COMMUNICATING TO LARGE POWER CUSTOMERS

TENAGALINK

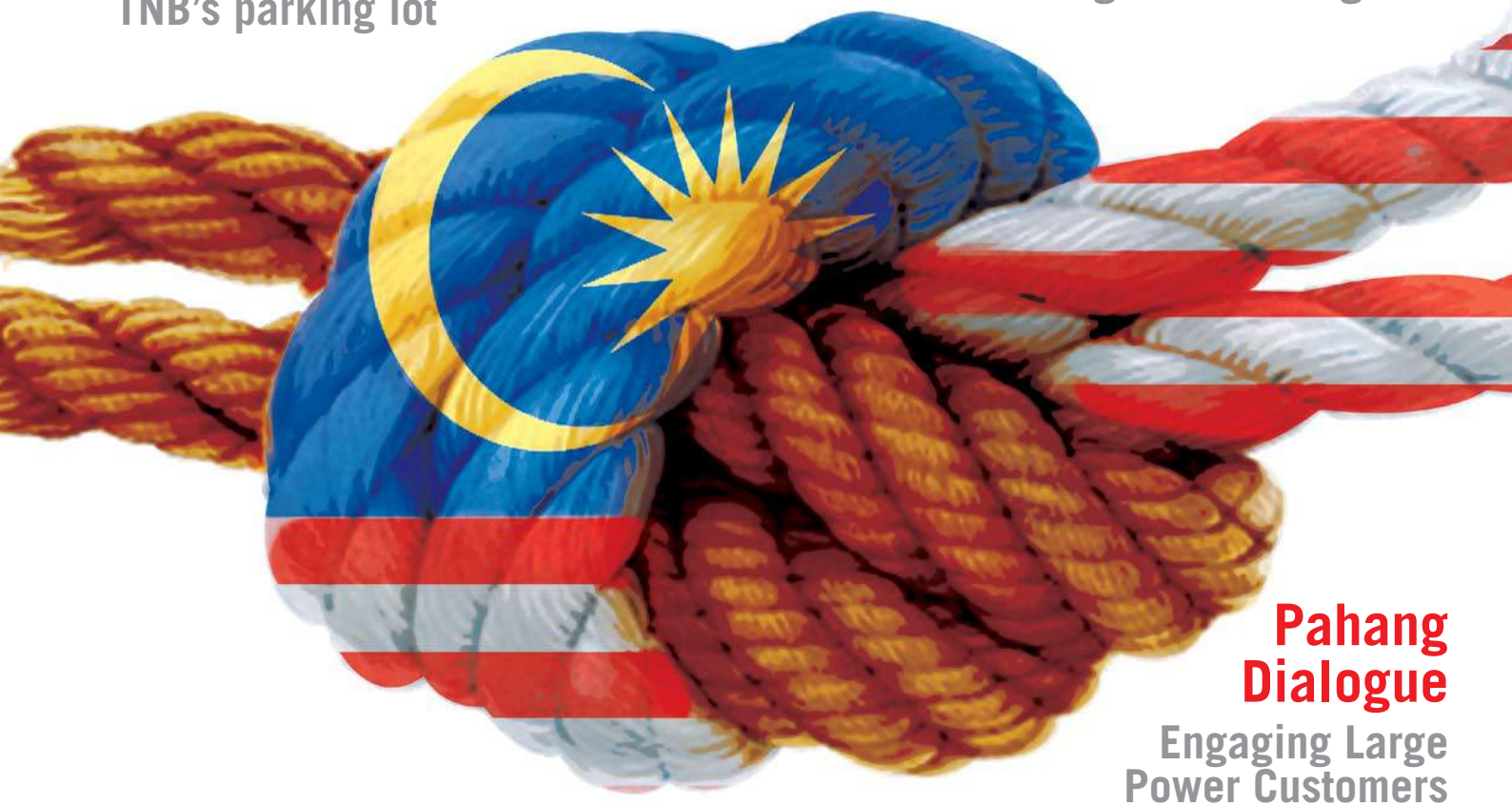
KDN : PP8515/01/2013(031995)

Rooftop at Work

Generating solar power at TNB's parking lot

Village Illuminated

Street light, street bright
The first light I see tonight!



Pahang Dialogue

Engaging Large Power Customers

Beneficial Bonds

TNB Powers Economic Growth Through Industry Partnerships

Volume 4 | 2014

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

TENAGA NASIONAL

It's easy with TNB e-Services
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You can:

- Track your electricity consumption
- Monitor your tenants' billing information and their payment status
- View and print billing information (past and present bills)
- Pay your bills online*

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TENAGA NASIONAL
Better. Brighter.

• Fixed line calls will be charged as local calls • Mobile phone calls are subject to charges by service providers • SMSes are free

There are many factors and stakeholders that have contributed to the success of Tenaga Nasional Berhad (TNB), and our customers rank especially highly among them. In particular, Large Power Customers (LPCs) – some of which consume more than 60 million kWh of electricity a year – are among our most important partners.

Not only do they contribute a significant percentage to our annual revenue, LPCs are also key players in Malaysia's economic growth. Every day, their operations are responsible for spurring business opportunities and creating growth throughout Peninsular Malaysia. As TNB is a company committed to playing a leading role in the development of the country, TNB understands that by supporting LPCs, we are also helping the nation.

We are pleased that several initiatives which we have launched to better address the needs and wants of our LPCs have met with great success. For example, thanks to our PRIME programme, we have managed to identify our top clients and work with them to ensure that their energy needs are always met in a timely, reliable and efficient manner.

Our commitment to LPCs also extends to providing immediate and priority service, and to help them better manage power consumption. Through working closely with our customers, we are strengthening the relationship between both parties, and in doing so, ensuring a win-win situation for all involved.

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

Click
to light up your life

Now you can apply for electricity supply through TNB's ***e-Application.***
It is easy to create your own account and activate it with our step-by-step guide.

Apply online now!

You can:

- **Reduce counter-processing time**
- **Track your application status online**
- **Easily retrieve your records**

For more information, log on to: **https://eapplication.tnb.com.my**

**Only available for new home owners, contractors and residential developers*

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TENAGALINK may also be read online at
www.tnb.com.my/business/tenaga-link.html

We welcome your FEEDBACK, COMMENTS and/or SUGGESTIONS to help us IMPROVE our SERVICES.

Please email your responses to *dist_news@tnb.com.my* or log on to *www.tnb.com.my/customer-care.html*.

MEETING STANDARDS

The Sultan Azlan Shah Power Station (TNB Janamanjung) situated on a wholly manmade island off the Lekir coast in Manjung Perak.

Tenaga Nasional Berhad (TNB) Distribution Division in Melaka was accredited and awarded the internationally-recognised PAS 55-1:2008 (Publicly Available Specification for Asset Management) certification in November 2013, for maintaining a high level of professionalism in whole-life cycle management of their physical assets.

This is TNB's third PAS 55 and it was received by TNB President and CEO – Datuk Seri Ir Azman Mohd – during the Asia Pacific Regional Conference and Exhibition in Indonesia, from Chairman of the Institute of Asset Management (IAM) David McKeown.

"The PAS 55 helps ensure effective procedures and practices are in place to maximise asset management. It requires the organisation to have a long-term plan which focuses on performance, risk and expenditure over the life cycle of various assets," Datuk Azman explained.

In July 2013, TNB Janamanjung (TNBJ) became the first TNB Generation division to be accredited with the PAS 55 and was also the first power station in Southeast Asia to receive the certification.

BOOSTING RENEWABLE ENERGY USAGE

According to Datuk Seri Mahdzir Khalid – Deputy Minister of Energy, Green Technology and Water, the government has set sights on achieving 11% green power usage by consumers and the industrial sector by 2020. However, current renewable energy (generated by solar, biogas and biomass) usage in Malaysia has only reached 1.5%.

In view of this target, the Federal government is actively providing financing and awarding licences to alternative power players to facilitate higher production of clean energy for higher consumption in the country, as only 48.5% out of the RM3.5 billion soft loan allocated for the green energy sector since 2010 has been utilised to date.

Other green power sources such as geothermal and ocean thermal technologies are also being explored to increase the energy mix in Malaysia.

Datuk Seri Mahdzir sharing best practices for the implementation and development for alternative power at the International Sustainable Energy Summit (ISES) 2014, in the Ministry's continuous effort to elevate the development of green energy in Malaysia.

WORKING TOGETHER TOWARDS ENERGY EFFICIENCY

Datuk Loo Took Gee, Secretary General of KeTTHA giving her keynote address at the seminar in Pullman Hotel, Putrajaya.

In March this year, Tenaga Nasional Berhad (TNB) organised the *Energy Efficiency for Sustainable Business* seminar in Putrajaya. The event was officiated by Datuk Loo Took Gee, Secretary General of the Ministry of Energy, Green Technology and Water (KeTTHA), and attended by representatives of various corporations and businesses.

Aside from increasing awareness on the subject, this seminar also paved the way for joint efforts by TNB, the Malaysian Association of Energy Service Companies (MEASCO) and the Malaysian Investment Development Authority (MIDA) to collaborate on energy efficiency initiatives.

Speakers from TNB, MEASCO, and the United Nations Industrial Development Organisation (UNIDO) spoke on the current energy situation in Malaysia. Topics discussed included *"The Need for Subsidy Rationalisation"*, *"How to Sustain and Grow a Business in the Uncertain Energy Scenario and Fluctuating Energy Costs"*, *"Incentive for Energy Efficiency and Green Technologies"*, and *"Understanding the Electricity Tariff for Energy Cost Optimisation"*.

