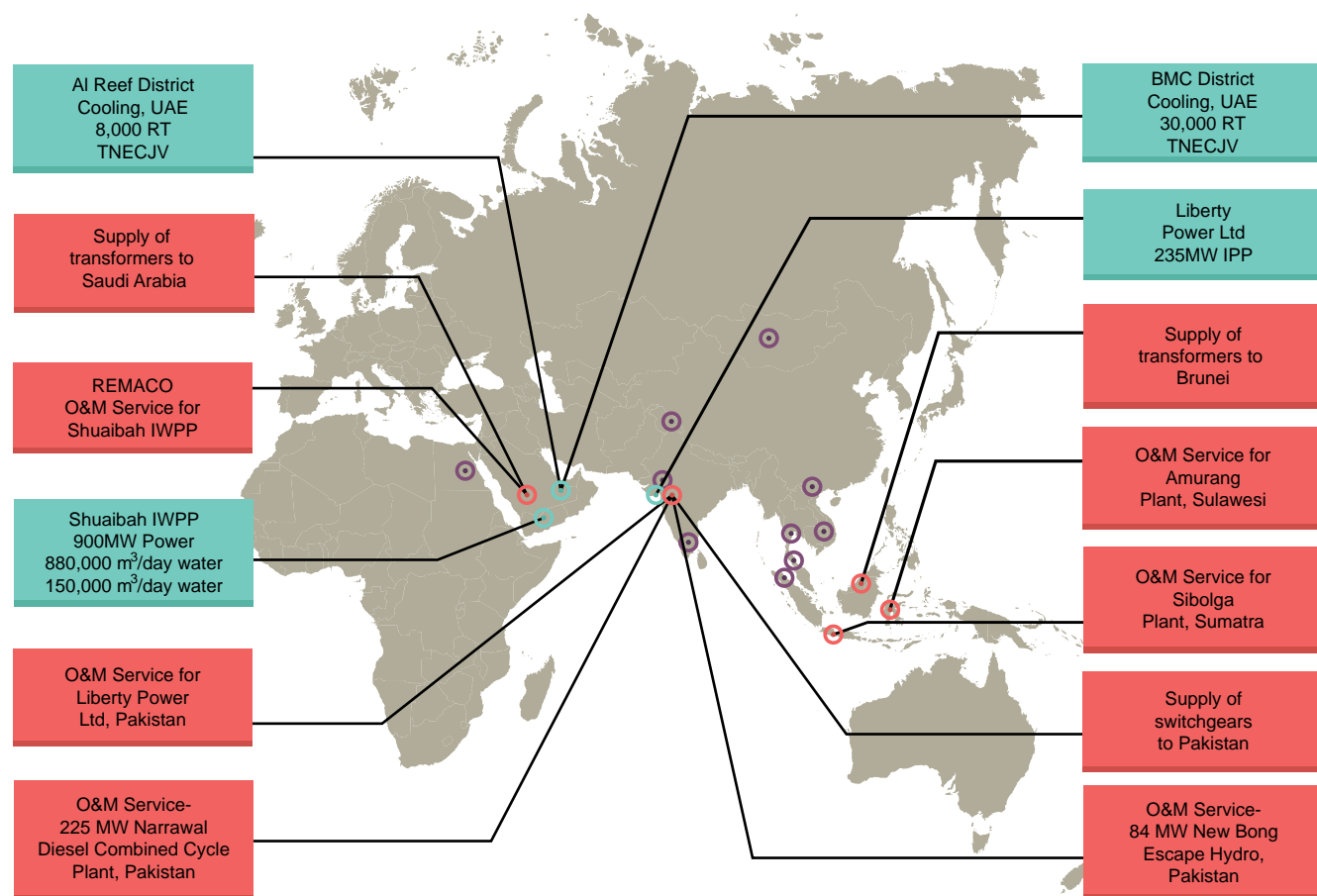
One example of the Department's achievements to date is TNB Transmission's performance with regards to System Minutes, which is among the international indices used to measure the power disruption experienced by consumers in a year. Before 2004, the figure was in double digits. According to the Vice President of the Transmission Division, Datuk Rozimi Remeli, the gradual implementation of Asset Management methodologies and activities has helped the Division to improve and sustain its operational excellence by consistently reducing

System Minutes for the past five consecutive years. Last year, TNB Transmission Division broke the psychological 1 System Minutes barrier, when it achieved a System Minutes of 0.4375.

Having the most efficient and up-to-date equipment is another way to achieve operational excellence. One example is the modern National Load Despatch Centre (NLDC), which forms the heart of the National Grid. “At the Transmission Division, we have some of the best and most modern control systems in the entire Asia Pacific region,” Datuk Rozimi shares, referring to the state-of-the-art technology which has allowed his team to propel and elevate the network integrity and reliability of the Division's operation to be among the best in the world.

For TNB Transmission to be dominant at home and gain acceptance as well as international recognition of its Asset Management practices, the Division worked to achieve PAS 55-1:2008 certification from the

Phase Two of TNB's 20-Year Strategic Plan



British Standard Institution (BSI) Certified Assessor in 2013. PAS 55-1:2008 certification is the only internationally accepted standard that can validate the efficiency of practices that focus on physical asset management standards. The Transmission Division was finally certified PAS 55-1:2008 in June 2013, audited and assessed by Certified Assessor Lloyd's Register.

The Division's journey towards operational excellence started in 2004, and the implementation of Asset Management principles has significantly aided in ensuring that incremental improvement and sustained performance were achieved within a short time span.

○ ILSAS (Integrated Learning Solutions) continues to provide services for power companies in emerging countries, including Vietnam, Yemen, Mongolia, Laos, Indonesia, Thailand, Nepal, Egypt and Pakistan

○ Independent Power Producer, Independent Water & Power Producer and Development Projects

○ Supply & Service

Continued from page 21

incidentally, are ones related to the distribution and transmission of electricity in Peninsular Malaysia, while non-regulated ones include generation and power plant maintenance and repair.

The Division's core responsibility is to manage major projects and international business, as well as TNB subsidiaries related to energy

generation, such as TNB Repair and Maintenance (TNB REMACO), TNB Energy Services (TNBES), TNB Engineering Corporation (TNEC) and TNB Fuel Services (TNB Fuel).

