

COMMUNICATING TO LARGE POWER CUSTOMERS

# TENAGALINK

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## Freedom of Convenience

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At Your Service  
Behind the Scenes at  
TNB CareLine

*more*  
Lighting up Lives  
Bringing Steady  
Electricity Supply  
to Pulau Tuba

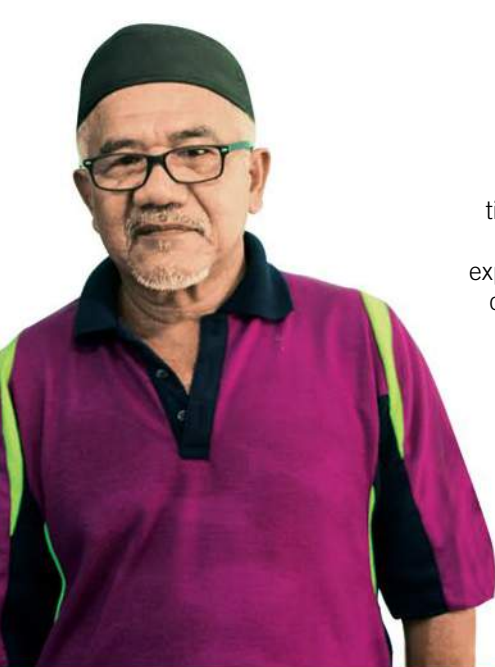


Volume 3 | 2015

**Inside  
the Hulu  
Terengganu  
Hydroelectric  
Project...** pg.18







"I am part of the second generation of Pulau Tuba inhabitants. I have live here since the days of kerosene light and I have witnessed so many changes. I remember sweating bucket every time we performed Friday prayer, and so to come to where we are today is emotional. To finally experience a stable supply of electricity, after years of waiting, hoping and praying, on the first day of Ramadan, is a blessing for all."

– Abd Hamid Mohd Rashid, Imam of Masjid al-Hijrah, Kampung Lubuk Cempedak, Pulau Tuba



"I am a newcomer to the island. However, from what I gather, the villagers had a love-hate relationship with the four set of diesel generators. They produced a lot of smoke and loud noises, but eventually people came to grudgingly accept them. Now, with electricity supply coming through submarine cables, not only are the nights calmer and quieter, we can also schedule more night classes in schools to help students in need of extra lessons. In the past, the uncertainty of electricity supply prevented that, because we were concerned about safety. Now, we can make sure our students get the additional attention they deserve."

– Ahmad Zaini Ramli, Principal of Sekolah Menengah Kebangsaan Langkawi





# Electrifying Pulau Tuba

TENAGALINK shines the spotlight on Tenaga Nasional Berhad's (TNB) efforts in providing grid connectivity to Pulau Tuba – a small island off Langkawi. Part of TNB's commitment to rural electrification, it has significantly changed the lives of residents, as the following testimonials will attest.

Read more about the Pulau Tuba project in **Electrial Links** on page 24

"I am now 64 years old and grew up in Pulau Tuba. We have progressed from not having any electricity, to 12 hours of supply and then close to 24 hours via generators. However, the generators would wear out and needed to be changed from time to time. So we always experienced flickers and blackouts in between swapping of the engines. Thanks to the guaranteed supply of electricity, I look forward to the island being further developed in terms of infrastructure. With this stable supply, I am sure we can further promote the geo-park nature of Pulau Tuba. Our hope is for this island to grow and become something we can leave for our grandchildren and the future generation. All cities start out small, so it is not an impossible dream for Pulau Tuba."

– Abdul Rani Awang, President of Tuba Barat Village Committee

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“ One of our proudest achievements is in providing regular and secure electricity supply to almost the whole of Peninsular Malaysia, and in doing so, we meet the demand that comes with and drives Malaysia’s growth. ”

**A**s Malaysians celebrate the 58th anniversary of Merdeka, as well as the 52nd year of Malaysia’s formation on the 31st of August and 16th of September respectively, we at Tenaga Nasional Berhad (TNB) are happy to have played a part in the nation’s development.

TNB has had a key role in the generation, transmission and distribution of electricity as far back as 1949, when we were known then as the Central Electricity Board, then *Lembaga Letrik Negara* (National Electricity Board) and finally now, as we have taken on our present identity.

One of our proudest achievements is in providing regular and secure electricity supply to almost the whole of Peninsular Malaysia, and in doing so, we meet the demand that comes with and drives Malaysia’s growth.

With all of the mainland covered, the next step is to bring electricity to the outlying islands. Already residents of small offshore islands such as Pulau Ketam off Selangor, Pulau Tuba off Langkawi and Pulau Jerejak off Penang are receiving electricity supply from the main grid, having previously depended on generators for their energy needs.

Soon, we will embark on similar projects on other islands such as Pulau Perhentian near Terengganu. This is a sign of our commitment to ensuring that all Malaysians enjoy the benefits of electricity, because only then can we become a developed nation.

Another way in which we are enriching our customers’ experience is by enhancing our customer service framework. Through initiatives such as the Tenaga Hub and TNB CareLine, we are making it easier for customers to interact with us. In doing so, not only can we provide better and more efficient services, we also know what you want, which will help us better light up your lives.

*Selamat Hari Merdeka dan Selamat Hari Malaysia.* 🇲🇾

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

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

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or log on to [www.tnb.com.my/customer-care.html](http://www.tnb.com.my/customer-care.html).



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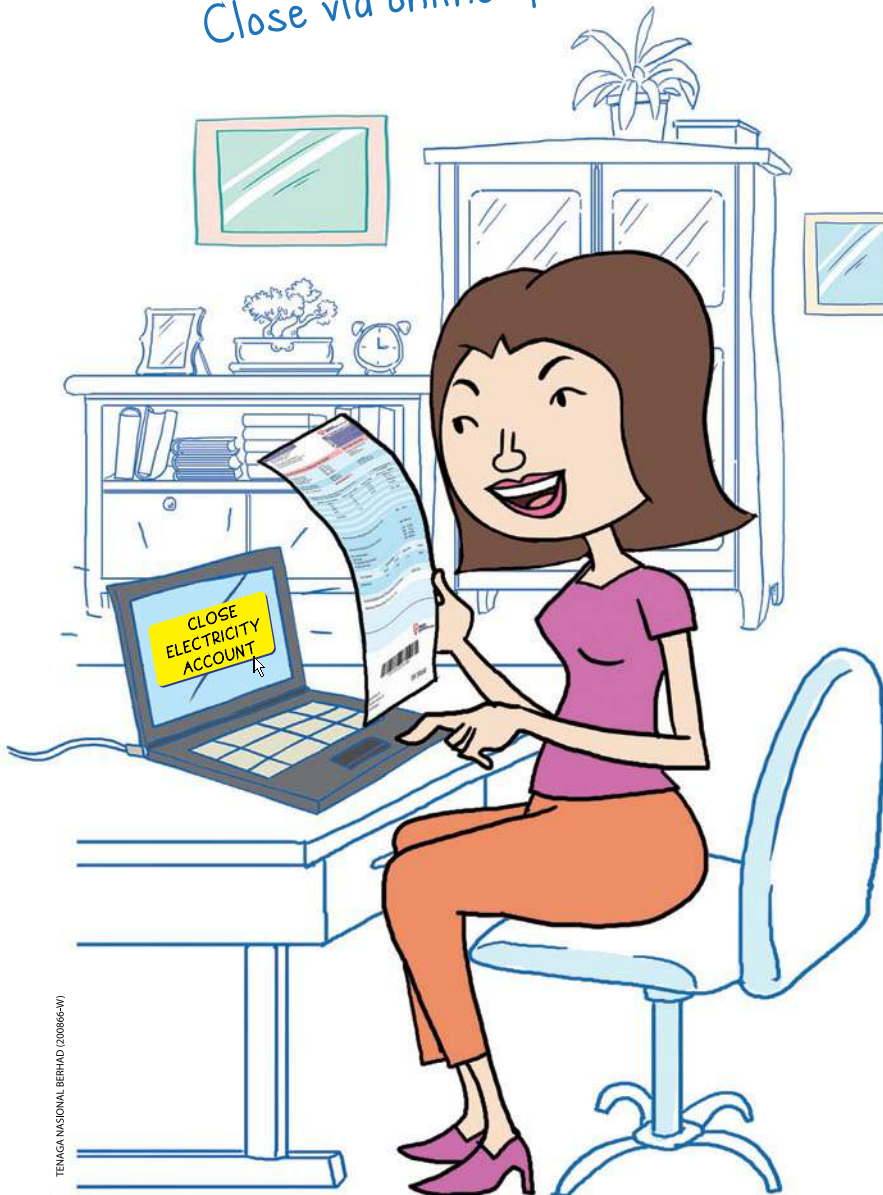
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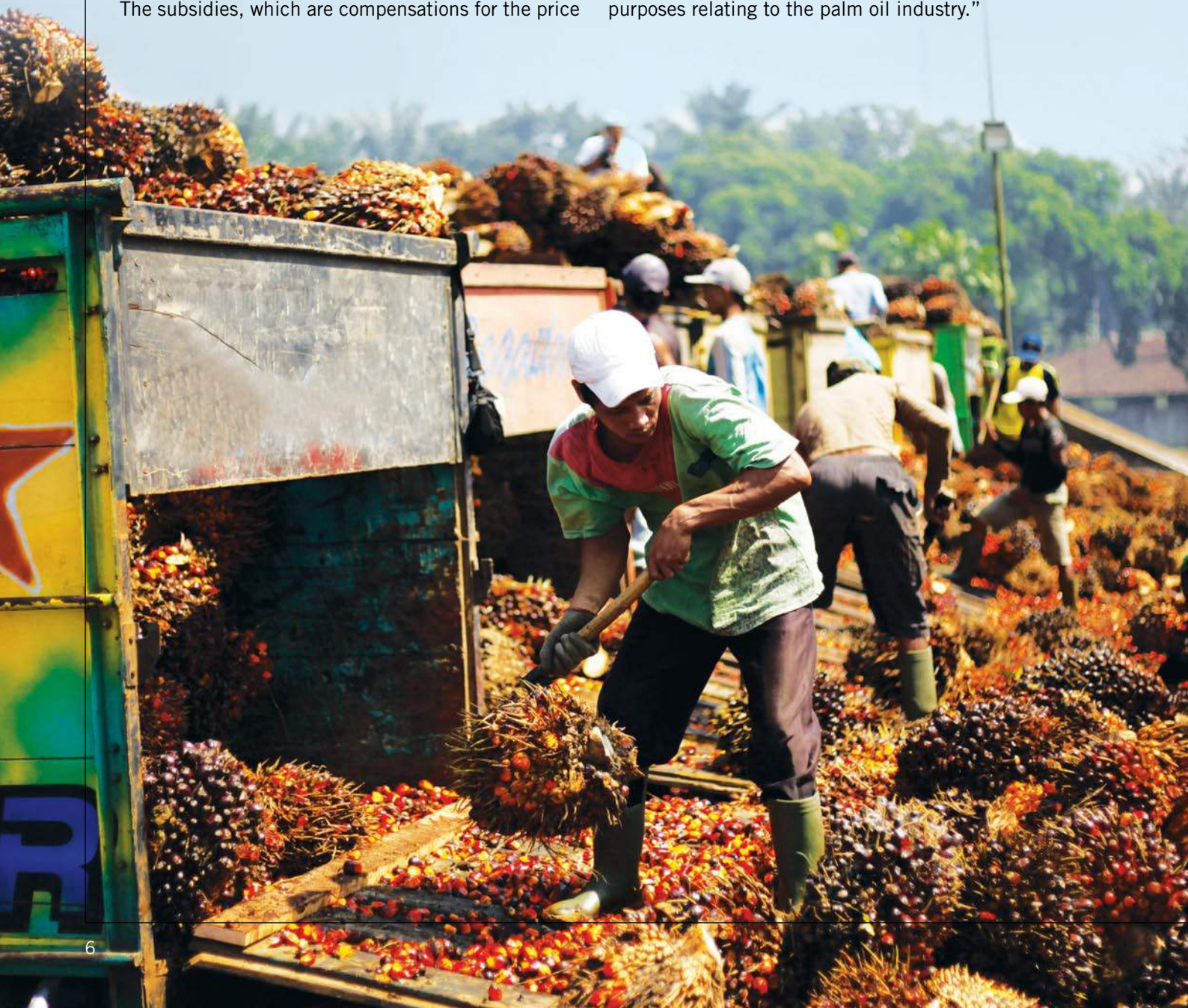
## BIOFUEL BOOST