Three simple steps to keep your light shining.

Introducing a quick, easy way for you to inform us on any faulty street light.

Step 1

Identify

Majority of TNB poles are made from **concrete** and have **overhead cables**

Step 2

Locate

Let us know the location and **pole number*** if available

Step 3

Report

Call 15454 or
SMS <SL> to15454
Providing the pole number can expedite the response time

* *Old TNB poles may not carry the TNB logo and pole number.*

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SMART ELECTRIC GRIDS

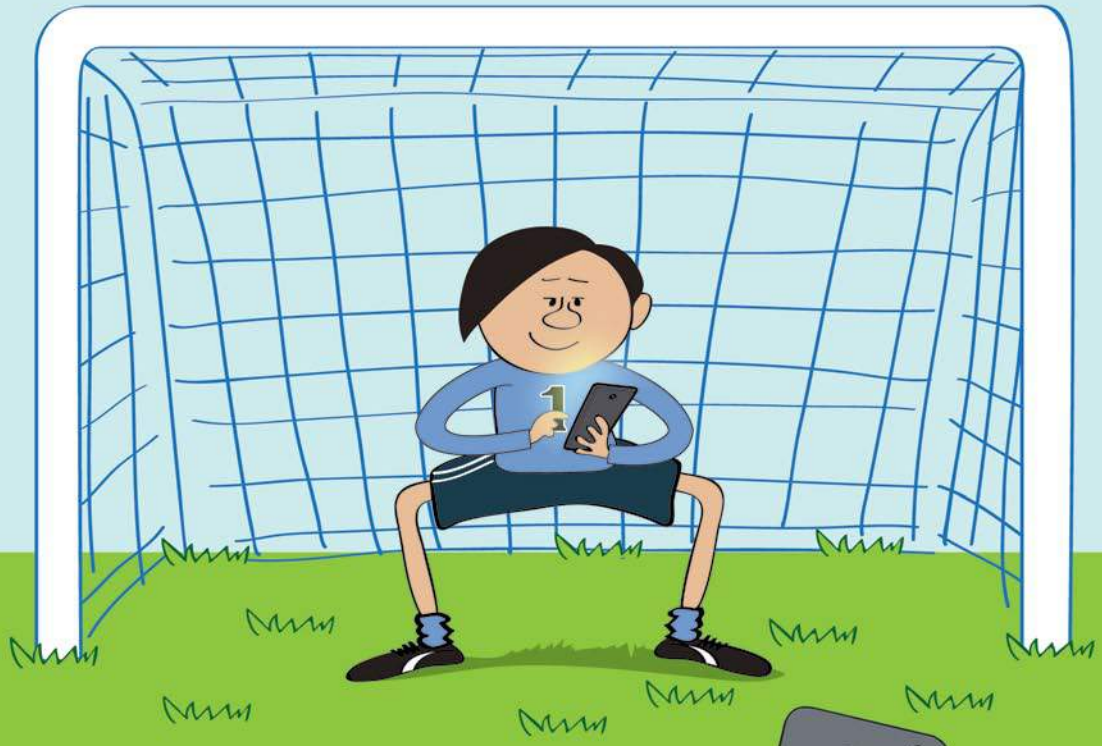
An aerial view of Putrajaya, which alongside Melaka will see the development of the advanced metering infrastructure.

To meet rising energy consumption and demand in the country, Tenaga Nasional Berhad (TNB) is embarking on a smart grid project to improve power efficiency in Malaysia.

The initiative which commenced in August 2014, will see 1,000 smart or advanced meters installed in Melaka and Putrajaya throughout the one-year period of the pilot project. Preliminary studies and preparations are underway to ensure smooth implementation of the scheme. If successful, the smart grid technology will be implemented on a larger scale and eventually be expanded nationwide.

The foundation for this initiative was laid in June 2012 when TNB's research division TNB Research (TNBR) formed a partnership with Trilliant Holdings, a global smart grid communications company. As the electricity usage in Malaysia is expected to increase by 5% per year for the next five years, TNBR's aim is to develop the utility's first integrated smart meter and computerised electric grid system for a cleaner and more cost-effective power supply.

Introducing the myTNB app
A BRIGHT IDEA in your hands



With the myTNB app, you can keep track of your electricity usage anytime, anywhere. So, you can spend more time on the things you enjoy. Another bright idea for you.

- Check your billing info
- Pay your bills
- Monitor your electricity supply application status
- Find out ways to contact TNB CareLine
- Locate your nearest TNB customer service centre

Download myTNB at the Apple App Store or Google Play

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INCREASING CONNECTIVITY WITH MACROKIOSK

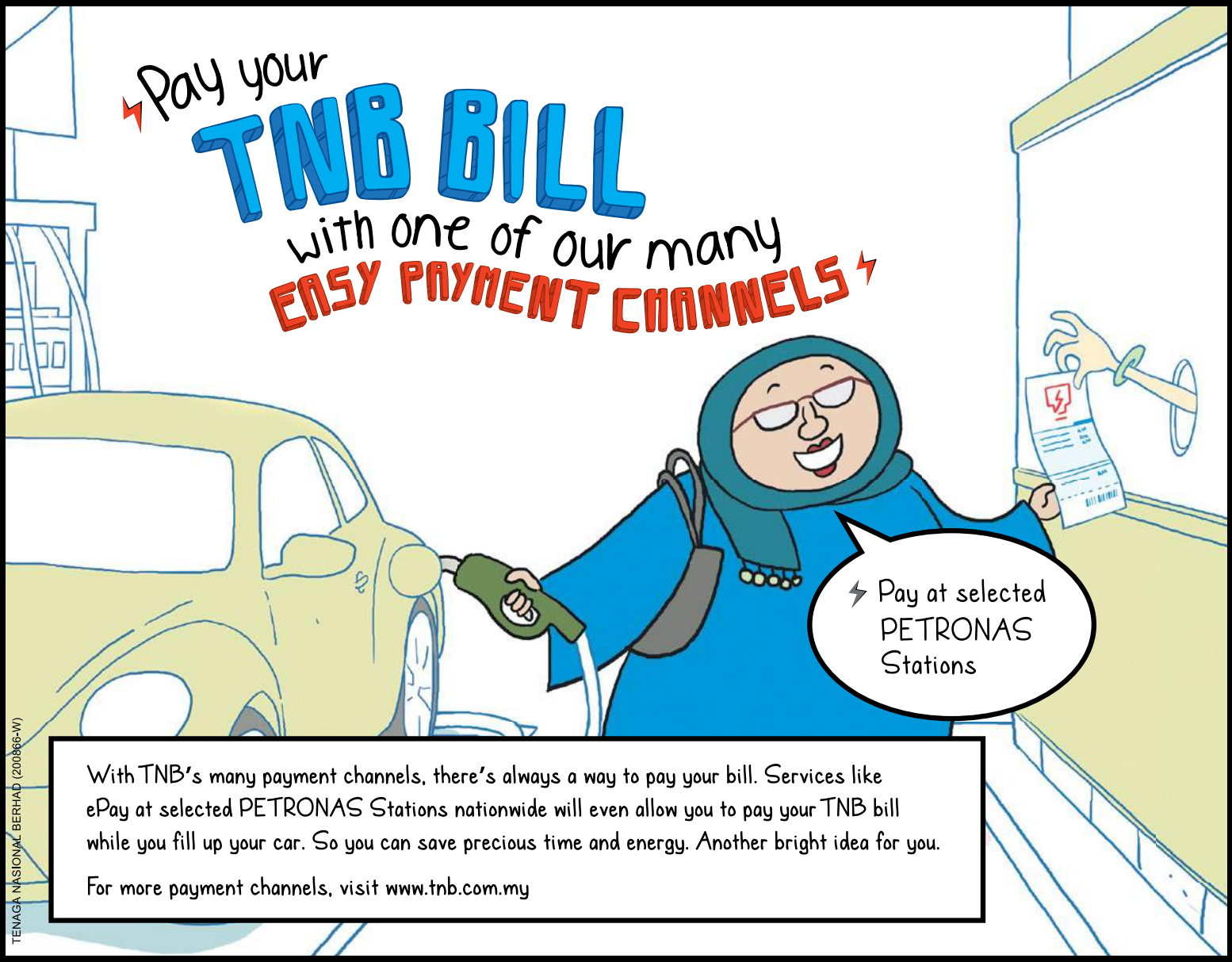
Macro Kiosk Berhad (MACROKIOSK) and Tenaga Nasional Berhad (TNB) are partnering to revamp TNB's mobile customer engagement and enhance the overall efficiency of the latter's communications reach nationwide.

MACROKIOSK's role is to customise a range of mobile technologies that will support TNB in gaining better connectivity between its customers and employees, and this will ultimately benefit the business. Solutions will be customised according to the specific needs of TNB to boost open communication, facilitate better customer service and gain a wider reach among its audience.

One of the planned upgrades that aims to increase customer support is the customisation of the TNB mobile app which enables TNB customers to report power outages, track power usage and submit customer service reports via their mobile phones. In future, TNB's existing mobile technology will also be upgraded to allow TNB field agents to view and respond to these service reports in real time.

MACROKIOSK Group Chief Marketing Officer Ng E.C. and TNB Senior General Manager (Customer Service) Distribution Division, Ir Kamaliah Abdul Kadir cementing a collaboration to revolutionise mobile technology for TNB.