Among the major projects undertaken are the development of new plants and tendering for new generation projects in Malaysia.

Continued on page 25

EXPANDING HORIZONS

“When it comes to expanding our current business, the Energy Ventures Division is presently concentrating on power generation. It is one area that is not governed by the recently introduced Incentive Based Regulation (IBR) of the energy industry in Malaysia, as well as in many other countries.”

*Dato' Ir Mohd Nazri Shahrudin
Vice President of Energy Ventures Division*



In September 2012, TNB made the bold decision to establish the New Business and Major Projects Division (NBMPD), currently known as Energy Ventures, with the objective of cementing the company's foothold in the region while extending its global reach. Helmed by its Vice President, Dato' Ir Mohd Nazri Shahrudin, Energy Ventures has since completed and continues to pursue major ventures both locally and abroad.

Energy Ventures is the arm of TNB entrusted with growing and managing its non-regulated ventures. These businesses comprise generation, as well as power plant maintenance and repair operations in Malaysia and abroad. The establishment of the new division – one of TNB's most ambitious yet – demands immense amounts of technical proficiency and acute business acumen.

A result of the amalgamation of the manpower and expertise of TNB's

Major Projects and International Business departments under one streamlined structure, Energy Ventures has given TNB an efficient platform to pursue deals and joint developments. This is particularly advantageous because prior to the division's establishment, TNB had to rely on ad hoc bidding and teams of consultants when commencing new projects.

Prior to being appointed to lead Energy Ventures, where he personally oversees each project, Dato' Ir Mohd Nazri Shahrudin was the Project Director for the TNB-Saudi Arabia Shuaibah Water and Power Project, the first Independent Water and Power Producer (IWPP) project there. The project involved developing, constructing and managing a 900MW 880,000-cubic metre combined power and water desalination facility.

In addition, he has also held various engineering, technical and management positions within TNB

including being involved in several generation projects. One of these was the development, construction and commissioning of the 3-unit 700MW coal-fired Sultan Azlan Shah Power Station in Manjung, Perak. More recently, Dato' Ir Mohd Nazri led the TNB team that won the bids to build, operate and manage the 1,071MW combined cycle gas-fired power plant in Prai, Penang, as well as the 1,000MW ultra-supercritical coal-fired power plant, also in Manjung, Perak.

A major present focus of Energy Ventures, is the streamlining of the activities of its power generation-related subsidiaries. The division also aims to grow TNB's non-regulated revenue from the three energy hubs of Southeast Asia, the Middle East and Africa, by seeking new partnerships and renewing existing ones. With these goals, Dato' Ir Mohd Nazri Shahrudin is confident that Energy Ventures' progress will help make TNB a regional power in the near future.

Continued from page 23

Meanwhile, the new division's international business involves the development of new overseas ventures in power production, operations & maintenance (O&M), servicing, supplies and manufacturing.

PRESENT VENTURES

The Middle East is one region which has received strong interest from TNB and leading the way here

is its wholly-owned subsidiary TNB REMACO which has a number of O&M projects. The most notable of these are the Shuaibah power plant in Saudi Arabia and the Shuaiba North Power and Distillation Plant in Kuwait.

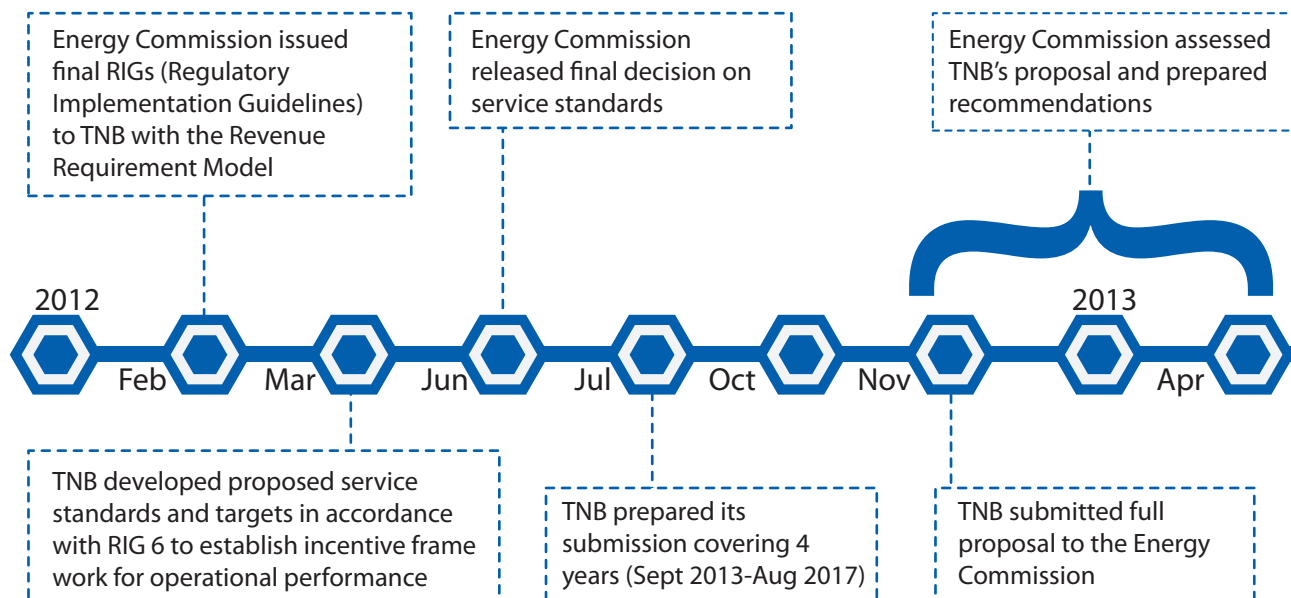
As TNB REMACO Managing Director Hj Nor Azman Mufti told *TenagaLink* in our interview with him last issue, the subsidiary has been focusing on the Middle East

Continued on page 27

Below: TNB REMACO carries out many operations and maintenance projects for power plants across the world, thus gaining a reputation of excellence for its parent company.