In an effort to cut the cost of importing fossil fuels, Indonesia is promoting the use of crude palm oil as biofuel. The plan is also set to reduce carbon emissions and to absorb the excess supply of palm oil in the Indonesian market. In 2013, the mandated amount of palm oil in diesel blending was increased to 10% and in April this year, the mandated percentage went up to 15%.

The world's biggest oil palm producer is also looking to impose export levies on palm oil, which will provide returns for the funding of bio-diesel assistance. The subsidies, which are compensations for the price

differences between regular diesel and biodiesel, saw an increase to Rupiah4,000 (RM 1.10) per litre in February this year from its previous rate of Rupiah1,500 (RM0.40)

According to Sofyan Djalil, the Coordinating Minister for Economic Affairs of Indonesia, "Shippers will be charged with a levy of US\$50 (RM178) per metric tonne of palm oil and US\$30 (RM107) a tonne for olein shipments respectively. Besides subsidies, the proceeds from the levy will also be used for replanting oil palm trees and for research and development purposes relating to the palm oil industry."





Indonesia is capitalising on its position as the world's largest producer of oil palm (the fruits of which are being sorted in this picture), by encouraging the use of palm oil biodiesel.



The Prai combined cycle gas turbine (CCGT) plant owned by TNB was also the benchmark for Project 4A's proposed tariff, which was at 39 sen per kWh as compared with Prai's 34.7 sen per kWh.

## TNB-SIPP PROPOSES TARIFF

The Energy Commission (Suruhanjaya Tenaga-ST) has received a proposed tariff of 39 sen per kWh for Project 4A from a Tenaga Nasional Berhad (TNB) and SIPP Energy consortium, after YTL Power International – the utility subsidiary of infrastructure conglomerate YTL Corporation – which was part of the group, withdrew in 2014. Project 4A involves a contract to build, own and operate a combined cycle gas turbine (CCGT) power plant with a capacity of up to 1,400MW in Pasir Gudang, Johor, which was initially awarded to the consortium.

As the current project was awarded on a direct basis, ST required that the

tariff submitted be comparable to that of TNB's for the already-completed Prai CCGT power plant. TNB had previously offered a 34.7 sen per kWh tariff for the tender of the Prai project, which it won in 2012.

While the tariff proposed for the 4A project is slightly higher than that imposed by ST, according to industry experts, it is expected TNB-SIPP consortium's cost of debt is higher than that of TNB's alone, as was the case for the Prai project. The decision to accept or decline the submitted tariff is yet to be made by ST.





## INVESTING IN RENEWABLE ENERGY

Tenaga Nasional Berhad (TNB) will increase its investment in renewable energy (RE) as a move towards its goal in reducing fossil fuel dependence. “Currently, TNB is collaborating with Felda on a biomass plant in Jengka as well as with Sime Darby Plantation in developing six potential biogas plants in Peninsular Malaysia,” said TNB chairman Tan Sri Leo Moggie, while speaking to reporters after the company’s annual general meeting last year.

With the cost of electricity from alternative fuel sources currently higher than that from coal-fired power plants, TNB is seeking cooperation from other RE developers. The utility provider has commenced its

investment campaign in a Sri Lankan project for wind-powered energy generation.

Another initiative being considered is the importation of energy from Sarawak’s hydroelectric projects, which is still under discussion and expected to commence in five years.

*TNB’s decision to up investment in renewable energy (RE) is in line with the overall energy strategy by the government.*



## CENTRE OF ATTENTION

Held at the Kuala Lumpur Convention Centre from 7 to 9 August 2015, to celebrate the success of the Malaysian Government-Linked Companies (GLCs) and to showcase their achievements and employment opportunities, GLC Open Day 2015 attracted over 67,000 visitors over a period of three days.

Five Government-Linked Investment Companies (GLICs) and 17 GLCs participated in the event, and the Tenaga Nasional Berhad's (TNB) booth was one of the stars of the show. Fresh graduates and students were drawn to the eye-catching booth, reflecting how TNB's

awareness of how one-way communication no longer works with today's society; they utilised interactive platforms including social media when delivering a message.

Visitors praised TNB's innovative method of relaying their key messages. Also receiving kudos were the friendly staff manning the booth who actively engaged visitors, providing them with necessary information and answering all their questions effectively. Several visitors even submitted their resumes to the national electricity provider, with hopes to work with the company in the near future.



Featuring interactive exhibitions (inset), the TNB booth caught the attention of many visitors, including Prime Minister Dato' Sri Najib Razak, during the GLC Open Day 2015.







# A WELCOMED CHANGE

## Tenaga Hub Revolutionises TNB's Customer Service Experience

**C**ustomer service is the window where a company and its clients can peer through to have a good gauge of each other. Oftentimes, it is reduced to a mere one channel communication – from the mouth of the customer to the ears of the corporate structure. Tenaga Nasional Berhad (TNB) has decided to go down a different route, one that goes above and beyond this basic idea of service provision. Enter Tenaga Hub, its gleaming new concept, with features that aim to better cater the needs of its customers. **TENAGALINK** speaks to Datuk Ir Mohd Azim Dato' Yusof, General Manager of TNB Selangor, to learn more about this new offering from the company.

### ON TO THE NEXT LEVEL

The concept of Tenaga Hub is in line with TNB's vision to instil changes within the company in order to improve its operations. This includes imparting a better, more comprehensive customer service experience to consumers.

As such Tenaga Hub has very little in common with *Kedai Tenaga*, the existing establishment created by TNB to render customer service. Instead it is a complete overhaul of the design, boasting a degree of service that is on a higher tier.

"We wanted to move on to the next level of customer service," Datuk Ir Mohd Azim said, when asked about the inception of Tenaga Hub. "We came up with a fresh concept, one that creates an elegant, stylish and cosy environment for the benefit of our patrons."