Pay your TNB BILL with one of our many EASY PAYMENT CHANNELS



With TNB's many payment channels, there's always a way to pay your bill. Services like ePay at selected PETRONAS Stations nationwide will even allow you to pay your TNB bill while you fill up your car. So you can save precious time and energy. Another bright idea for you.

For more payment channels, visit www.tnb.com.my

- Online
- Mobile
- Direct Debit
- ATMs
- TNB Customer Service Centre
- Post Offices
- Banks

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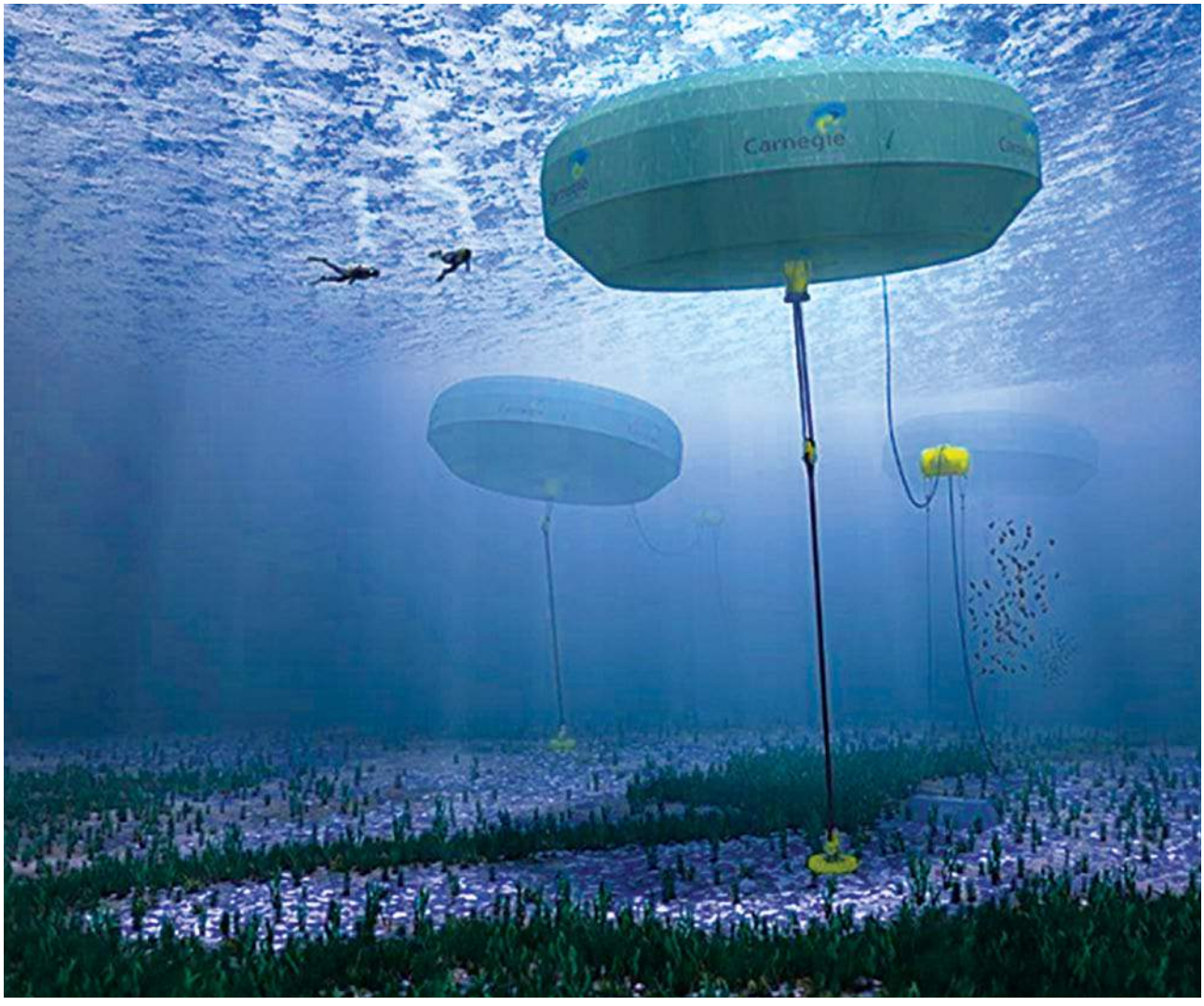
BREAKTHROUGH IN WAVE ENERGY PROJECT

Australia's visionary wave energy project, to be implemented by Carnegie Wave Energy, is the first functional wave energy scheme in the world. It is now a step closer to success with the launch of three large buoys in the sea near Perth on the 9th of April. After a decade of continuous development, this technology is finally bearing fruit as it is expected to feed energy to the Australian grid in June this year.

The buoys will be submerged and attached to underwater pumps and the movement of the waves will then shoot high-pressure water through pipes to drive turbines and generators onshore, thus producing electricity.

The access to wave energy resources along the south and south-west coasts of the country will contribute to the successful development and long-term sustainability of this initiative. Once on a larger scale, this alternative energy source will provide a greener and safer energy system for the country – and be an inspiration for other countries to follow.

The three Carnegie Wave Energy actuators in the sea near Perth. These fully submerged buoys are tethered to seabed pump units which move with the motion of passing waves to drive pumps and pressurise sea water which then propels hydro turbines and generators to produce electricity.



BRIGHT WAYS TO SAVE ENERGY

Use the stairs to save energy. And burn calories.

The lifts consume a lot of electricity. Wherever possible, get a little exercise by taking the stairs.

Turn off unused lights to save more.

Remember to turn off the lights when not in use, or when you're leaving the office.

Switch off your computer to switch on the savings.

Computers and laptops still consume energy while on standby. Switch them off completely to save even more energy.

Fill your kettle to the max level for maximum savings.

Make the most out of every boil with a full kettle. And to save even more, store your boiled water in a flask to keep it warm for longer.

Set the air con to 24°C to cool down for less.

Air conditioners use a lot of energy as it is. Setting the temperature between 24-26°C provides sufficient cooling, while keeping your energy consumption down.

Better. Brighter.

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OVERCOMING CHALLENGES COLLECTIVELY

TNB Drives Dialogue with Large Power Customers in Pahang

In early June, Tenaga Nasional Berhad (TNB) organised the *Pahang Electricity Seminar 2014* (PES 2104) in the city of Kuantan – to provide PRIME customers in the state with information on current issues, such as the revised electricity tariff, efficient power supply and the rationalisation of subsidies. Senior State Executive Councillor and Chair of Pahang's Committee for Basic Amenities and Environment Dato' Ir Mohd Soffi Abdul Razak officiated at the event, which featured presentations by central figures related to energy provision from the private, public and non-governmental sectors.

Carrying the theme '*Powering Sustainable Growth*,' PES 2014 was attended by over 120 representatives of Large Power Customers (LPCs) from the commercial and industrial sectors, as well as government departments across Pahang. Also present were TNB Senior General Manager (Operation Region 2) Ir Abdul Aziz Abdul Majid, and TNB Pahang General Manager Dato' Ir Shahruddin Mohd Simin who delivered the opening address.

Welcoming participants, the latter explained that in light of emerging

Left: *Pahang Senior State Exco Dato' Ir Mohd Soffi Abdul Razak said that opportunities to share knowledge, like that provided by PES 2014, can pave the way for greater optimisation of energy use.*

"TNB organised PES 2014 to discuss various ongoing issues in relation to the supply of electricity in Pahang, as we have done in a number of other states thus far. I believe many of today's attendees have important questions, and we are here to supply that vital information."

– Dato' Ir Shahruddin Mohd Simin
General Manager, TNB Pahang

challenges like limited natural resources and volatile global fuel costs, TNB organised the event out of the necessity for a forum on the impact to PRIME customers. "The intention of TNB is to create an open platform of information exchange regarding issues such as power quality, renewable energy and government subsidies," Dato' Ir Shahruddin revealed.

MEETING OF MINDS

The speech was followed by presentations of working papers by TNB's Distribution Division, TNB Energy Services (TNBES), the Malaysian Investment Development Authority (MIDA) and the United Nations Industrial Development Organisation (UNIDO).

Distribution Division General Manager (Commercial) Abu Bakar Ismail spoke on strategies for PRIME customers to reduce energy costs, including scheduling energy intensive processes during off-peak

Dato' Ir Mohd Soffi Abdul Razak (centre), flanked by Ir Abdul Aziz Abdul Majid (second from left) and Dato' Ir Shahruddin Mohd Simin (second from right), during the presentation by Ir Dr KS Kannan, National Project Manager for UNIDO's Industrial Energy Efficiency for the Malaysian Manufacturing Sector (IEEMMS) Project.

"Limited reserves of oil and natural gas – coupled with a projected 25% increase in final energy demand by 2020 – means that there is real impetus for subsidy rationalisation. This is because high subsidies encourage excessive use of cheap fossil fuels, which results in wastage and reduces the economic attractiveness of more efficient devices or renewable energy."

– Ir Dr KS Kannan
National Project Manager for UNIDO's Industrial Energy Efficiency for the Malaysian Manufacturing Sector (IEEMMS) Project

hours and accurately determining required capacity to avoid oversupply. These steps benefit not only end-users, but also TNB and the environment, through a lower overall demand.