INCENTIVE-BASED REGULATION (IBR) TIMELINE FOR ELECTRICITY TARIFF SETTING



INCENTIVISING EXCELLENCE

Implemented since January 2014, the Incentive Based Regulation (IBR) scheme was introduced by the Malaysian government to enable market-based energy pricing in order to strengthen the country's energy security. A standard which has been used to great effect internationally, IBR will enable Tenaga Nasional Berhad (TNB) – the nation's largest electricity utility – to enhance its performance and services as it presses on towards its goal of regional expansion.

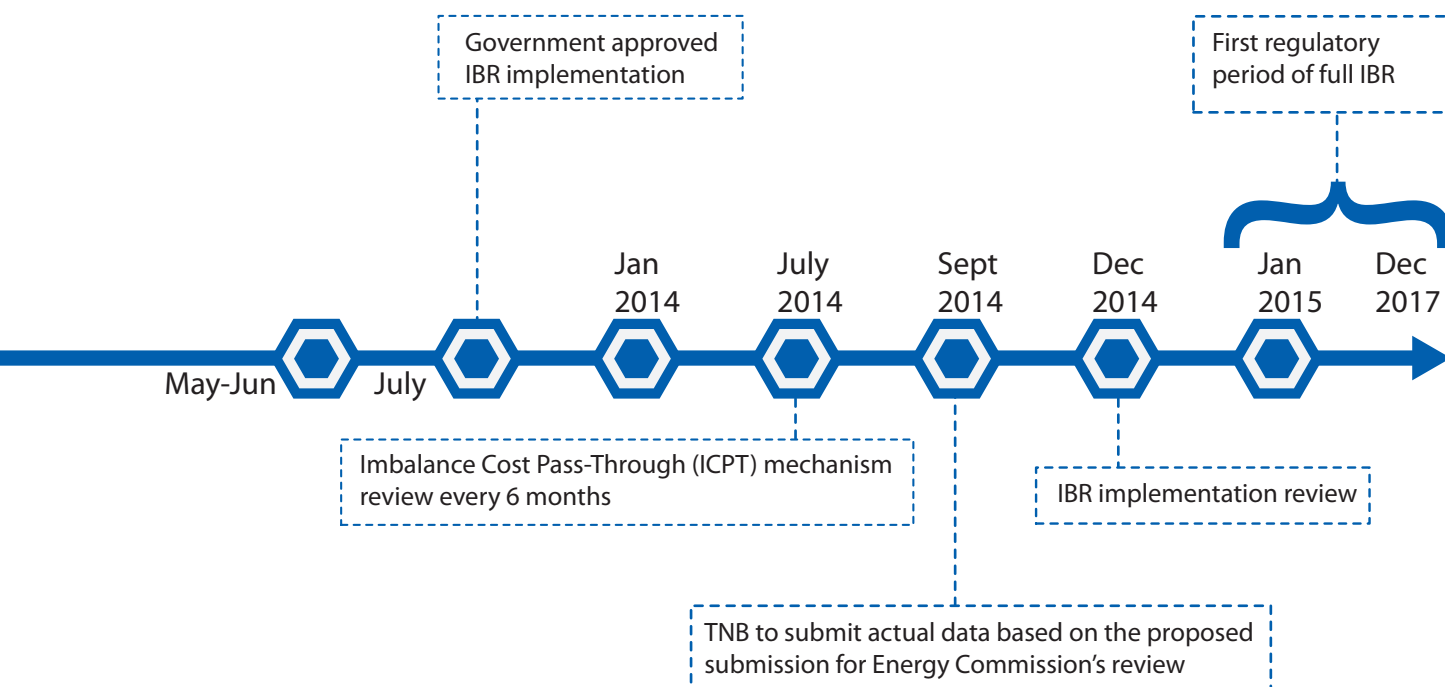
Although it only came into being at the start of the year, IBR had been under discussion for some time. In February 2011, the Energy Commission of Malaysia presented 11 Regulatory Implementation Guidelines (RIGs) to TNB, with the national energy company tasked with developing service standards and targets in line with them.

Under the previous system, electricity tariffs were calculated according to various criteria such as the price of fuel feedstock and the cost of energy purchased from Independent Power Producers (IPPs) by TNB. With IBR, other factors such as TNB's future earnings, asset depreciation, return on investment and tax are also taken into consideration.

As part of the IBR, a Fuel Cost Pass Through (FCPT) mechanism has been put in place, which allows the price of electricity to be revised based on raw material costs and foreign exchange. This ensures that TNB will not be burdened by sudden fluctuations in the exchange rate – a very important point considering that all coal and 30% of the natural gas it uses – which are the two main fuels for power plants in the country – are imported.

In addition, through IBR, TNB will be given incentives to encourage the reduction of operational efficiency. At the same time, since increased demand for electricity will lead to a rise in the need for fuel feedstock, the FCPT will help promote more prudent use of power by consumers.

The objective of introducing Incentive Based Regulations is to create a more effective and efficient means of generating, transmitting and distributing electricity which takes into account the needs of both the utility and consumers. For TNB, it helps it adopt world-class standards, which is vital in the international arena. The FCPT mechanism ensures that TNB does not need to bear high costs, thus enabling the utility to better serve the public.




Source: Energy Commission of Malaysia

Continued from page 25

countries including Qatar and Yemen as well as Saudi Arabia and Kuwait. Aside from the Middle East, TNB, through TNB REMACO, also has a presence in Pakistan, namely in the Azad Jammu and Kashmir hydroelectric plants and the Narrawal Diesel Combined Cycle Plant. Also in its portfolio are a plant each in Sulawesi and Sumatra, Indonesia.

As it turned out, these countries where TNB has a presence are also members of the Organisation of Islamic Cooperation (OIC), like Malaysia. According to TNB President and CEO Datuk Seri Ir Azman Mohd, who was speaking to *The Malaysian Business*, for TNB this common ground helped engender trust, which counts a lot in overseas ventures.

While certain deals were concluded before the EVD existed, its establishment creates a dedicated entity to secure the best deals for its parent company and Malaysia. This effectively frees up TNB and its subsidiaries to concentrate on their core competencies in the generation, transmission and distribution of energy.

Ultimately, TNB is confident that the new division will contribute a significant non-regulated income by 2015. In addition, the company also aims for these revenues – especially those from overseas business – to exceed incomes from regulated domestic business within 10 years' time. More than that, the EVD is poised to set Tenaga Nasional Berhad further apart as a utility service provider of global distinction. 