### IN TIME, A DOZEN

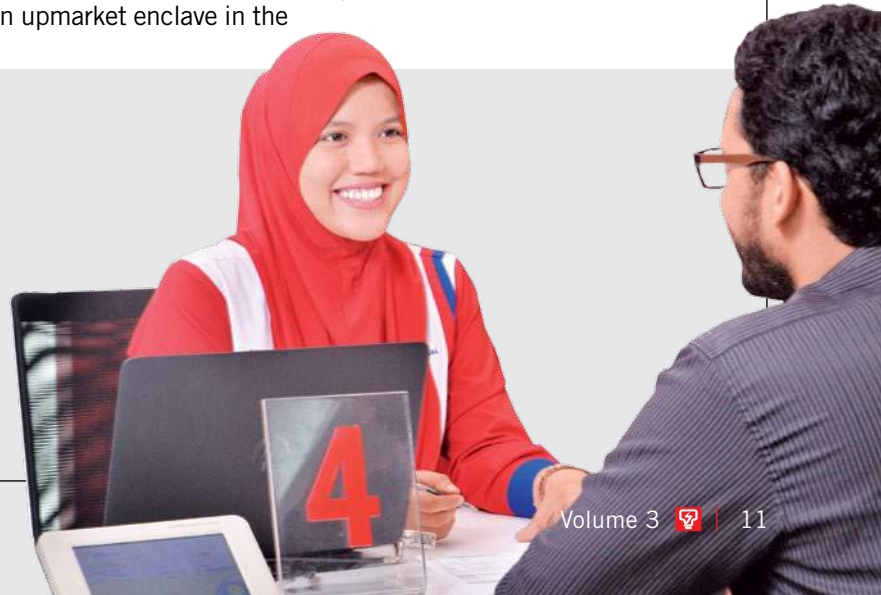
Currently, there is only one Tenaga Hub in the country, located at the ground floor of Wisma TNB in Subang Jaya. The building is nestled in the heart of Taipan Triangle, an upmarket enclave in the

municipality. According to Datuk Ir Mohd Azim, new concept centres have been planned, scheduled for completion by 2017.

"There will be a Tenaga Hub in main cities in Peninsular Malaysia in the near future," Datuk Ir Mohd Azim noted. Each one is built to the tune of RM1.5 million, which translates to an investment of RM18 million by TNB for this venture. Three of them – the ones in Kuala Lumpur, Pulau Pinang and Johor Bahru – are slated to be opened soon.

**Left:** Tenaga Hub is the result of TNB's effort to revamp customer service experience, taking it several notches higher.

**Right:** The customer service staff are friendly and attentive, and are always ready to serve the needs of customers with a smile.





As the General Manager of TNB Selangor, Datuk Ir Mohd Azim explains the reasoning and benefits of opening the Tenaga Hub in Subang Jaya. "There are 1.7 million TNB customers in Selangor, so the need for a unique centre in the state to serve them was a pressing one," he stated, adding that, "Subang Jaya was a logical choice as the location for this hub, as the state office is already there."

This then led to the launching of the Tenaga Hub on 12 May 2015 by the Minister of Energy, Green Technology and Water (KeTTHA), Datuk Seri Panglima Dr Maximus Johnity Ongkili, in an event also attended by the Secretary General of KeTTHA Datuk Loo Took Gee, Energy Commission CEO Datuk Ir Ahmad Fauzi Hasan and TNB Vice

President of Distribution Datuk Ir Baharin Din, among others.

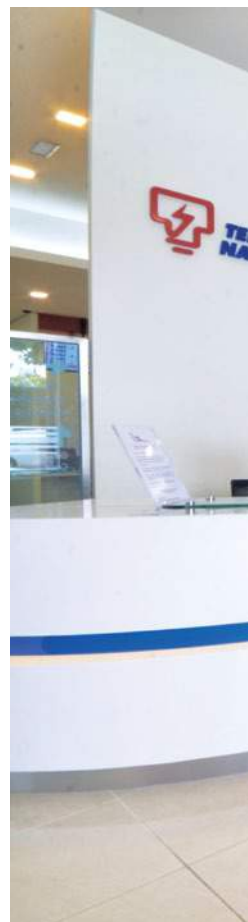
## THROUGH THE DOORS

Presented in a layout that is sure to please the eyes of the observer, it is readily-apparent that the Tenaga Hub in Subang Jaya makes great use of floor space. The initial impression is that of spaciousness, the sensation augmented by the generous separation of localised sections and bright lighting that introduces the element of airiness into the mix. Contrasting colours and the liberal, but tasteful application of TNB's red and blue hues add to the aesthetic appeal.

Just past the main doors, two banks of machines line the walls on either side, offering services to customers. On the left, the i-Kiosk machines

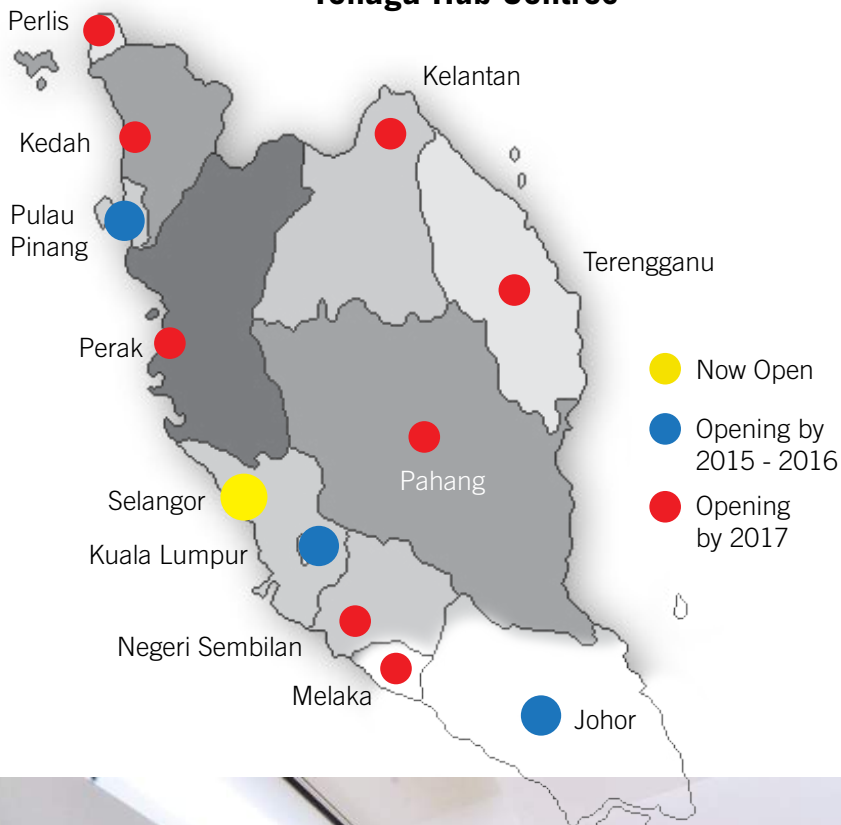
**Above:** The Renewable Energy Interactive Display is just one of responsive displays available at Tenaga Hub, through which customers can be enlightened about renewable energy.

**Right:** The thoughtfully-designed airy layout and bright colour schemes lend a welcoming touch to the interior.





## Existing and Upcoming Tenaga Hub Centres



## VIEWS

As providing an improved service experience to its customers was the main inspiration behind the birth of Tenaga Hub, it is their approval that the new centre has to win. *TenagaLink* talks to a few customers to find out what they think about TNB's new centre in Subang Jaya.



"I like the fact that the new layout is thoughtfully designed and incorporates many new and useful features, such as the discussion rooms where customers can speak to the friendly TNB staff in private."

– Ikhwan Akmal Hakim



"The various information stands throughout the Hub, such as the Green Energy Corner and the Renewable Energy Interactive Display, caught my attention as I am keen to learn how to reduce my electricity bill."

– Joanne Chung

## VIEWS



“Compared to the previous offering, this new Tenaga Hub is a vast improvement. Rather than being small and congested, it is airy and welcoming. The fact that it is also staffed by pleasant people is a welcomed bonus.”

– Ahmad Halmi Saad



“The first thing I noticed upon entering is the impressive overall design, which looks neat and pleasing to the eye. The various displays located throughout the shop also lend an air of sophistication to the place.”

– Khar Haji Mohd Anis

**Right:** Datuk Ir Mohd Azim, General Manager of TNB Selangor is confident that customers will appreciate the fresh new look and engaging features that Tenaga Hub has to offer, such as the i-Kiosk machines.

**Below:** The Green Energy Corner is chock full of information regarding energy-efficient home appliances and how to use them effectively.







## Inside Tenaga Hub

### Green Energy Corner

Demonstrates the benefits of energy efficiency



### Renewable Energy Corner

Enlightens customers about renewable energy sources

### Smart IT Centre

Has workstations to access TNB's online services



### Merchandise Corner

Displays energy-saving appliances and fixtures

### Info Gallery

Provides information about TNB



### Safety Info

Showcases advice on electrical safety

### Discussion Rooms

Offers a private setting for discussions between customers and staff



### Multi-Service Counters

Dispenses various services to customers via cheerful and professional staff

### I-Kiosk

Allows easy retrieval of account information



### Payment Kiosk

Facilitates the easy payment of TNB bills



provide a raft of interactive information. Dubbed as the one-stop TNB channel, they allow customers to perform anything from calculating their electricity bill to conducting an energy check. All they have to do is to insert their *MyKad* in the slot and begin.

A row of payment kiosk occupies the wall across, upon which customers can rely to take care of the electricity bill payment. Removing the need to take a number and wait to be attended by a counter staff, they reduce waiting time and eliminate long queues. The kiosk receive payment in various forms – cash, cheque or credit cards. Operating 14 hours a day, these two lines of machines are open for business even after office hours.