Next, Senior Engineer Effinizam Abdul Latip from TNBES delivered a presentation on the company's energy provision standards in comparison to utilities from other countries around the world. He also shared information on TNB's ongoing efforts to improve service consistency and minimise supply interruptions. MIDA Deputy Director of Clean Technology & Environment Management Roswaidin Mohd Zain was also one of the speakers highlighting opportunities for companies to leverage government incentives by increasing their use of renewable energy.

Finally, National Project Manager for UNIDO's Industrial Energy Efficiency for the Malaysian Manufacturing Sector (IEEMMS) Project, Ir Dr KS Kannan called attention to Malaysia's dependence on various fossil-based fuel sources and the need to design holistic industrial systems that account for long-term operational costs, rather than just capital investment expenditure.

In his closing remarks, Pahang Senior State Exco Dato' Ir Mohd Soffi Abdul Razak reaffirmed the significance and timeliness of the *Pahang Electricity Seminar 2014*, noting, "A high degree of subsidisation can cause Malaysian industries to slip into the comfort zone as costs are low. This is not conducive for the country's sustained growth and we could fall behind in competitiveness, as compared to emerging regional nations like Laos and Myanmar."

UP IN LIGHTS

TNB Inspires Patriotic Displays

One of the nation's most powerful and symbolic landmarks during the Merdeka celebration period is the Sultan Abdul Samad Building, which stands opposite Malaysia's historic Dataran Merdeka.

The nation marked its 57th *Merdeka* or Independence Day on the 31st of August as well as the 51st Malaysia Day on the 16th of September, and buildings and streets were arrayed in dazzling decorations that evoke the quintessential patriotic spirit. To support and encourage these activities, Tenaga Nasional Berhad (TNB) continues to provide the Sinaran Merdeka Incentive, a special scheme that offers reduced energy costs for commercial customers which have installed neon and ornamental lighting to observe these occasions.

CUTTING POWER COSTS

As explained by General Manager (Commercial) Abu Bakar Ismail, the Sinaran Merdeka Incentive was introduced in 2000 and is open to all commercial customers under tariff categories B, C1 and C2, which includes the operators of skyscrapers, office buildings, commercial and shopping complexes, as well as hotels and petrol stations.

"The scheme benefits commercial customers who may otherwise face high energy bills due to the continuous use of decorative lighting and their usual electricity tariff," Abu Bakar noted, adding that the incentive applies to all energy used above the average consumption at each premises, over the preceding three months.

This portion of consumption is charged at an attractive rate of RM0.178/kWh, which is equivalent to the tariff for neon and flood lighting. "We encourage the operators of all commercial premises to apply for the scheme, as any facility with increased consumption during the two-month period would automatically qualify," the General Manager revealed.

By promoting the beautification of buildings throughout Malaysia during the most patriotic period of the year, the Sinaran Merdeka Incentive allows TNB to play its part in helping strengthen the spirit of national pride and unity across the country. Not only that, it provides commercial energy users with a convenient and cost-free avenue to participate in the celebrations, by simply filling out a standard form that is available at the office of the nearest State General Manager or District Manager.

EXCEEDING EXPECTATIONS

Enhanced Services Help TNB Cater to Large Power Customers' Needs

Energy is one of the most important inputs for economic growth, and as the country's largest utility, Tenaga Nasional Berhad (TNB) plays an integral role in ensuring there is a reliable and efficient supply of electricity to drive the nation's development. This is especially important for the segment it identifies as Large Power Customers (LPCs), comprising some of the largest corporations in the country, which are also among the main drivers of the economy.

The focus that TNB places on LPCs is understandable when the volume of their usage is taken into account. Each month, an LPC can consume over 5 million kWh of electricity, compared with a regular household where usage is typically less than 1,000kWh.

With their high power consumption, equivalent to powering 2-3 major residential townships in the Klang Valley, LPCs are extremely dependent on having a reliable and steady electricity supply from TNB. At the same time, they are also the utility's largest clients, accounting for a significant portion of TNB's revenue, although they form just 20% of the total customer base.

As energy costs account for the lion's share of their expenses, LPCs are constantly looking for ways to reduce this overhead. This is where TNB comes in.

PRIME CONSIDERATION

As LPCs are no ordinary customers, it is inevitable that TNB seeks ways to ensure that the relationship is treated with extra consideration. While the utility already provides exemplary customer service to all power consumers, their efforts to serve LPCs are taken to a higher level.

For instance in 2005, TNB introduced the PRIME programme. This is a list of its top 1,000 customers as determined by power consumption, and these PRIME customers are given special focus and additional service.

Speaking on the objectives, CARE Manager, Farrah Aiza Abdul Aziz explained, "The programme sets out to establish stronger relations with our PRIME customers and assure them that TNB is available to help at any time." As part of the programme, each PRIME customer is assigned a dedicated contact person at TNB, while periodic visits are also carried out so that the utility is constantly aware of the needs and wants of such important clientele.

Further highlighting the efforts that TNB is placing into facilitating the needs of LPCs, Farrah Aiza revealed that, "As and when any issues arise, our experts will be sent over. For example, our accountants will attend to matters related to billing, whereas for power supply issues, an engineer will be sent to rectify the problem."

ENGAGEMENT EFFORTS

Additionally, this year, TNB is focusing on promoting Energy Efficiency (EE) among LPCs, as this can effectively aid them in reducing overall consumption and cost. "For domestic customers, it's as easy as changing light bulbs to the energy conserving kind. However, it is rather more complicated for LPCs, particularly in the manufacturing industry, as many of them use energy-intensive machinery. This is why we have organised EE seminars nationwide to raise awareness among our PRIME customers," Farrah explained.

Continued on page 28

"The PRIME programme sets out to establish stronger relations with LPCs and assure them that TNB is available to help at any time."

– Farrah Aiza Abdul Aziz
Manager (CARE), Customer Service Department,
Distribution Division, TNB

PRIME PERSPECTIVE

LINDE MALAYSIA
WONG SIEW YAP, MANAGING DIRECTOR

One of the nation's largest suppliers of industrial-grade gases, Linde Malaysia has operated production facilities across Peninsular and East Malaysia for more than five decades. As a result, the company is also one of the largest power consumers in the country, with energy typically accounting for 55% of total production cost and monthly electricity bills often amounting to RM16m. In the words of Managing Director Wong Siew Yap, this is a small price to pay for the firm's reputation of dependability among its industrial customers, which come from a broad range of sectors, including chemical manufacturing, food and beverage, pharmaceuticals , medicine, and a slew of others.

"We have been in operation in Malaysia for more than fifty years and during that time, our clients have grown to expect a high standard of consistency. Therefore, I understand the difficulties in always maintaining stable supply, and I can empathise with utilities like TNB in this regard," he states. Even so, the Managing Director acknowledges the utility's tireless efforts to minimise interruptions in supply. "Overall, I would rate the standard of service provided by TNB highly," he notes, adding, "Malaysia is definitely among the best in the region when it comes to power quality."

Apart from facilitating the reporting of voltage dips and surges experienced at Linde's distillation plants across the nation, Wong reveals that having a dedicated contact person under TNB's PRIME programme has also benefitted the company in other ways. "For example, whenever we begin the process of setting up a new facility, we make sure to stay in close contact with TNB, as it is important to have the electrical supply ready when operations begin," he says.

"Overall, I would rate the standard of service provided by TNB highly. Malaysia is definitely among the best in the region when it comes to power quality."

Considering the huge range of applications for the products created by Linde Malaysia and the long list of industries that count on the company for prompt delivery of these vital raw materials, it is evident that high power quality is pivotal to its success. Therefore, it comes as no surprise that the company takes full advantage of its strong relationship with TNB, leveraging on the utility as a partner that is committed to constantly raising the bar in its provision of electricity and customer service.

PRIME PERSPECTIVE

ISUZU HICOM MALAYSIA
NAZMAN MOHD NOR, MAINTENANCE MANAGER

"We assemble about 50 to 70 commercial and heavy duty vehicles each day and have very energy intensive machinery in both our paint shop and our body shop. Consistent power supply is thus crucial, as any interruption can seriously affect our production line efficiency. Thankfully, TNB has excellent customer service that always provides us with easily understandable data that is relevant to our needs."

To power the transport sector and provide industries in Malaysia with adequate options in terms of commercial vehicles, Isuzu Hicom Malaysia runs a tight operation at the company's assembly plant in Pekan, Pahang. The plant sees 50 to 70 light and heavy duty trucks pass through the various stages of production each day.

Admittedly, vehicle assembly is one of the most power-hungry sectors of the manufacturing industry – typically integrating a large proportion of energy intensive machinery – and the Pekan plant is no exception, consuming up to 1,200 MW of electricity each month. "The assembly equipment in our paint shop and our body shop, which respectively consume 35% and 55% of our overall energy use, requires a constant and stable stream of energy, as it is very sensitive to dips and surges in supply," reveals Maintenance Manager Nazman Mohd Nor.

Therefore, it is critical to ensure that interruptions to supply are minimised, as they have the potential to severely impact production line efficiency. To this end, Nazman maintains constant contact with the company's dedicated customer service executive under Tenaga Nasional Berhad's (TNB) PRIME programme. "I feel that the standard of customer service we receive from TNB is excellent, because whenever we make requests for information, we are sure to receive a prompt response from the utility,

and the data provided to us is both easy to understand and tailored to our needs," he notes.