PROMOTING PRUDENCE

Conserving Electricity through Efficient Consumption

As the world's reserve of fossil fuels decreases due to soaring demand from a growing population, people are becoming increasingly aware of the importance of conserving the available supply of power. This is evident in the recent trend of energy efficient technology being incorporated into home appliances. However, more home and industrial users need to be aware of the advantages and consequences, as well as take action, for any real progress to be made. This is one reason why awareness initiatives are necessary – to create more far-reaching effects and results through widespread implementation.

Malaysians show their support for Earth Hour, joining many who switched off their lights.



“TNB is committed to driving increased energy efficiency by having seminars that build awareness among both our corporate and individual customers of the benefits they will gain, such as financial savings and reduced costs.”

*Ir Kamaliah Abdul Kadir,
Senior General Manager of Customer Service, Distribution Division.*



The largest power provider to Malaysia's population of 29 million, Tenaga Nasional Berhad (TNB) is responsible for generating the nation's electricity, as well as transmitting and distributing it to customers – residential, commercial and industrial. As part of its drive to ensure efficient electricity use and as a component

of corporate agenda, TNB's has also endeavoured to increase awareness on the benefits of responsible power use.

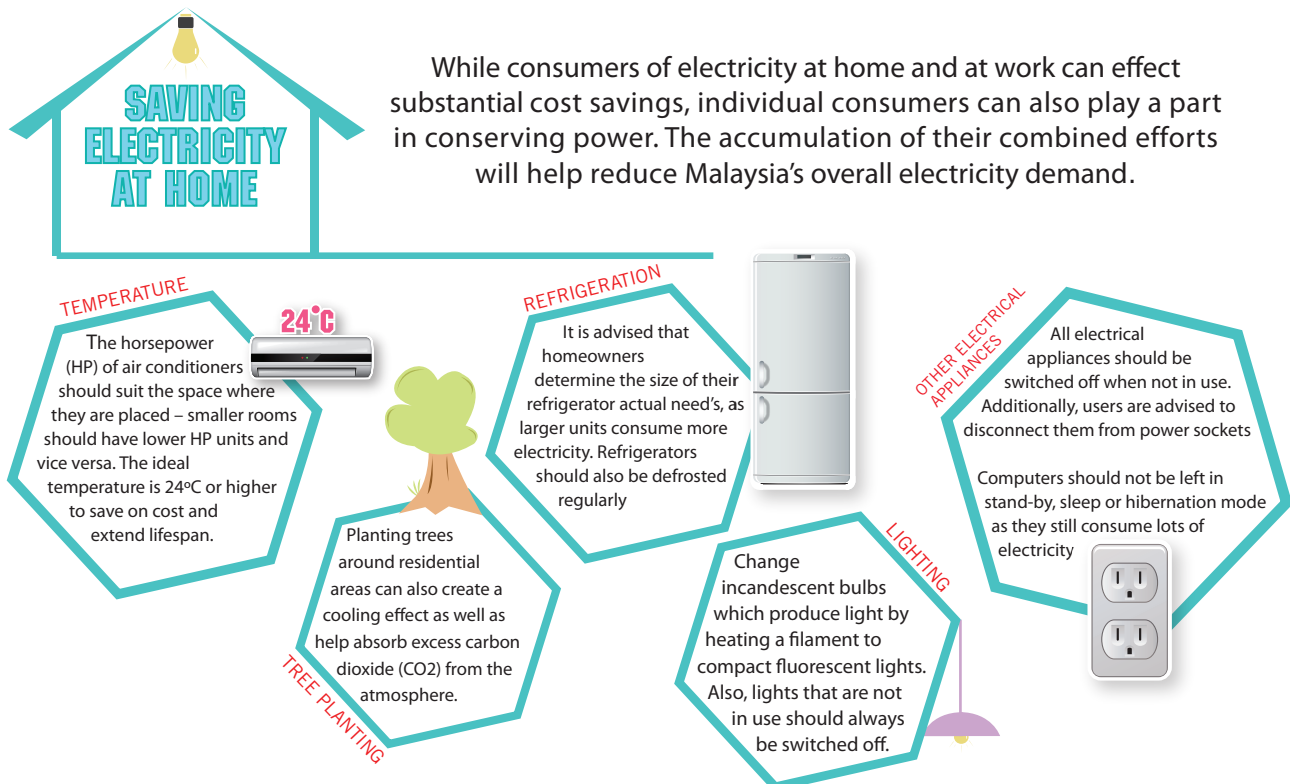
Promoting energy-saving techniques helps the power utility remain competitive and achieve a higher level of productivity. This is because the amount of energy consumed by

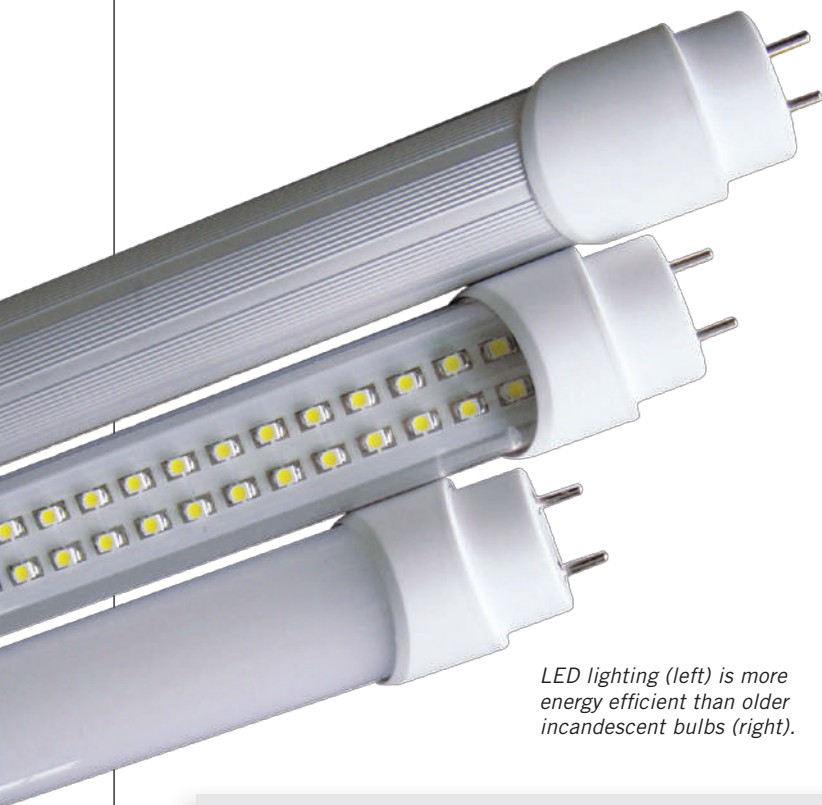
customers is directly proportional to the total fuel used by TNB.