## SOMETHING IN EVERY CORNER

A little further into the hub, an imposing reception desk sits front and centre, manned by TNB staff who are ready to take care of all queries directed at them. Beyond the reception, a seemingly separate zone is found. Several glass-walled rooms can be seen along the periphery on the left, while multi-service counters take up the space along the far wall, and information displays on the right wall. Rows of benches and chairs fill up the space between for customers waiting to be served.



This is where the main interactive attractions of Tenaga Hub shine. Waiting customers are spoilt for choice when it comes to indulging in a bit of edutainment. A casual stroll within the Hub reveals a surprise at every turn. There are several corners peppered around, furnishing knowledge to the curious in an interesting and fun manner.

The Green Energy Corner, for example, showcases electrical appliances and fittings that are energy efficient, reducing power consumption and consequently electricity bills. A display next to

“Tenaga Hub is the physical manifestation of our commitment, which shows that we don’t want to just be a transactional outlet but continue to be part of customers’ lives in offering energy solutions. We want to be there to assist our customers to manage energy, give solutions

for their businesses, provide energy efficiency tips and share information on many areas of concerns, such as how to drive their bills down. We welcome you to Tenaga Hub, our latest energy solution outlet.”

– Ir Kamaliah Abd Kadir,  
Senior General Manager,  
Customer Service



it elaborates the benefits of using these frugal devices, presenting the information in the form of two miniature houses replete with typical home appliances and fittings – one with energy-efficient items and the other with older, inefficient ones.

“The Green Energy Corner has proven to be the most popular so far, as customers can see for themselves the potential savings of going down the efficient route, as well as learn about appliances that are best suited for their needs,” Datuk Ir Mohd Azim said. A little further away is the Renewable Energy Interactive Display, a touchscreen presentation by TNB about the subject. “Here,





**Above:** Cheerful and attentive, the customer service staff at Tenaga Hub handle customers' concerns with speed and efficiency.

one can gain in-depth information about the sources of sustainable energy such as wind, solar and hydro," he added.

The Smart IT Centre is yet another avenue providing interactive data at the Hub. With several computers available for use, the Centre enables one to access information as well as gain further knowledge about energy consumption and efficiency. Customers are also reminded here about the benefits of the *myTNB* app, which allows them to monitor their electricity usage via their portable devices.

Across from the Centre are three of the glass-walled rooms mentioned

earlier. These are meeting rooms, providing a private environment for discussions with the professional yet amicable staff on issues pertaining to electricity connection and other related matters.

**The Tenaga Hub provides a glimpse of TNB's commitment towards improving itself, especially in terms of the services it extends. As evidenced by the host of interactive displays and useful information exhibited throughout the Hub, along with the usual services provided with utmost convenience to the customer, the utility places importance on ensuring that its customers are not just satisfied, but happy with the service that they receive. 📺**



# THE FLOW OF POWER



Hulu Terengganu Project Shows  
TNB's Green Commitment





*Located in Terengganu, Tasik Kenyir is the largest man-made lake in Malaysia and is an important tourism and ecological hotspot.*

**T**he largest man-made lake in Southeast Asia, Tasik Kenyir (Lake Kenyir) in Terengganu is a popular destination for nature lovers, tourists and even scientists, because of its stunning scenery and diverse ecology. More than that, the area is set to become the focal point of a project that will increase energy production in Peninsular Malaysia – namely Tenaga Nasional Berhad’s (TNB) Hulu Terengganu Hydroelectric Project. Comprising of two dams – the Puah Dam on Sungai Terengganu (Terengganu River) and the Tembat Dam on Sungai Tembat (Tembat River) – as well as a surface and an underground power station, the project is expected to generate more than 450 GW/h of electricity a year.

#### 40 YEARS IN THE MAKING

As revealed by Zainuddin Suleiman, General Manager (Hydro Projects) at TNB Energy Ventures Division, the project is not exactly a very new one. In fact, it has been in the pipeline since the 1970s, during which time a pre-feasibility study on the suitability of the Terengganu River Basin as a source of hydroelectric power was carried out.

Over the years, a number of other studies were commissioned, including two feasibility studies (one in the early 1980s and the other in the mid-1990s). In addition, an Environmental Impact Assessment (EIA) was conducted in 1997 which evaluated the potential impact of a hydroelectric project on the local environment and eco-system.

Finally, in 2010, work commenced on the project with the diversion of Sungai Terengganu, followed by the building of the two dams in 2014. According to Zainuddin, the system will work on a cascading basis, where water flows downstream, thus building up potential energy which is then converted into kinetic energy in the main power station.

To illustrate, at the highest point is Tembat Dam, which is a 37-metre high concrete gravity dam, designed to gather water from Sungai Tembat, which is then diverted through a water transfer tunnel to the Puah Dam, which itself is a 70-metre high earth-filled dam. To utilise the energy from Tembat Reservoir created by the construction of Tembat Dam, a power station with two 7.5MW generators has been placed at the end of the water transfer tunnel before the water from Tembat reaches Puah Reservoir.

As mentioned, the main power station – which has two 125MW generators – is located underground, and is fuelled by pressure from the

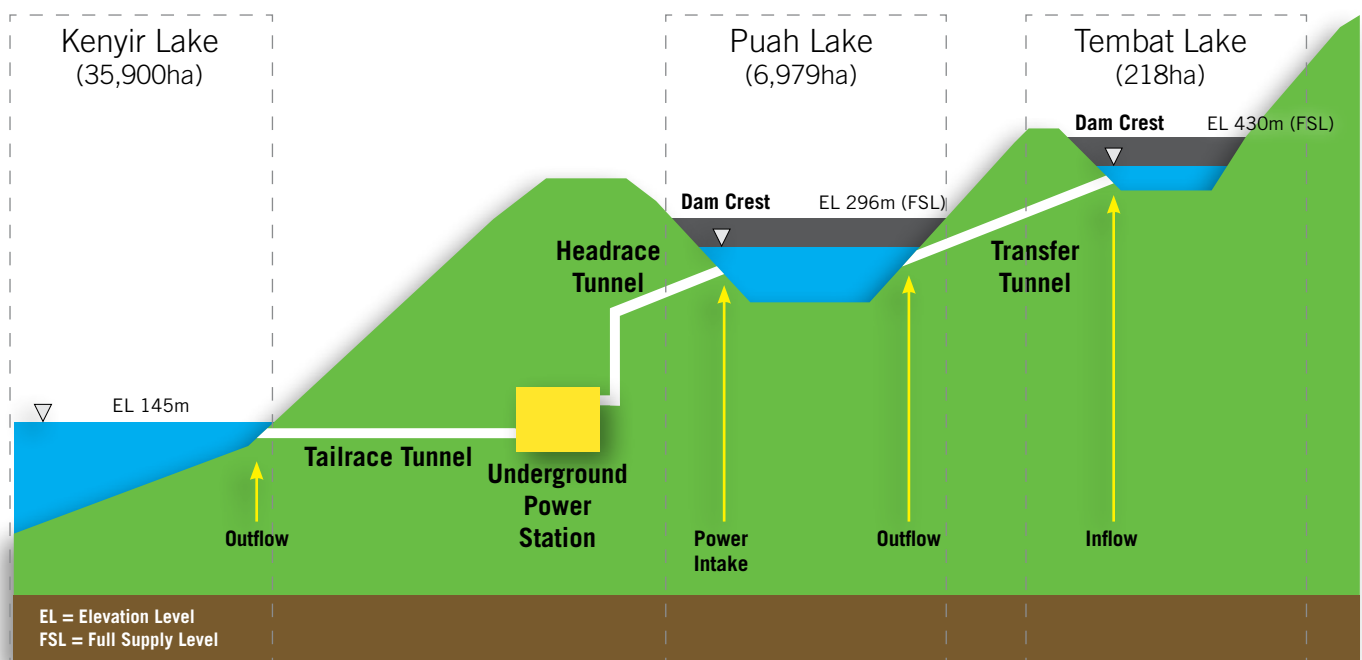
water flowing from Puah Reservoir via a tunnel. Finally, after the electricity has been generated, the water is released into Tasik Kenyir.

### GOING GREEN

Under present plans, the project is expected to be completed sometime in 2016. More than generating electricity, which would be fed into the main grid for Peninsular Malaysia, the Hulu Terengganu Hydroelectric Power Station will go a long way in helping the country reduce greenhouse gas emissions, which are one of the unfortunate by-products of thermal power stations.

Elaborating on the matter, Zainuddin said, “It is estimated that the

## Schematic Diagram of the Hulu Terengganu Project



*A diagram shows the flow of water from Tembat Dam to Puah Dam, then to the generator and finally to Tasik Kenyir.*



## Project Features

<b>Dam</b>	<b>Puah Dam</b> (Earth Dam H=70m) <b>Tembat Dam</b> (Concrete Dam H=30m)	
<b>Reservoir</b>	<b>Puah Lake</b> (6979ha) <b>Tembat Lake</b> (218ha)	
<b>Tunnels</b>	<b>Diversion Tunnel</b> ~2 x 9.2m x 400m <b>Main Access Tunnel</b> ~1 x 7.75m x 500m <b>Headrace Tunnel</b> ~2 x 4.5m x 300m <b>Tailrace Tunnel</b> ~1 x 8.0 x 1200m <b>Tembat Water Transfer Tunnel</b> ~ 1 x 4.5m x 1250m	
<b>Power Station</b>	<b>Underground Power Station</b> ~200m below ground	<b>Tembat Surface Power Station</b>
<b>Installed Capacity</b>	2 x 125MW	2 x 7.5MW

Hulu Terengganu Project will result in the reduction of approximately 333,450 tonnes of carbon dioxide being emitted into the atmosphere, which would otherwise be emitted if the same amount of electricity is generated by thermal power plants.”