The consistent and reliable supply of electricity is vital to Isuzu Hicom Malaysia, as a crucial input in its drive to keep commercial logistics running smoothly in Malaysia. Understanding the importance of this mission and its significance to the nation's overall growth, TNB spares no effort in its quest to provide the manufacturer with exceptional quality in terms of both power supply and customer care.

Below: *The vast body shop floor at Isuzu Hicom Malaysia's Pekan assembly plant is home to some 200 spot-welding machines, which operate at 10,000 Amps to create solid welds that meet the company's rigorous safety standards.*

KANEKA MALAYSIA

LEE CHENG CHOO, ENGINEERING AND INSTALLATION SUPERINTENDENT

Headquartered in Japan, Kaneka Malaysia has operated an integrated chemical processing plant in Gebeng, Pahang for nearly two decades. Beginning with synthetics that strengthen PVC (Polyvinyl chloride) and other plastics, the company's operations have since expanded to encompass impact absorbing materials, paste PVC for a broad range of consumer products, flame-retardant polyester fibres and high-performance insulation films.

In line with this growth in product offerings, the power consumption of the company's facility has consequently risen, reaching 12MW in recent times and qualifying the firm as a Large Power Customer (LPC) under Tenaga Nasional Berhad's (TNB) PRIME programme. As Engineering and Installation Superintendent Lee Cheng Choo explains, Kaneka's operations involve the manufacture of complex materials that require an uninterrupted processing cycle, in order to achieve the high build quality that its customers expect.

"Certain reactions require continuous power supply and if it is broken mid-way through, the batch undergoing processing will surely fail specified standards and need to be disposed of," he notes. To minimise the likelihood of such occurrences, the company works closely with the TNB branch office located near the Gebeng plant. "We inform the customer service representatives in advance when large batches are scheduled for processing, and the utility has been very supportive in scheduling maintenance work and switching around these times," Lee reveals.

> "High quality of power supply is vital as some of our reactions require continuous power supply. We work closely with the TNB branch office near our plant, which has been supportive in scheduling maintenance and switching around periods when we are processing large batches."

In the manufacturing industry, the production of high-grade goods and materials requires a stable and reliable source of large quantities of energy. Thus, TNB's efforts towards improving the consistency of supply and reducing transmission disruptions, not only enable international businesses like Kaneka to perform at their fullest potential, but also contribute towards enhancing Malaysia's attractiveness to foreign investors in this sector.

M.S. GARDEN HOTEL

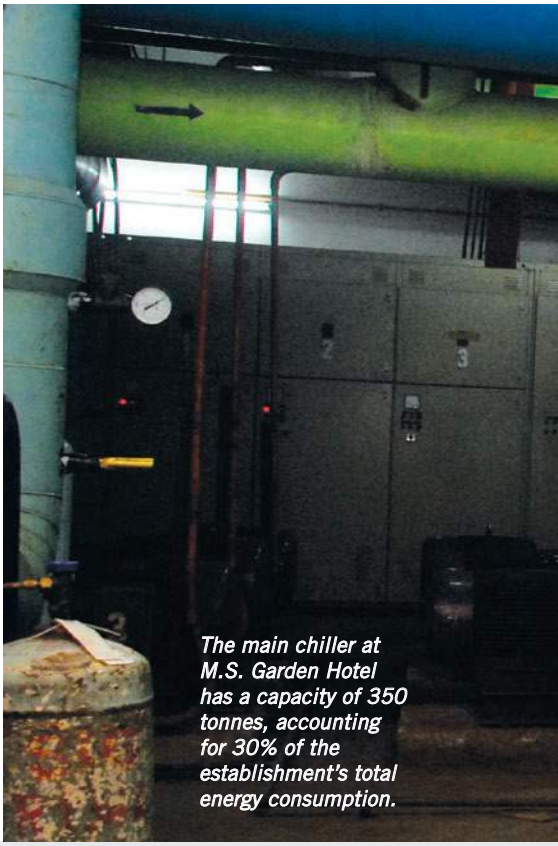
SYAHRUL NAZRI MOHD SAI'ON, SENIOR MANAGER OF FINANCE AND ADMINISTRATION

Located in the bustling heart of Kuantan, Pahang, M.S. Garden Hotel opened in 1996 as the pioneer luxury establishment in the state capital. Boasting a suite of facilities including 204 comfortable guest rooms, two well-equipped banquet halls, five full-service restaurants and a kitchen that runs 24 hours, the business's power consumption easily qualifies it as a PRIME customer.

In addition to the usual busy periods and lulls in room occupancy, the hotel's energy footprint also reflects its popularity as a venue for weddings and other high-profile events held in the state. "Because of the range of services we offer, it is very important to have a consistent and reliable supply of electricity," states Senior Manager of Finance and Administration Syahrul Nazri Mohd Sai'on, adding, "In the past, we have communicated with Tenaga Nasional Berhad (TNB) to notify them of important upcoming events ahead of time."

According to Syahrul Nazri, the utility has been very accommodative in these situations, and has assisted by scheduling maintenance and switching during other periods. "This is extremely important to us as it is a major step towards preventing any kind of disruption to the electrical supply," notes the Senior Manager.

As one of Pahang's oldest establishments in the hospitality field, M.S. Garden Hotel has experienced rising energy costs since it opened almost two



The main chiller at M.S. Garden Hotel has a capacity of 350 tonnes, accounting for 30% of the establishment's total energy consumption.

decades ago, as the expectations of customers and the quality of service on offer have risen apace over the years. Thus, the hotel values its privileged relationship with TNB, appreciating the latter's partnership in its journey to continuously elevate the standard of luxury accommodation in Pahang.

Above: *Servicing guests around the clock, the kitchen features many cutting-edge appliances which place constant demands on the hotel's electricity supply.*

Continued from page 22

"We feel that the need to educate our customers on energy efficiency is extremely important. With the right revision, companies can see a 25% to 30% reduction in electricity bills."

– Dato' Mohandass S. Nair
General Manager (Customer Relations),
Customer Service Department,
Distribution Division, TNB

Started in November last year, these seminars were first held in the main industrial areas of Selangor, Johor, and Penang. Since then, they have been held in other parts of Peninsular Malaysia, namely Putrajaya, Kuala Lumpur, Perak, Perlis and Pahang, while plans are underway to have them in Kelantan, Kedah, Melaka and Negeri Sembilan.

Speakers at these seminars included representatives from TNB, the Malaysian Investment Development Authority (MIDA), the United Nations Industrial Development Organisation (UNIDO) and the Malaysia Association of Energy Service Companies (MAESCO). Among the topics covered were energy efficiency incentives, rationalisation of subsidies, the fluctuating cost of fuel which will affect the price of electricity, and future implications of energy trends.

In addition to the talks, booths are also set up where experts can offer consultations to LPCs, especially with regards to their industry or sector. In this way, as Farrah explained, the customers find the seminars more in line with their needs.

AUDITING POWER

Furthermore, as part of its initiatives to ensure reliable energy supply and elevate customer service for LPCs, TNB offers a Power Quality Audit service free to its PRIME customers. This process, which has been carried out by TNB Energy Services (TNBES) since 2006 and which costs around RM30,000 to RM50,000 per session, has three stages.

It starts with a Walkthrough Audit, then a Ride Through Test, and finally a thorough Power Quality Study is conducted. For industrial clients, the entire production line will be reviewed in detail, with each item of equipment involved in the manufacturing process checked for sensitivity – namely reaction to surges and dips in power supply. Recommendations will then be given for mitigation equipment to be installed, to ensure a stable supply of power and avoid potential losses due to stalled production.

TNB also advises LPCs with regards to equipment audits, where the power consumption of their machinery is analysed. As Customer Relations General Manager, Dato' Mohandass S. Nair explained, "We feel that the need to educate our customers on energy efficiency is extremely important. With the right revision, companies can see a 25% to 30% reduction in electricity bills."

REDUCING INTERRUPTIONS

Over the years, TNB's focus on the generation, transmission and distribution of electricity has resulted in significant improvements in the overall quality of power for its customers. This has seen the System Average Interruption Duration Index (SAIDI) of electricity provided by TNB fall below 60.

This means that on average, each customer served by the utility experiences only about 60 minutes of power outage a year, while in gazetted industrial areas like Bayan Lepas in Penang, as well as in Shah Alam and Sungai Way – both in Selangor – the SAIDI is 20 minutes or less. In contrast, power grids in Australia and the US have SAIDI values of 200 and

244 respectively, signifying longer periods of interruption in their electricity supply.

With TNB's success in providing and maintaining a dependable power supply for the country, the focus has switched to elevating the customer service experience. Not only is TNB consolidating its relationship with its customers, it is also examining their specific needs and how services can be customised for them.

GOING THE EXTRA MILE

With the focus on customer service excellence, TNB is revamping its customer interaction to one based on the 'human touch' factor instead of treating any exchange as a mere business-to-business relationship. This takes TNB beyond being just

Above: *Participants from various industries registering for the* Energy Efficiency Seminar *at Putrajaya, which was held on 13th March 2014.*

Below: *Dato' Zainol Fadzi Paharudin (right), a Member of the Perak State Assembly, launching the* Energy Efficiency Seminar *at Ipoh, which took place on 4th March 2014.*

"By reaching out, we understand what our customers need. With each engagement, we learn more about how we can better our services for them."