NATIONAL ENDEAVOUR

Apart from TNB, the Malaysian government also fully supports efforts to curb the wastage of electricity and promote energy efficiency across the country.

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LED lighting (left) is more energy efficient than older incandescent bulbs (right).



TAKING THE LEAD TNB AND ENERGY EFFICIENCY THROUGH THE YEARS

-2013

- TNB collaborates with the Malaysia Association of Energy Service Companies (MAESCO) and the Association of Water and Energy Research Malaysia (AWER) to hold the Energy Efficiency for Sustainable Business Forum in Selangor, Penang and Johor to share knowledge and experience. This increased awareness on subsidy rationalisation and methods to optimise electricity usage among participants.

-2011

- TNB introduced a tariff structure designed so that higher rates are imposed on customers who consume the greatest amount of energy. Also introduced was the 1% RE Fund on behalf of SEDA Malaysia, for domestic customers whose a monthly electricity use exceeds of 300 kilowatt-hours (kWh), equivalent to RM77. On the 1st of January 2014, this was increased to 1.6%.

-2009 to Present

- TNB collaborates with the World Wildlife Fund Malaysia (WWF-Malaysia) to campaign for increased observation of the annual global Earth Hour, when participants switch off all non-essential electrical appliances for one hour on a specified day.

-2009 to 2010

- TNB focused on increasing the understanding of efficiency among school children and contributed RM1.5m towards boosting public awareness of the benefit's of conserving electricity. It also promoted the implementation of energy efficiency practices and equipment that conserve less power, as well as encouraging the prudent use of electricity as a lifestyle choice.

-2005

- TNB collaborated with the Federation of Malaysian Consumer Associations (FOMCA) to promote and campaign for increased understanding of energy-efficient practices.

OPTIMISING ELECTRICITY AT WORK



The prudent use of electricity is not only beneficial to the environment, factories and business establishments will also enjoy financial savings and increased profits.

POWER FACTOR BOOST

Ensure that machines and equipment have a high power factor, indicating that they use less energy compared to other models.

GO OFF-PEAK

Businesses are advised to schedule certain operations (such as running heavy machinery) during off-peak hours (between 10:00pm and 8:00am).

SWITCH OFF

Office lights, equipment and appliances should be turned off at the end of the work day. Install automatic motion-sensing light controls that switch lights on or off depending on occupancy.

Continued from page 29

Working in collaboration, the Energy Commission of Malaysia (*Suruhanjaya Tenaga* – ST) and SIRIM (Standards and Industrial Research Institute of Malaysia) established a set of standards for products that meet certain guidelines for practical and economical electricity use.

Appliances – including refrigerators, electric fans, air conditioners and televisions – are accorded Star Ratings based on how much electricity they consume. Other products such as electronic ballasts for fluorescent lamps, LED lights and some insulation materials for buildings are not rated, but still qualify as energy efficient products.

PRIME EFFORTS


TNB also regularly visits manufacturing facilities to conduct energy audits. These audits, which

can take up to two months, are aimed at helping such establishments benefit from more efficient use of power.

In large-scale applications, energy optimisation is even more crucial, as the capital required to purchase more efficient machines and equipment is higher. This is usually why some companies overlook implementing such systems. However, the long term benefits include lower electricity

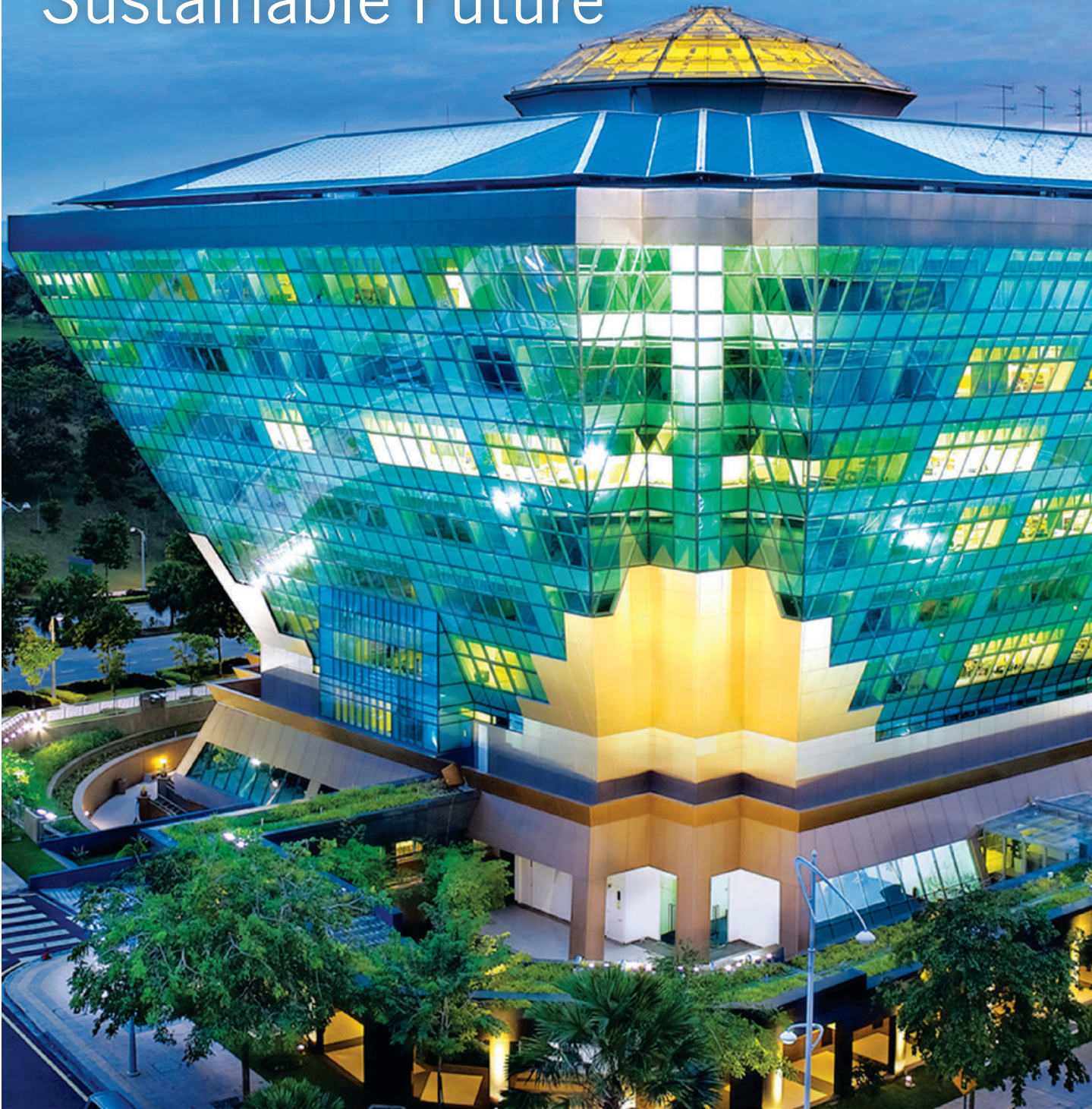
usage, higher efficiency, improved productivity and ultimately a higher profit margin.