More than just producing clean energy, TNB has spared no efforts in ensuring that the Hulu Terengganu Project was developed and is being built according to the strictest standards, by being fully compliant with regulations such as the *Environmental Act 1974*. In addition, the Department of Environment (DoE) has set certain guidelines – namely the Detailed Environmental Impact Assessment (DEIA) Approval Conditions – which TNB has to fulfil.

According to Zainuddin, this includes conducting periodical studies on the quality of water and air in the area, as well as the noise level. In addition,



*A bird's eye view of the components of the hydropower turbine which can generate 125MW of electricity.*

“It is estimated that the Hulu Terengganu Project will result in the reduction of approximately 333,450 tonnes of carbon dioxide being emitted into the atmosphere, which would otherwise be emitted as if the same amount of electricity is generated by thermal power plants.”

*Zainuddin Suleiman, General Manager  
(Hydro Projects) at TNB Energy Ventures*



an annual environmental audit by a third-party auditor is required, and TNB also had to prepare and submit a detailed plan on how it intends to manage the surrounding environment and wildlife.

### HANDS-ON EFFORTS

TNB took a hands-on approach to this. For example, as both the Tembat and Terengganu rivers were to be diverted, one of the tasks the team faced was to rescue the fish that were trapped downstream and move them upstream. This was done in partnership with the Fisheries Department, Universiti Kebangsaan Malaysia (UKM) and Universiti Sains Malaysia (USM).

Another exercise was to assess the impact of logging and construction to the elephants population in the area, particularly with regards to their movement and grazing. To do that, a programme was initiated where GPS collars were fitted on these magnificent animals in order to observe and track their movements.

Zainuddin also pointed out that aside from carrying out these initiatives, TNB is also committed to conserving the forest. This means that only areas that were absolutely necessary were cleared, leaving much of the surrounding forest untouched. In fact, the utility company intends to request the Terengganu State government to gazette the surrounding forest in order

**Next page:** *Aquaculture activities, such as fish rearing, can be carried out at the new Puah Reservoir.*

to prevent logging and therefore loss of soil integrity and erosion.

As can be seen the Hulu Terengganu Hydroelectric Project is bringing benefits beyond the generation of electricity. Aside from the ones already mentioned, the construction period has also seen a growth in the local economy as people from nearby settlements either find jobs as construction workers or by selling supplies to those on-site.



Undoubtedly, TNB had to manage different expectations and variables in the construction of the Hulu Terengganu Hydroelectric Project. The successful implementation of this initiative shows the commitment of the national utility company to the environment, thus reinforcing its position as a key player in sustainability and Green energy. 🌱







# ELECTRICAL LINKS

## Connecting Pulau Tuba to the Main Power Grid

**F**or 20 years, the residents of Pulau Tuba, a small picturesque island off the south coast of Langkawi, have relied on diesel generators for electricity. However, the noise produced by the machines affected those who were living nearby, and required switching over from one unit to another every 24 hours. In late 2013, Tenaga Nasional Berhad (TNB) embarked on an ambitious project, one that would supply the island with electricity from the main grid by laying cables under the seabed – across the 4.5km span of ocean between Pulau Tuba and Langkawi.

### A GENERATION OF GENERATORS

Since 1984, the electricity supply to Pulau Tuba was fed by several generators, more recently with two sets of diesel units – three 200kW generators as the main power plant, and two more – each with a 500kW capacity – kept on standby. The constant drone of the diesel engines became part of the daily existence of the island population, consisting primarily of fishermen, jarring with



the tranquil views and laidback setting of the island.

Furthermore, the generators in use were swapped over every 24 hours to mitigate the negative effects of prolonged running, such as accelerated wear and tear on the generator components. During the switching over process, more than 700 residents in six villages across the island had their electricity disconnected for a few minutes, a further inconvenience.

Aside from requiring plenty of fuel to run, resulting in high financial and environmental cost, the generators also had breakdowns at times, plunging the island into darkness. When the system was operational, the combined output was barely enough, hovering in the region of 400kW, making it an inefficient and unreliable form of power supply.

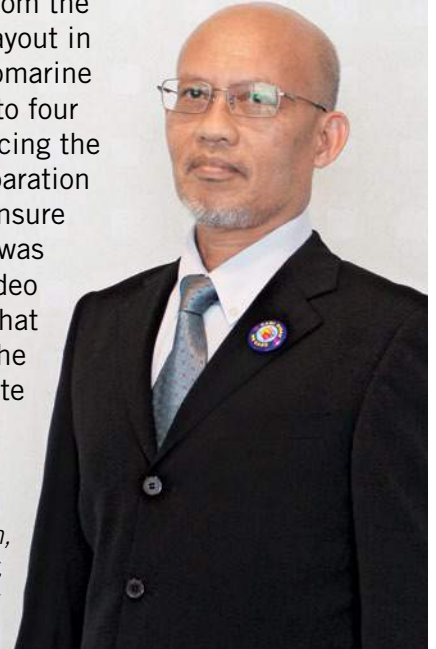
## THE SPARK OF CHANGE

The idea for a change in the power supply to the island was discussed during the technical committee meeting of the Malaysian Electricity Supply Industries Trust Account (MESITA) – an account set up to fund rural electrification projects, among others – on 23 October 2012, which was chaired by the Deputy Secretary General of the Ministry of Energy, Green Technology and Water (KeTTHA) Datuk Hj Nor'Aini Abd Wahab, and the notion was approved on 13 December 2012.

The executors of the project were then determined. The Ministry of Rural and Regional Development (Kementerian Kemajuan Luar Bandar dan Wilayah or KKLW) stepped in to be the initiator of this undertaking, while TNB served as the technical

“Time is always the main challenge in completing a big project such as this. TNB worked very closely with close to 10 parties including local authorities, consultants, sister companies, local and international vendors, as well as contractors. The work started from the day we studied the geographical layout in order to produce a customised submarine cable to the day we bid goodbye to four generator sets that have been servicing the island the past 20 years. The preparation period was long and crucial to ensure the execution was done right. It was an emotional ride to watch the video playback of the job, and to know that we have done the right thing for the residents and were able to complete the project within timeline is the most satisfying feeling.”

– Nah Wan Abdullah,  
Senior General Manager,  
Asset Development



advisor. MESITA gave the green light to lay undersea cables to Pulau Tuba in two circuits, at the estimated cost of RM45.1 million, utilised from its own funds.

The Prime Minister's visit to the island on 31 October 2012 spelled good news as he announced the approval of the allocation for the government project. On 27 March the following year, TNB received a letter of intent from KKLW, appointing TNB as the contractor of the endeavour.

## UNDERWATER CURRENT

Before any cable-laying work could be done, a seabed study had to be conducted. TNB invested RM500,000 and commissioned local hydrographic surveyor to carry out a thorough

examination of the ocean floor in early 2013. This included conducting detailed topological and hydrological analysis.

The submarine cables, costing some RM34 million, were acquired from China in a joint venture between ZTT International Shanghai – a submarine cable manufacturer – and Udaya Synergy, a local electrical engineering company. Global Explorer, a service provider in subsea cable laying, was commissioned to embed the cables into the seabed. Representatives from Tokyo Electric Power Services (TEPSCO) were on hand to oversee technical details.

A water-jetting method was used to bury the cables 1.5 meters under the ocean floor. Using a barge, on which the length of the cable was



“The unexpected spells of low tide meant we had to improvise and coax the cable-laying barge down the intended path in shallow water. Using a rope anchored to a large rock to control its movement, we guided the barge onward with careful use of its thrusters.”

– Ir Ahmad Suhaimi Muhammad,  
Senior Project Engineer,  
Asset Development

on the body of seawater between Langkawi and Pulau Tuba was often unpredictable, with sudden thunderstorms and rough seas making any attempt to lay cables a dicey one. Low and high tides that did not take place according to schedules also posed a big problem, as the barge would beach itself in the shallow water.

Although these setbacks caused some minor delays, the collective team behind the venture persevered and found solutions to overcome the problems. Thanks to their resourceful ways, the project stayed on schedule, completing 18 months after the commencing date of 2 December 2013.

placed, a sledge called Phoenix Sledge was lowered into the water with the end of a cable. Once at the bottom, it created a 1.5 metre-deep trench in the seabed, laid the cable in it, burying the cable in one smooth action. Two circuits of cables were laid, each 4.5km long with 50 metres interval between cables, one operational with the other serving as backup.

### IMPEDING CHALLENGES

The project was not without its challenges, and as expected of an undertaking of this scale, obstacles were not in short supply. For instance, the price of land at Tanjung Pandan, the site of the TNB substation on Pulau Tuba increased substantially after news of the project spread, elevating expenses to procure land on which to lay the cables. Further expenditure woes also came in the form of the unstable market price of copper, which influenced the cost of the submarine cables.

Other hindrances were caused by Mother Nature. For example, weather



“TNB Research performed an audit of the cable manufacturing processes to ensure that they are done according to proper procedures and specifications. Although this is the first time we are engaging this cable company from China, we are confident of the cable quality as it has been used in several other projects in the United States, Europe and the United Arab Emirates.”