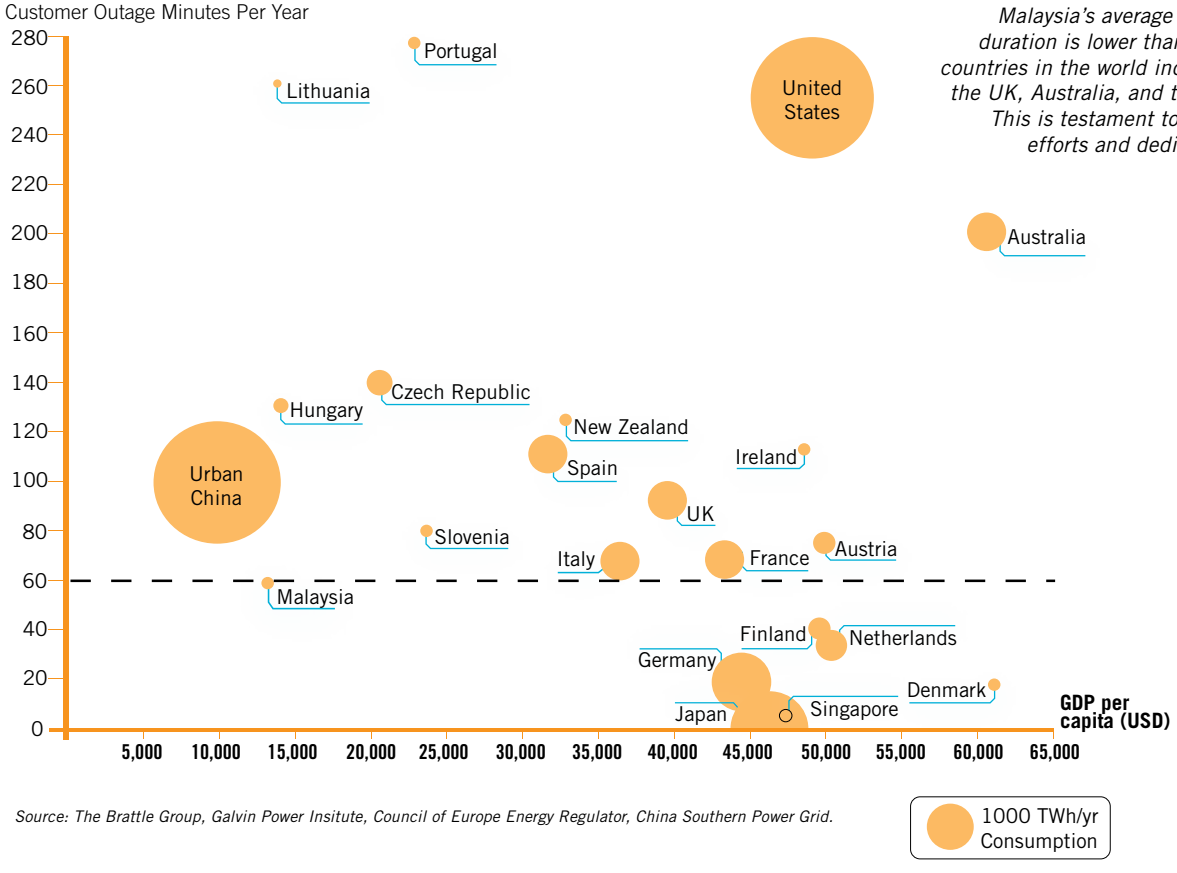
– Sansubari Che Mud
Senior Manager (Non-Government Relations),
Customer Service Department, Distribution Division, TNB

a utility provider, to becoming a reliable partner for the industry.

Today, TNB is proactively working on building such relationships with its customers and maximising availability for them. "It is a process that keeps on improving. By reaching out, we understand what our customers need. With each engagement, we learn more about how we can better our services for them," said Non-Government Relations Senior Manager, Sansubari Che Mud.

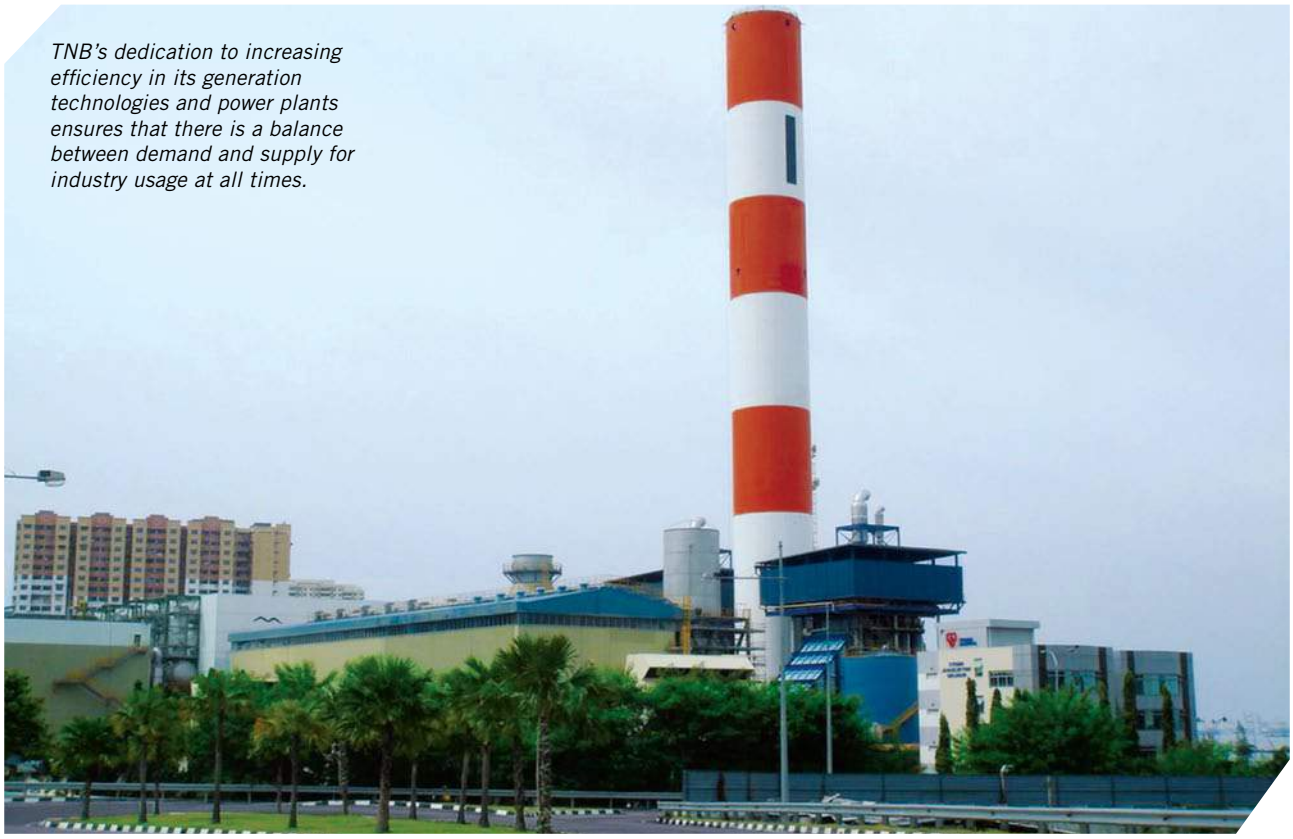
In addition, in view of the rising energy consumption and demand in Malaysia, which is projected to increase 5% each year over the next five years and is likely to double in the next 20 years,

International Electricity Grid Reliability



Malaysia's average outage duration is lower than many countries in the world including the UK, Australia, and the US. This is testament to TNB's efforts and dedication.

Source: The Brattle Group, Galvin Power Insitute, Council of Europe Energy Regulator, China Southern Power Grid.