In recent times, developers of industrial facilities have begun including energy efficient designs into their initial building plans. This has been observed to be more a cost-effective solution, with power savings of up to 30%, compared with upgrading already existing facilities.

Adopting efficient electricity consumption not only results in atmosphere pollutants being reduced, but also translates in financial savings for domestic, commercial and industrial users. TNB will also not need to purchase as much fuel to power its plants and the money saved can then be utilised in other areas of the economy, thereby advancing overall national growth. 

ENSURING EFFICIENCY

Creating a
Sustainable Future





According to the International Energy Agency (IEA), up to 48% of household energy is wasted due to inefficiency. Such statistics highlight the importance of proper power management and this is where energy efficiency (EE) comes into play. **TENAGALINK** examines some methods to reduce wastage and enhance sustainability.

WASTAGE POINTS

The importance of EE in everyday processes cannot be over-emphasised. Electric utilities will benefit from the optimisation of power generation and supply to customers in the form of lower operating costs. Consumers, on the other hand, will benefit from savings on electricity bills.

To illustrate, in homes and offices, appliances such as lights, air conditioners, televisions, refrigerators, washing machines and computers are among the biggest consumers of electricity. If kept running – even on standby – the electricity consumed quickly adds to a massive amount of squandered energy. By improving EE, less

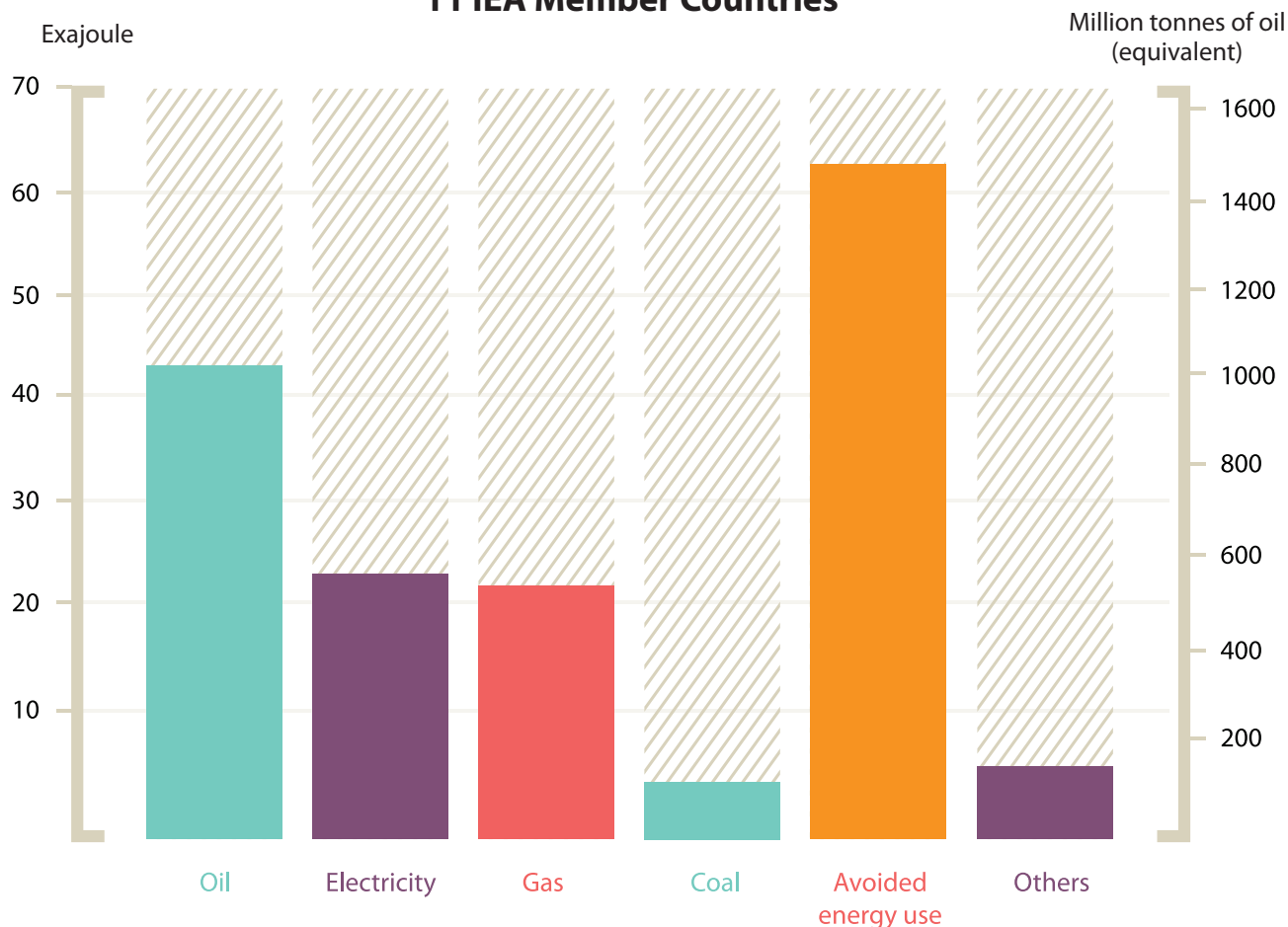
power will be used to accomplish such tasks.