– Ahmadul Hadi Muhammad,  
State Construction Engineer, Distribution Division





**Above:** In order to lay the cable safely on land, deep trenches had to be dug between the shore and the TNB station at both ends of the 4.5km connection.

## A PEACEFUL ISLAND

17 June 2015 was the last day the generators ran on Pulau Tuba. The final connection to the main power grid was made, completing the link from the TNB station at Kuah in Langkawi to the one

at Tanjung Pandan. A palpable silence greeted the islanders, one they welcomed with smiles of appreciation, especially grateful at the speediness of the project.

It was, after all, completed in time for the holy month of Ramadan and the Hari Raya festival, the first one in the island's history where the only noise would come from exploding fireworks, and not from the incessant hum of diesel engines. With the advent of a stable supply of power, the people of the island can now look forward to a vast improvement in their quality of life.

**Pulau Tuba is not the first small island in Malaysia to receive electricity supply from the main power grid. Pulau Jerejak near Penang and Pulau Ketam off the coast of Selangor have both had their power supply connected to the mainland before the RM46 million project took place at the idyllic fishing island below Langkawi. In the near future, it is hoped that more islands would convert from localised power generation to the main electricity grid. TNB even has a few potentials on mind for upcoming projects – Pulau Aman on the west coast of the peninsula, and Pulau Perhentian on the east coast.** 📍



## History of Power Supply at Pulau Tuba

- **1984** – Pulau Tuba rural power station operates for 12 hours a day
  - Pulau Tuba Station: 4 x 32kW
  - Lubuk Cempedak Station: 2 x 32kW
- **1987** – Selat Bagan Nyior, an additional station (1 x 32kW)
- **1990** – 24-hour power supply for Pulau Tuba and Dayang Bunting (415V)
- **1999** – Upgrading of distribution system from 415V to 11kV using 2 mobile 500kW sets (leased) at the Lubuk Cempedak station
- **2003** – 3 x 200kW gen set put in place to replace the rented units
- **2007** – Installation of automated operating system set (200kW)
- **2010** – Additional 2 x mobile gen set (500kW) as standby

# BANDAR UTAMA

## Electricity-Efficient City

**A**t the turn of the 1990s, the only sight one would see on the 1,000-acre tract of land adjacent to Taman Tun Dr Ismail were rows after rows of oil palm trees. That view changed in the years that followed as a wave of development descended on the area. See Hoy Chan Holdings Group, an established conglomerate dealing with property development among other businesses, began to piece together an upscale township there, and thus Bandar Utama was born. As pioneers among local developers in reducing energy wastage, forward-thinking measures were applied in the design stages of the buildings and infrastructure to make their carbon footprint as small as possible. [TENAGALINK](#) talks to See Hoy Chan Holdings Group Director Tan Sri Ir Teo Chiang Kok, to learn more about the energy management systems employed at Bandar Utama.

### SYNERGISING THE SUPPLY

Consolidating utilities for easier management was also one of the goals in creating an integrated city centre, leading to Bandar Utama becoming one of the first townships in the country to have its electricity routed via a private distribution system. “The traditional distribution system where every building had to be connected individually to TNB, with its dedicated sub-station, would give rise to several redundancies,” Tan Sri Ir Teo elaborated.

He added that there are several benefits to a private distribution network, such as added stability and reliability. “We have a double-feed supply from independent main transformers for electricity security, and our connections are linked so if a break occurs along the line, the power can be rerouted to bypass it.” With no major incidents to mar its proven track record, Bandar Utama’s

distribution system has stood the test of time.

However, minor hiccups are to be expected, and dealing with TNB to resolve them has been a painless affair. “If a breakdown occurs, TNB is prompt to address the issue,” explained Tan Sri Ir Teo. He also revealed that Bandar Utama has paved the way for more distribution licences to be conferred by the Energy Commission to other townships, saying, “TNB has recommended its other large customers to take a look at our distribution network as a reference.”

### PRE-EMPTING THE PROBLEM

With several components tucked away within its boundaries, such as desirable residential units, comprehensive commercial options, primary to tertiary educational establishments and communal centres, Bandar Utama has all the ingredients of an affluent township.

“Before investing in efficient equipment, the potential savings borne from that piece of equipment is first calculated. If the extra cost of the machine can be compensated by the savings it provides within six years, it is worth procuring.”

– Tan Sri Ir Teo Chiang Kok  
Group Director, See Hoy Chan  
Holdings Group





However, running this neighbourhood is a costly matter, especially where energy consumption is concerned.

Realising that the commercial buildings like shopping malls and office towers would have large appetites for electricity, the group decided to input energy-saving initiatives during the early days of development. "The strategy to reduce the electricity consumption began in the design stage. For example, the buildings are oriented so that sunlight wouldn't fall on most of the windows, reducing the heat in the building and subsequently the need for extra air-conditioning," Tan Sri Ir Teo said.

Further measures to combat the heat were also put in place. These included the use of aerated bricks on the external wall of the buildings for better insulation, locating windowless features such as the staircases, toilets and plant rooms along the more-sunlit east and west walls, as well as installing Low-E Glass

**Above, left to right:**  
Sited in the heart of Bandar Utama, the 1 First Avenue Tower is a triumph of energy efficiency, being the first building in the country and presently the only one in the Petaling Jaya district to net the Gold Rating in the Green Building Index.

The Secret Garden, located on the rooftop of 1 Utama's new wing, presents an unexpected yet welcomed addition of nature to the mall that signifies the underlying green theme of Bandar Utama.



## ENERGY EFFICIENT HIGHLIGHTS

### HOW BANDAR UTAMA LEADS THE WAY

- 1** Using aerated bricks on the external walls of buildings for better insulation.
- 2** Locating windowless features such as staircases, toilets and plant rooms along the more-sunlit east and west walls.
- 3** Installing Low-E Glass windows, which permits light to pass through but not heat.
- 4** Replacing older less economical lighting with Light Emitting Diode (LED) bulbs
- 5** Advising over 650 shopping mall tenants to use low-consumption lamps.
- 6** Using discounted non-peak night-time electricity to cool the water in chillers, which is then used during daytime for the shopping mall's air-conditioning.

windows, which permits light to pass through but not heat. Tan Sri Ir Teo explained, "These act as a buffer to keep the sun's heat from penetrating the interior of the building."

### STRATEGIES FOR SAVINGS

"Not only do we buy electricity in bulk, we also engage in other cost-saving efforts such as rainwater harvesting, running our own sewage treatment plant and practising thermal storage for cooling in the buildings," Tan Sri Ir Teo stated, referring to the township's commercial buildings such as the 1 Utama Shopping Centre. The rainwater is used to water the landscaping, and sent to fill toilet cisterns to be used for flushing. Spent rainwater is reused after being cleaned. This alone results in a 30% reduction in the water bill.

In terms of electricity savings, frugal equipment is used in these buildings. Light Emitting Diode (LED) bulbs are now being used, replacing older less economical lighting. Variable-speed pumps and more efficient chillers for the air-conditioning are also installed. For a building like 1 Utama, which is the biggest mall in Malaysia and currently the sixth largest in the world with more than 465,000 square metres of space to light up and cool

down, the ensuing energy saving is substantial. Tenants of the over 650 shops are advised to use low-consumption lamps as to light up their premises.

Thermal storage for the chillers is another ingenious saving endeavour used at 1 Utama. Non-peak night-time electricity at a discounted rate is used to cool the water in the chillers, which is then stored for utilisation during the daytime operation of the mall. "Since there is less electricity demand at night, the use of this otherwise idle capacity is incentivised. 40% of the mall's power consumption happens during this time, which means we not only save cost, but reduce electricity demand during the day as well," Tan Sri Ir Teo revealed.

The running of the mechanical and electrical equipment within the mall is also computerised, including the water pumps, elevators, escalators and lighting, to ensure that they are run efficiently to minimise energy wastage. So impressive is the automated system that tenants can access it via a user interface and extend the air-conditioning in their retail lot past 10pm if they so require. On the human side of things, staff and tenants are encouraged to use electricity economically, with regular power audits done to ensure everything is in order.

**It is obvious from a quick tour of the township and its buildings that the people behind Bandar Utama are big on environmental conservation. In fact, not many are aware that 1 Utama boasts the Secret Garden, which is the largest rooftop garden in Southeast Asia, as well as a 'rainforest' within the mall, replete with towering Malaysian trees and aquariums stocked with local river fish. This green thinking is entwined with the energy-efficient mind-set evident throughout the suburb, helping to slash an estimated 20 to 30% off Bandar Utama's electricity bill and prompting visits from representatives of other townships, both local and foreign, to study the energy-saving strategies in use there. 🌿**



As we celebrate Malaysia's 58th year of independence, let your patriotic Merdeka lights shine with support from Tenaga Nasional Berhad's (TNB) Sinaran Merdeka Initiative

Energy consumers under categories B, C1 and C2 – which includes hotels, commercial centres and shopping malls, office buildings and petrol stations – will enjoy an attractive rate of RM0.178/kWh, applied to the average electricity used by commercial customers.



# MERDEKA

In the spirit of unity and national pride, TNB rewards its commercial customers who utilise neon, decorative and ornamental lighting effects with reduced energy rates.

**Be part of this initiative!**

Fill out a form at any TNB District Office or State Management Office or call the TNB CareLine for more information.