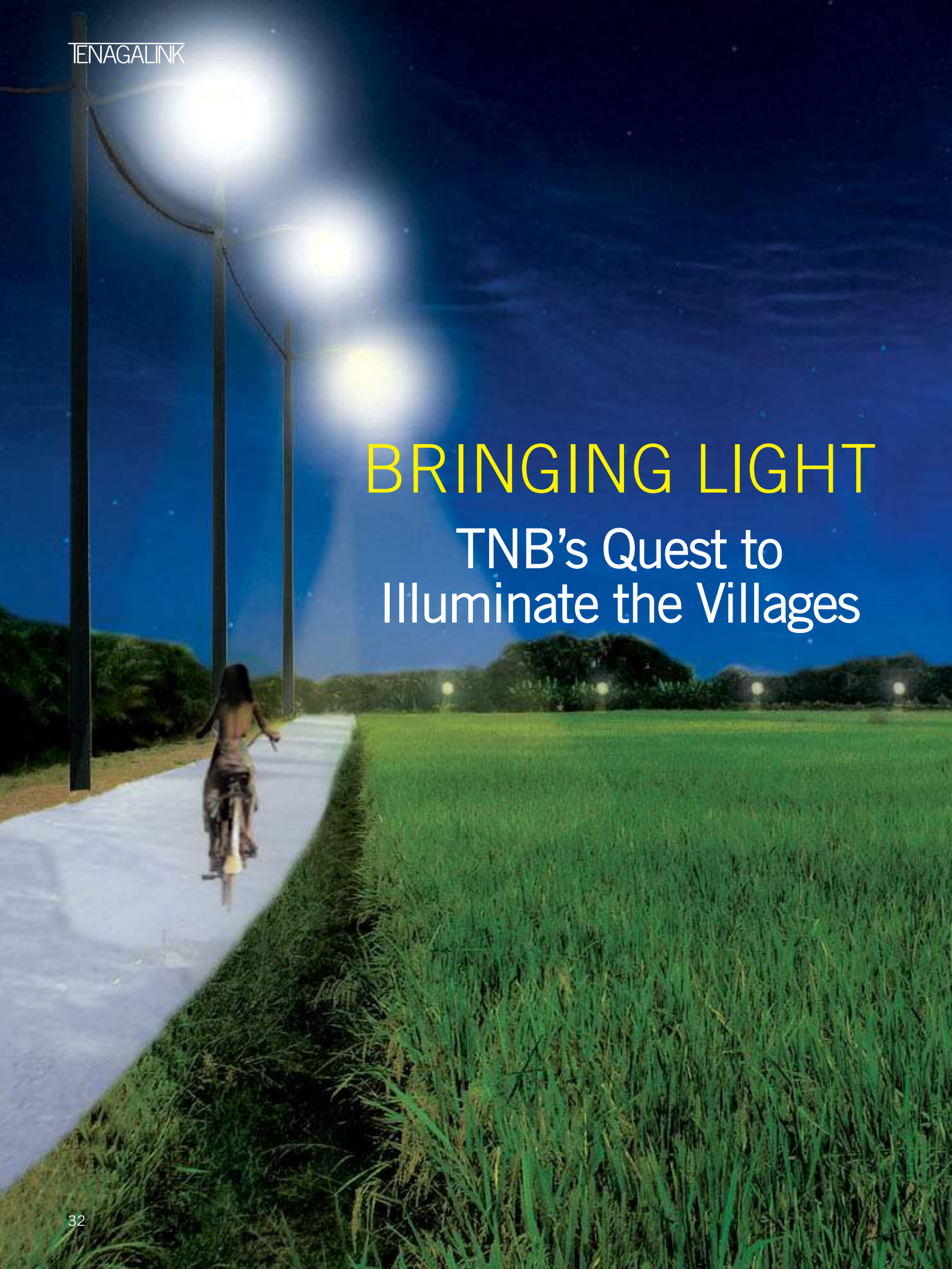
TNB's dedication to increasing efficiency in its generation technologies and power plants ensures that there is a balance between demand and supply for industry usage at all times.

TNB is also actively looking at ways for customers to reduce their power usage.

According to Sansubari, "It's not about just making money; we have to look at the total picture. When energy consumption increases, additional power plants have to be built and more fuel has to be burnt to produce the additional supply. This will impact the environment adversely."

Another measure taken by TNB to better its customer service is to hold focus group discussions to find out if its new initiatives are feasible. The Federation of Malaysian Manufacturers (FMM) is often roped in to work closely with TNB, providing feedback from the industrial sector. Through connections such as these, TNB is able to gauge the acceptance of power customers towards the new products and tweak them to make them even better.

In line with TNB's aim to become a customer-centric organisation, the satisfaction of customers is of great priority and is closely monitored to gauge areas that require improvement. The Customer Satisfaction Index for 2013 rated TNB's service level at 7.5 out of 10, and TNB is looking to raise the index level to 8 for this year. Though relations are stronger and the service level has increased significantly, TNB is looking to do still more to engage with its customers. The company is looking at other ways to collaborate with other members in the industry to address common issues together and work continuously to ensure a dependable power supply and provide quality service to LPCs, ultimately to be solidly behind the development of the nation.



BRINGING LIGHT

TNB's Quest to Illuminate the Villages

As a young but rapidly maturing country, the pace of life in many of Malaysia's cities barely changes between day and night. However, for most remote communities across the nation's agricultural heartland, the reality is not so bright. As Malaysia's primary energy utility, Tenaga Nasional Berhad (TNB) understands that without public lighting there can be no real safety or productivity at night. Therefore, for more than a decade, the company has been at the spearhead of installing pole-mounted lanterns in villages across Malaysia.

WORKING TOGETHER

Adequate lighting in public areas has long been an issue of concern among rural communities, and to close this gap, the Individual Street Light Programme was created in the mid-90s – allowing any landowner to apply for a street light to be placed near their premises. In 2002, this was followed by the Village Street Light Project, initiated by the Ministry of Rural and Regional Development (MRRD) as its main sponsor.

Even so, the undertaking is decidedly a collaborative endeavour, involving local stakeholder groups like village committees, elected representatives and state-level government agencies, as well as TNB – which acts as the main implementation partner.

As related by Rosdin Abdul Razak, Senior Manager of Government Special Projects in the Customer Services Department, TNB quickly gained an appreciation for the emphasis placed on sufficient lighting by those who need it most. "As lighting infrastructure has undergone long-term development in urban areas, public lighting is often overlooked by city dwellers. However, it is still an extremely crucial issue among village folk," he shares.

The Village Street Light Project addresses this by allowing each community to independently determine the requirements of their specific context. Village committees are able to lodge an application for up to 30 street lights, which is submitted to the relevant authorities.

Approved applicants are channelled to the local TNB branch, which works with subcontractors to install, commission and maintain

Above: *Connected to power lines that run straight into the home, installed street lights are often situated close to residences.*

Above, right: *Clear labelling makes it easy for rural residents to report faults to local TNB branches.*

street lights by installing lantern units to existing power line poles, as no line extensions are permitted under the project. The lanterns are standardised to a 150-watt rating and cost, on average, nearly RM500 each. In order to maintain normal service standards, TNB ensures that any complaints of malfunction are resolved within 48 hours.

NO LIGHT TASK

The first two-year phase of the Village Street Light Project, resulted in the illumination of nearly 6,000 villages across Peninsular Malaysia. This involved the installation of over 57,000 street lights. Since then, the project has proceeded with a further five phases, with the latest concluding at the end of 2013.

To date, the initiative's reach has expanded to encompass more than 23,000 Malaysian rural villages. This was accomplished through the commissioning of over 200,000 street lights, at a total cost of RM83.69 million. This cost is sponsored by the government, through the MRRD.

BROAD BENEFITS

While the nation's commercial centres continue to grow at a blistering rate, Malaysia places equal priority on rural development, as that is where most inhabitants still live. "Adequate public lighting provides some basic measure of security and gives villagers the confidence to leave their homes at night," Rosdin notes. This results in new avenues for social interaction, which in turn creates fresh opportunities for locals to improve their livelihood by conducting commercial activities.

The Village Street Light Project is not only multi-faceted in nature,

but also complementary to the government's aspirations to achieve stronger and better-distributed wealth generation by the year 2020. On top of that, TNB's long-standing participation in the project demonstrates the utility's commitment to good corporate citizenship and is a way to give back to the community.

"For TNB, the benefits of the Village Street Light Project are not financial. Instead, we are interested in the opportunity to express our gratitude for being the country's trusted energy provider," Rosdin explains.

CEMENTING CHANGE

In fact, these objectives also complement the utility's wider efforts to strengthen and protect its prized position in the domestic energy market. One such example is the company's 1TNB Transformation Programme, which was launched in May this year, to unify TNB's activities in line with realising current and upcoming phases of its 20-Year Strategic Plan.

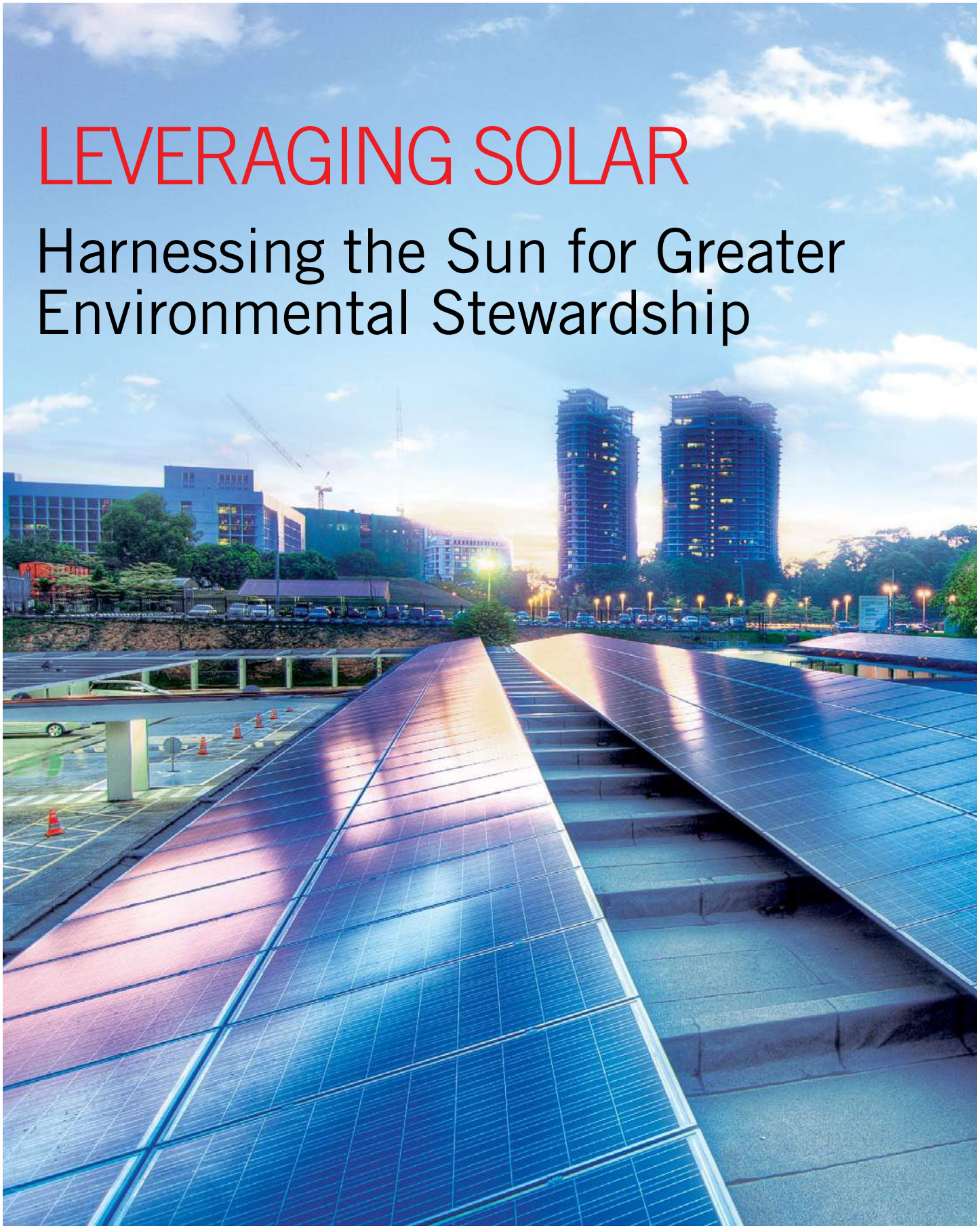
Under the 1TNB Transformation Programme, five Key Result Areas (KRAs) have been identified, and serve to clearly designate vital priorities that all sectors of the organisation must adopt. In particular, the Village Street Light Project aligns remarkably well with the first and second KRAs, which respectively relate to improving TNB's relations with regulatory authorities and continually exceeding customer expectations.