These include lighting and heating/cooling systems in homes and offices, as well as making compressed air and drive systems more cost-effective in factories. At the same time, utility companies need to ensure that consumers have a consistent and constant supply of power. Improving efficiency will result in reduced load which means that fewer power plants need to be developed.

As for environmental concerns, these measures will result in reduced greenhouse gas emissions, which contribute to global warming. According to the recent *Energy Efficiency Market Report 2013* released by the IEA, savings

Left: The landmark Diamond Building in Putrajaya, Malaysia is rated platinum by the Green Building Index (GBI), the highest rating for a sustainable and energy efficient building.

Energy Savings from Efficiency Measures in 11 IEA Member Countries



*Total Final Consumption.

The 11 countries are Australia, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States, those for which sufficient data is available to undertake analysis. "Others" include biofuels plus heat from geothermal, solar, co-generation and district heating. Co-generation refers to the combined production of heat and power.

Source: IEA indicators database

Above: The impact of energy efficiency in reducing the greenhouse effect globally has led the IEA to name it the 'first fuel' in the fight against climate change. This graph shows the amount of 'avoided energy' use – which has been saved as a result of energy efficiency practices.

resulting from energy efficiency enhancements in 11 OECD countries since 2005 is equivalent to 570 million tonnes of oil – more than the amount consumed by the entire US transport sector in 2010.

EFFICIENT ENVIRONMENTS

In Malaysia, the government together with Tenaga Nasional Berhad (TNB) – the country's

largest power provider – have taken steps to improve EE.

The Sustainable Energy Development Authority Act 2011 was also passed, resulting in the formation of SEDA which promotes, develops and implements national sustainability policies and projects. The agency also ensures that existing sustainable programmes are managed prudently and effectively.

Furthermore, the National Energy Efficiency Masterplan (NEEMP), drafted for implementation over ten years carries provisions for domestic, commercial and industrial buildings. The policy targets a three-year short-term saving of up to 2,774 gigawatt-hours (GWh), a six-year medium-term goal of 14,840 GWh and a ten-year long-term goal of 50,594 GWh, which is expected to equate to a total savings of 5.6% of Malaysia's energy use. It is estimated that the

NEEMP will generate financial savings of up to RM14.6b and delay the need to build new power plants.

To encourage greater efficiency, TNB advises customers to practise prudent use. This can be achieved by switching off electrical appliances and lights when not in use. Automatic sensors can also be installed, which turn lights on or off depending on the occupancy of the room or space.



“Energy efficiency can relieve the pressure to keep energy bills down while taking on climate change.”

*Maria van der Hoeven,
International Energy Agency
(IEA) Executive Director*

Malaysian Energy Commission's Energy Rating Label for Domestic Appliances



Above: The Energy Commission of Malaysia's Energy Rating Label assigns a star system from 1 to 5 to indicate the energy savings potential of domestic appliances. This will help consumers make a prudent choice when purchasing such equipment.

As countries around the world develop policies and measures to optimise power use, the Malaysian government – in collaboration with electric utilities such as TNB – is leading the charge in ensuring that the country meets its energy goals for the coming years. 🇲🇾

KL INTERNATIONAL AIRPORT

The Gateway To Malaysia

As the manager and operator of the country's 39 airports including KL International Airport (KLIA), Malaysia Airports has the responsibility of overseeing the smooth running of the nation's aviation gateways. In 2012, approximately 67.2 million passengers passed through the various airports including 39.8 million at KLIA. More than just being an air terminal, KLIA is a lifestyle hub where retail, F&B and entertainment options abound. As such, the onus is to ensure that the airport is running at maximum efficiency. Malaysia Airports' Managing Director Tan Sri Bashir Ahmad Abd Majid speaks to [TenagaLink](#) about the efforts made to ensure that KLIA stays at the top.

"We at Malaysia Airports are committed to the national mission of supporting renewable energy and reducing our carbon footprint."

*Tan Sri Bashir Ahmad,
Managing Director, Malaysia Airports*



Since its opening in 1998, KLIA has been one of the most celebrated airports in the region, providing connectivity to 100 cities around the world with more than 60 airlines. The jewel in Malaysia Airports' crown, it has received a number of prestigious international awards such as the *Airports Council International's (ACI) Airport Service Quality Awards*, the *Skytrax World Airport Awards* and the *International Air Transport Association's (IATA) Eagle Award for Best Airport*.

For Tan Sri Bashir, these accolades are testament to the world-class facilities and service available at KLIA. They are also a great source of pride to him and the rest of the Malaysia Airports team because having benchmarked KLIA against other airports, now others are looking at Malaysia's national airport for inspiration.

With 2014 being *Visit Malaysia Year*, the Malaysia Airports Managing Director is even more aware of the importance of ensuring that KLIA is operating at optimal level. "For many visitors, their first and last experience of Malaysia is at KLIA. With the country expecting to attract 28.8 million tourists this year, it falls on our shoulders to ensure that they feel welcomed when they arrive and that their parting memory will be a good one," he explained.

As Malaysia is recognised as a shopping haven, it is only fitting that one of the main aims of Malaysia Airports' 'Runway to Success' business strategy is to enhance the contribution of commercial services to the company's revenue.

Tan Sri Bashir said, "Presently, we have nearly 300 retail outlets and around 100 F&B outlets, occupying more than 1.1 million square feet of

space at KLIA. Retail is an important part of our operations. Therefore, we have come up with campaigns such as 'Indulge Till You Fly' and 'Priced To Please', to showcase KLIA as a shopping destination. And in 2012, we recorded a very impressive RM1.3 billion in sales in both KLIA and the LCCT (Low Cost Carrier Terminal) combined."