TENAGA NASIONAL BERHAD (200866-W)

**TNB CareLine**  
5 Ways to Contact Us

Call or SMS **15454** for power outage or TNB street light malfunction

Call or fax **1300 88 5454** for billing & account enquiries  
[www.tnb.com.my](http://www.tnb.com.my) > One Stop Engagement Centre

facebook.com/tnbcareline  
[tnbcareline@tnb.com.my](mailto:tnbcareline@tnb.com.my)



**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

# TEN FOR EXCELLENCE

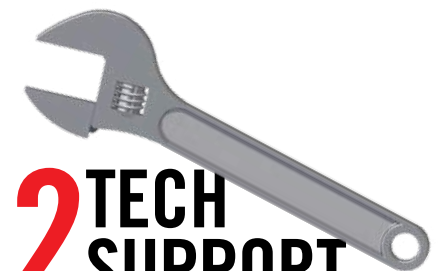
## Maintaining Customer Service Quality

**A**s Malaysia's largest energy utility company, Tenaga Nasional Berhad (TNB) does not hold back in providing world-class services to meet and exceed the expectations of its more than 8 million customers. Beginning in 1996 when it first established its TNB Call Management Centres (CMCs), to 2010 when the award-winning TNB CareLine commenced 24-hour year-round operations, Customer Service Agents (CSAs) have provided efficient and effective services. However, to guarantee and ensure continued service quality, TNB applies a number of measures to boost the performance of its CSAs.

### 1 AROUND THE CLOCK



Customers can access the TNB CareLine at any time of the day or night and be assured that there will be someone there to receive or respond to their queries. Combining flexibility with reliability, TNB CareLine CSAs maintain high quality in a number of metrics: product knowledge, volume of calls taken and customer satisfaction. In situations that require advanced knowledge or experience, CSAs can tap Customer Service Officers (CSOs) for assistance. In addition, CSAs are allowed to take breaks for up to 90 minutes per shift to prevent physical and emotional exhaustion, which could lead to reduction in customer satisfaction, service levels and overall profitability.



### 2 TECH SUPPORT

Providing this level of world-class service means using the latest computer-telephony integration technology and equipment, with each CSA in the open workspace occupying a station that comprises a computer, telephone and headset connected to a telecom switch, and supervisor's monitoring stations.





## 3 WE SMILE

The psychological effect of smiling is that it automatically makes one feel good and it can be infectious. In addition, smiling raises the soft palate at the back of the mouth, making the voice sound more fluid, friendly, warm and receptive. Adopting this fact, TNB CareLine provides and encourages employees to have a mirror next to their phones, so they can smile as they answer their phones and allow the infectious and warm smile to transmit positive energy to the customers.



## 4 THE CARE IN CARELINE

One of the measures that guarantees TNB CareLine's excellent service is having CSAs that actually care about the customers. Professional and courteous, with excellent communication and interpersonal skills, combined with expertise in problem solving, CSAs are customers' solution, just a call away.

## 5 PRODUCT PROFICIENCY

As the front line in dealing with customers, CSAs have to understand the brand, products and services completely, as a way to boost quality and increase the confidence of customers. To enhance this knowledge, TNB CareLine provides regular in-house training sessions and courses for employees and new staff to equip them with in-depth knowledge on TNB's products and services, as well as state-of-the-art systems adopted by the centres. Training sessions and courses include knowledge about products such as Account Closing, Bill Calculation, Goods and Services Tax, and Meter Replacements.



## 6 MORALE AND MOTIVATION

Through awards and recognition, TNB CareLine aims to provide a memorable and meaningful experience for the recipient, while helping to attract, develop, empower and retain highly-skilled individuals. TNB CareLine recognitions include Best Personality Award, Zero MC Achievers, Customer Recognition Award, Top Performance 80/20 Occupational English for Customer Service Personnel Awards, and Best QM Performance Awards. Employees are also motivated through Awards Points system where employees earn points for excellent service to customers, which can be redeemed for items from a massive catalogue of AEON products.

### Corporate Recognition

**Best Emerging Contact Centre (GLC) 2007**

**Best Video For Contact Centre 2010**

**Best CRM Implementation 2011**

**Contact Centre Association of Malaysia Awards 2011**

Gold Award CRM Implementation in Contact Centre Silver Award Technology Innovation

**Best Customer Experience Delivered – Silver Award 2014**

**Best Contact Centre – Utilities (2nd runner up) 2014**

**15th National Customer Experience Industry Award 2014**  
3rd Place

**CCAS (Contact Centre Association of Singapore) 14th Contact Centre Awards 2014**

Best Customer Experience Delivered

*\*Organized by Contact Centre Association of Malaysia (CCAM)*



*TNB CareLine Senior Manager, Juhaida Tajuddin holds the CCAS 14th International Centre in late 2014*



“TNB values feedback from customers and we are going towards customer experience management. Every day at TNB CareLine, we find ways to continue delivering convenience and we are expanding our service to online services.”

– Ir. S. Parameswaran  
Assistant General Manager  
(Customer Relations)  
Customer Service



## 7 HAPPY PEOPLE

Every three months, TNB CareLine hosts a fun celebration for staff birthdays, marriages and new baby arrivals get-togethers as a token of appreciation. TNB CareLine understands that one of the best methods of encouraging people to contribute their best is to provide them an environment where they can be comfortable, and their innovativeness and creativeness can blossom. Employees also engage in exercises and activities in team building to enhance and strengthen work relationships and performance.

*Knowledge transfer and information sharing through visits upon request from interested parties are common norm at TNB CareLine.*



## 8 BEST OF THE BEST



In addition to training new and current employees, coaches are also retrained periodically. New employees are coached for 6 weeks: 65% of that time is spent in a classroom environment and 35% taking calls with guidance from dedicated supervisors. All staff are also encouraged to regularly revisit the training sessions because they are accountable for their personal service standard and the best performers get rewarded.



## 9 CUSTOMER COMMITMENT

TNB CareLine's pledge is a promise to always put 100% and above to customer satisfaction. This commitment is driven through an employee-created 13-point shared system – six Customer-Facing (External) Behaviours, six Cross-Function (Internal) Behaviours and a Culture Framework – that highlights and is endorsed by TNB CareLine's mission and values.

## 10 STRONG TOGETHER

Further emphasising the spirit of 'one team one goal', the TNB CareLine staff spend time together during festivities, such as Jamuan Hari Raya, Bacaan Tahlil, Yassin and Berbuka Puasa.



# TOP FIVE FACTS @ TNB CARELINE

As the frontline and ambassadors of Tenaga Nasional Berhad (TNB), the CareLine, which consists of Call Management Centre (CMC) and One Stop Engagement Centre (OSEC), operates between 7AM and 11PM, and ensures that all information it disseminates to customers is accurate and up-to-date. This includes details about TNB promotions and facilities, such as e-Services and e-Applications, payment channels, energy efficiency, my-TNB, Self-Meter Reading (SMR), Close of Account Online (COA), and coming soon, new supply application and change of tenancy.

The TNB CareLine is also the primary mediator between customer and the Pengurus Kawasan offices – particularly on issues related to disconnection and reconnection, where all effort is made to take effect of reconnection on the same day that an outstanding bill is paid. In addition, with the recent implementation of the Personal Data Protection Act (PDPA) legislation, the CareLine also has to arbitrate conflicts between tenants and property owners.

## TOP TOPICS AND COMPLAINTS

Here are some of major statistics at the TNB Call Management Centre (CMC) and One Stop Engagement Centre (OSEC) for June and July 2015

### Top 3 Complaints Received at CMC – July 2015

- No electricity supply: **108,824** calls (56%)
- TNB Street Lighting: **23,258** calls (12.2%)
- Earth Leakage Circuit Breaker (ELCB)/ Internal Fault: **15,661** calls (8.2%)



### Top 3 Enquiries Received at OSEC – July 2015

- Electricity Bill: **37,912** calls (63.23%)
- Customer Account: **7,801** calls (13.01%)
- Disconnection and reconnection: **5,781** calls (9.64%)



### Top 3 Complaints Received at OSEC – July 2015

- Street Lighting: **144** calls (15.53%)
- Technical Services: **108** calls (11.65%)
- Bills not received: **89** calls (9.6%)



## LONGEST RECORDED CONVERSATION BETWEEN A CUSTOMER AND TNB CARELINE STAFF

Lasting almost one hour, the longest conversation centred on a service fault (tripping), the recently implemented Goods and Services Tax (GST) and the Imbalance Cost Pass Through (ICPT) mechanism. The customer insisted on a manual calculation of the fees from both taxes, and a CMC staff happily obliged to do so to ensure that the customer was satisfied.



## OFF-PEAK DAYS – LOWEST NUMBER OF CALLS

The days with the lowest numbers of calls received by OSEC are Saturdays and Sundays, with an average of **580** calls per day.




## DAILY AVERAGE NUMBER OF CALLS RECEIVED

Average number of calls per day at OSEC is **2,565** and **6,205** for CMC.



## PEAK AND OFF-PEAK CALL-IN TIME

At OSEC, peak time is between 9AM to 7PM on Monday to Friday, while off-peak is from 7PM to 11PM. At the CMC however, the number of calls are unpredictable and depends on the numbers of service faults and breakdowns.

The result of this commitment can be seen in last year's Customer Satisfaction Index of 7.6, an increase of 12% over the 6.8 in 2006. While the ten methods highlighted are just some of the measures that TNB CareLine implements to ensure quality, these have shown results and are expected to continue to enhance the level of service provided to customers. 