A newly installed and commissioned lamp is tested on-site by TNB technicians.

In its daily operations as an energy utility, the core business of TNB revolves around the generation, transmission and distribution of electricity. However, in certain circumstances, where significant social gains can be made, the company exhibits the willingness to venture even further. The Village Street Light Project is an excellent example of this, where TNB has taken the lead role in equipping rural communities with the vital infrastructure they urgently require.

LEVERAGING SOLAR

Harnessing the Sun for Greater Environmental Stewardship



TNB's 149kW Building-Integrated Photovoltaic (BIPV) system at its headquarters in Bangsar, Kuala Lumpur, has quickly become an impactful landmark.

In line with the Malaysian government's aspirations for greater sustainability and environmental compliance, Tenaga Nasional Berhad (TNB) has taken bold steps to capitalise on new, low-impact avenues for energy generation that are as yet not fully explored in the nation. In this issue, TENAGALINK casts the spotlight on the sunny prospects in solar energy, as seen through the hybrid solar power stations and Building-Integrated Photovoltaic (BIPV) solutions that the utility has implemented.

NATIONAL SIGNIFICANCE

At the 2009 Conference of Parties (COP15) to the United Nations Framework Convention on Climate Change (UNFCCC) held in Copenhagen, Denmark, Prime Minister Dato' Sri Najib Tun Razak announced that Malaysia was committed to cutting carbon emissions intensity by 40% of 2005 levels by the year 2020. That same year, the National Renewable Energy Policy and Action Plan (NREPAP) was released by the Sustainable Energy Development Authority of Malaysia (SEDA), which seeks to expand the proportion of renewable energy (RE) in the national energy mix.

The Feed-in-Tariff (FiT) programme was introduced soon after, encouraging home and business owners to explore power generation systems that are relevant to their requirements, and guaranteeing the take-up of the energy capacity they generate. Having noticed the strong interest enjoyed by the FiT programme, the Prime Minister identified another ambitious target in 2012, calling for 5.5% of grid-connected RE sources by 2015 and a further 5.5% within the following five years.

In light of these developments, TNB has taken a lead role in the propagation and promotion of diverse RE technologies, a reflection of its position as the main energy utility in Malaysia. "TNB does not want to delay in realising all of the government's objectives in the field of RE," states TNB Energy Services (TNBES) Managing Director, Ir Mohd Azhar Abdul Rahman, adding that these initiatives assist in strategically positioning TNB for expansion in its provision of RE.

INSTITUTING CHANGE

Tasked with the implementation of all RE initiatives undertaken at TNB, TNBES has overseen the successful commissioning of over 50 hybrid solar power stations in remote and inaccessible regions in Malaysia. These innovative power plants integrate solar panels, diesel generators and battery banks to provide nearby communities with a reliable and consistent supply of energy around the clock. They are remarkably well-suited to such applications as they do not require any infrastructure in the surrounding area, such as access to the national grid.

In addition, its Managing Director highlighted another of TNBES' prominent accomplishments in this area; the commissioning of Peninsular Malaysia's largest hybrid solar station in Kemar, Perak. Since its completion, the plant has generated an average monthly capacity of 45MWh, resulting in savings of nearly RM70,000 within the first two months alone, by removing the need to burn 26,715 litres of diesel that would otherwise be used in generators.

CLOSE TO HOME

While these accomplishments clearly demonstrate TNB's position as a pioneer of hybrid solar solutions in Malaysia, Ir Mohd Azhar is quick to note that the utility has ventured into other areas of RE generation as well. "To bring the expertise and capabilities we have at TNBES into the mainstream spotlight and illustrate our support for government RE policy, TNB includes BIPV systems in its efforts to promote the adoption of renewable technologies," he reveals.

One of the subsidiary's most outstanding initiatives in this regard is the recent completion of TNB's first BIPV system, which is a 540-panel array on the rooftop of the employee parking complex at its headquarters in Bangsar, Kuala Lumpur. Installation began in July 2013 and the system was inaugurated in January 2014 – creating one of the nation's largest BIPV systems.

"At present, the Solar BIPV Project at TNB headquarters has a generation capacity of around 149kW. While this is not a large

"While urban BIPV projects allow us to showcase our commitment to meeting Malaysia's RE goals, TNB is also forging ahead with high-capacity solar installations elsewhere. We have entered into a joint venture agreement with 1Malaysia Development Berhad (1MDB) to develop a 50MW photovoltaic facility in Kedah, which will be the nation's largest."

– Ir Mohd Azhar Abdul Rahman,
Managing Director of TNB Energy Services (TNBES)

As a showpiece for renewable technology in the urban environment, the BIPV installation at TNB's headquarters has attracted interest from both the public and private sectors.

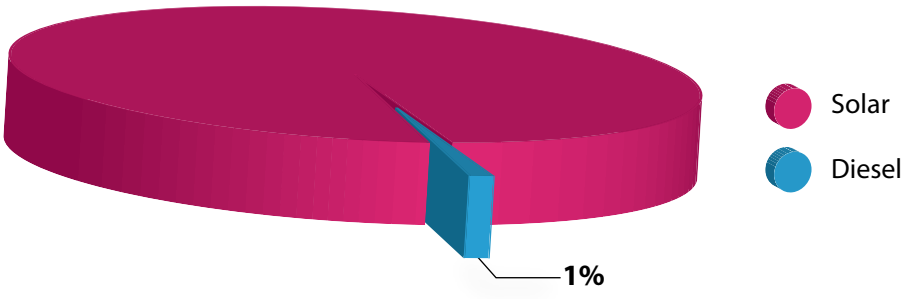
amount of power, we are more concerned with the system's ability to attract interest and generate awareness of RE," states the TNBES Managing Director. Indeed, the utility also seeks to accomplish this by conducting demonstrations on the system, its capabilities and the potential it embodies, for visitors to its offices, as well as organising exhibitions.

VISIONARY IMPLICATIONS

Owing to the success of this system in driving wider appreciation of the benefits of RE, TNB proceeded to implement two similar installations. First, a smaller 24kW array has already been installed on the rooftop of the utility's Customer Service Centre located in the office tower known as Dua Sentral in Kuala Lumpur. Additionally, TNBES is also currently in the process of planning a larger 250kW installation, destined for the TNB Distribution Division Office in Kepong, Kuala Lumpur.

Through these efforts, the utility hopes to provide a model for

Hybrid Solar Power Composition



Source: Tenaga Nasional Berhad

The supporting diesel generators at hybrid solar stations such as the one in Kemar, Perak provide only a fraction of the overall generation capacity.

Hybrid solar stations such as this Kemar plant one provide a novel solution for remote communities in need of a constant and uninterrupted supply of electricity.

other environmentally-conscious companies to emulate, in order to realise the various national goals relating to a reduction in overall energy consumption from exhaustive energy sources. Aside from that, TNB ultimately intends to demonstrate the important role played by RE technology, in elevating the standard of living for all Malaysians.

To illustrate, the primary benefit comes in the form of the cleaner environment that results from reductions in harmful pollution and other emissions. On top of this, pursuing RE resources will also have the long-term effect of insulating energy users from fluctuations in global fossil fuel prices, which currently have an impact on electricity tariff rates. These steps are also anticipated to give rise to a more stable and reliable domestic supply, while simultaneously strengthening the nation's energy security by limiting dependence on foreign resources.

Global warming and climate change are perhaps two of the most defining issues of our time. In recognition of this, as well as the national and global imperatives for finding new and audacious ways to drastically cut emissions, while increasing the proportion of RE available in the Malaysian energy mix, TNB is moving forward as a pioneer of breakthrough technology and solutions. All the while, the utility's focus remains firmly fixed on the ultimate outcome: creating a cleaner and more sustainable environment for the sake of future generations.

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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.

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