MEETING EXPECTATIONS

The key to Malaysia Airports' successful management of KLIA is its ability to juggle and meet the expectations of different stakeholders. They include the Ministry of Finance (which is its main shareholder), the Ministry of Transport, the retailers, various government departments such as Customs and Immigration, the airlines, and of course the passengers and airport users.

"We emphasise speed and quality at KLIA, to create not just a world-class air terminal that is safe and






Above: With more than 300 retail outlets, KL International Airport has established itself as a shopping destination. Secure and uninterrupted power supply is a must for operations to run smoothly.



Left: Air traffic controllers at the control tower in KLIA monitor the path of flights. As one of the busiest airports in the region, hundreds of flights call at KLIA each day. In the interest of safety, electricity must always be available.

secure, but also one which leaves a lasting, positive impression,” the Managing Director expounded. “At the same time, we also have the responsibility of reducing our environmental footprint – one of our tasks as a government-linked company (GLC).”

Exhibiting the confidence that the nation’s foremost airport operator and manager has in the country’s largest energy provider, Malaysia Airports also recently awarded TNB a contract to build a 132kV substation and a district cooling plant which will provide chilled water and electricity to klia2 – its upcoming replacement to the LCCT. With its excellent track record, there is little doubt that Malaysia Airports will succeed in its quest to make klia2 a standard bearer for airports, just as it has done with KLIA. 

Being Green is, Tan Sri Bashir revealed, of particular significance to Malaysia Airports. This is borne out in the fact that KLIA itself has a rainforest inside the Main Terminal Building, leading it to be dubbed, ‘Airport in a Forest, Forest in an Airport.’ In addition, the company has adopted an Energy Management Policy which aims to promote efficiency in power usage and reduce greenhouse gas emissions at its airports.

Being one of the largest and busiest airports in Asia, it is inevitable that KLIA consumes a tremendous amount of energy. This is compounded by the fact that it operates all day and all year round without any downtime. Therefore, in order to reduce power costs and be more sustainable, KLIA has adopted a unique solution.

“In late January, we entered a partnership with a leading solar technology provider to set up Malaysia’s first ever airport solar power system at KLIA. The capacity of this system is 19MW and is expected to help us save RM2.1m per year. Electricity demand at KLIA is very high, and with Tenaga Nasional Berhad (TNB) providing back-up, this project helps reduce that burden,” Tan Sri Bashir stated.

TNB STATE OFFICES

Wilayah Persekutuan

Kuala Lumpur

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Tingkat 11, Wisma TNB Jalan Kepong
Peti Surat 11050
50990 Kuala Lumpur
Tel : 03 – 6250 6020
Fax : 03 – 6250 6500

Selangor Darul Ehsan

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Aras 7, Menara MRCB
2 Jln Majlis 14/10
Seksyen 14
40000 Shah Alam
Tel : 03 – 5522 4000
Fax : 03 – 5522 4181

Johor Darul Takzim

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Tingkat 14, Wisma TNB
Jln Yahya Awal
80100 Johor Bahru
Tel : 07 – 219 2000
Fax : 07 – 223 1425

Kedah Darul Aman

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Aras 8, Wisma TNB
887 Jalan Sultan Badlishah
05990 Alor Setar
Tel : 04 – 733 3737
Fax : 04 – 733 0591

Melaka

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Aras M, Jln Banda Kaba Karung
Berkunci 1005
75990 Melaka
Tel : 06 – 282 8544
Fax : 06 – 282 6460

Wilayah Persekutuan

Putrajaya /Cyberjaya

Pengurus Besar
(Putrajaya & Cyberjaya)
Bahagian Pembahagian
Tenaga Nasional Berhad
Blok 4802-0-7, Jalan Perdana
CBD Perdana, 63100 Cyberjaya
Tel : 03 – 8886 6888
Fax : 03 – 8886 6933

Kelantan Darul Naim

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Aras 5, Wisma TNB
Jln Tok Hakim
15000 Kota Bharu
Tel : 09 – 745 1100
Fax : 09 – 744 9161

Pulau Pinang

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Tingkat 17, Wisma TNB
30 Jalan Anson
10400 Pulau Pinang
Tel : 04 – 222 4000
Fax : 04 – 227 3110

Perlis Indera Kayangan

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Bulatan Jubli Emas
01000 Kangar
Tel : 04 – 976 0021
Fax : 04 – 976 1921

Pahang Darul Makmur

Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Aras 13, Wisma TNB
Lot 14, Seksyen 19
Jln Gambut
25000 Kuantan
Tel : 09 – 515 5555
Fax : 09 – 515 5656

Perak Darul Ridzuan

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Bahagian Pembahagian
Tenaga Nasional Berhad
Tingkat 2, Wisma TNB
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Tel : 05 – 208 8000
Fax : 05 – 254 5199

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Bahagian Pembahagian
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Aras 5, Wisma TNB
Jalan Dato Bandar Tunggal
70990 Seremban
Tel : 06 – 768 3400
Fax : 06 – 764 4271

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Pengurus Besar Negeri
Bahagian Pembahagian
Tenaga Nasional Berhad
Jln Cherong Lanjut
20673 Kuala Terengganu
Tel : 09 – 622 3401
Fax : 09 – 624 3896





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for power outage or
TNB street light malfunction

Call or fax

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for billing and account enquiries



Log onto www.tnb.com.my

Click on **ONE STOP ENGAGEMENT CENTRE**



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Note :

1. Fixed line calls will be charged as local calls.
2. Mobile phone calls are subject to charges by service providers.
3. SMSes are free.

Why do we care?

Because their future is as important as our present



At Tenaga Nasional Berhad, we always strive to provide power to the Nation through world-class facilities that meet international environmental standards. We take great care in our operations to ensure that our future generations can continue to enjoy a clean environment. That is why we have built “green” power stations like the clean-coal powered *Sultan Azlan Shah* Power Station in Perak, Malaysia. We are also building a new power plant, adjacent to this power station, using the latest supercritical boiler technology. The plants feature anti-pollution measures and strict emission controls.

Tenaga Nasional Berhad - Powering a “green” nation.

TENAGA NASIONAL BERHAD (200866-W)