# myTNB 3.0

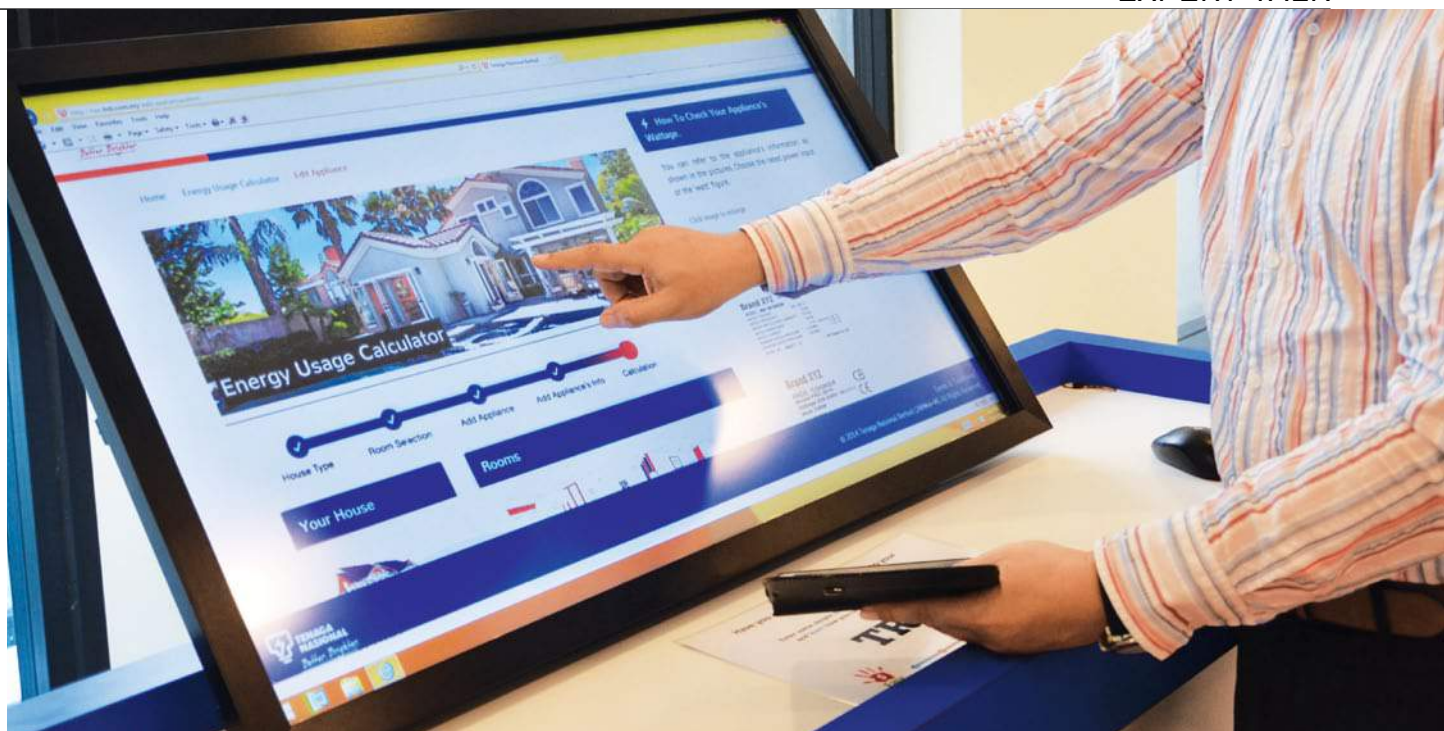
## A Brighter Idea in Your Hands

**I**n this day and age, where internet connectivity and mobile device ownership are becoming increasingly ubiquitous, one can accomplish almost anything with a few taps on a smartphone or tablet. Application markets are filled with a myriad of tools, software or programs that are available for download and use. With this in mind, Tenaga Nasional Berhad (TNB) launched the TNB mobile application myTNB mobile app, which is specifically designed to give its customers a mobile solution to manage their account.



*TNB's Manager for Service Innovations Andrie Mustafa stands behind myTNB 3.0, which is a vast improvement over its predecessors, offering added features and a more attractive layout.*





*Thanks to the myTNB app, users can access the TNB portal (pictured) while on the move.*

## THE EARLY DAYS

The myTNB app can trace its roots back to 2012, when TNB first mooted the idea for a mobile application. With some input from information and communication technology (ICT) experts from Germany, the company set to task designing and testing its mobile application. At the end of that year, its efforts bore fruit when the beta version of myTNB was launched, making TNB the first utility company in Asia to introduce its own free mobile application.

As with the beta version of any application, the myTNB app needed some polishing before it was unveiled to the public. Therefore, it was rolled out to over 400 staff members, who served as testers to weed out bugs in the system. These were simply teething problems commonly found in the running codes of freshly-created software such as a missing link.

This app also underwent subsequent tests and dry runs to ascertain its usability and reliability. These included User Acceptance Testing, where the software was tested by users to ensure that it could perform in real-world scenarios, as well as being put through its paces by IT experts. Google's Android and Apple's iOS were chosen as the platforms on which the app will run on, as focus groups at TNB's university UNITEN revealed that they were by far the two most popular operating systems.

In August 2013, the app was finally made available to TNB's customers via download from the Google Play

Store and Apple App Store. Upon logging in, users were able to utilise various functions of the application, such as checking their billing information, contacting TNB CareLine for assistance, notice of shutdown (power alert) and locating the nearest Kedai Tenaga.

## SLIGHT TWEAKS

While version 1.0 of the app was being downloaded into Apple and Android devices, the team behind it was busy looking at areas for improvement in order to create a better, more refined version 2.0. These included ensuring the visual consistency is preserved throughout the app, incorporating the use of the back button on Android devices, adding a single sign-in for all TNB online services, and using more attractive pictures and colours.

Aside from concentrating on these issues, new features include news announcements, checking supply application status, appliance calculator, renewable energy account and notice of shutdown, as well as Mybills which allows the registration of up to 20 accounts to facilitate in the monitoring of electricity usage of family members.

## ENTER VERSION 3.0

With an eye-catching, vibrant new layout, the latest form of the app – myTNB 3.0 – is leaps and bounds ahead of its predecessors. The home screen is a captivating collection of colourful tiles. However, this new version

## myTNB's Interface Evolution



"We wanted something mobile so that TNB will always be there by our customers' side. Thus, myTNB was born and it has improved a lot, in terms of its look and feel, font size, log-in method and payment gateway, compared with its early days. Moving forward, TNB is going towards a home energy management tracking approach. This means that through the myTNB application, your mobile phone can act as your energy remote control."

– Siti Sarah Johana Mohd. Said  
Assistant General Manager,  
(Service Development & Marketing)  
Customer Service



does not just have a pretty face as it showcases a raft of refinements over version 2.0, such as the improved Mybills function, which enables users to monitor tenants' electricity payments. Meanwhile, tenants can also view bills to track payments made by the homeowners, to ensure transparency.

In addition, users can also download and save their bills, which has a history cache of six months. Payment details are updated every half an hour instead of 24 hours with the previous version. Another handy attribute of the new Mybills is that it notifies users when their bills are ready for viewing or due for payment. To make things easier for users, myTNB 3.0 comes with a payment gateway that can be logged into automatically.

Enhancing ease and convenience is one of the hallmarks of myTNB 3.0. For example, the Kedai Tenaga Locator feature has been upgraded so that

**Power Alerts**

Kuala Lumpur Barat

Tarikh: 05/02/2015

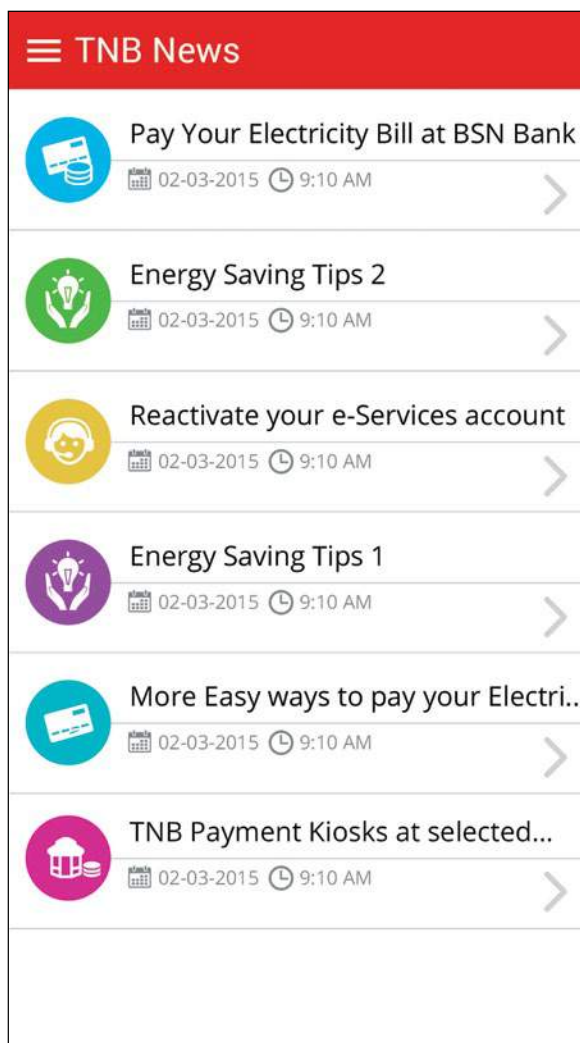
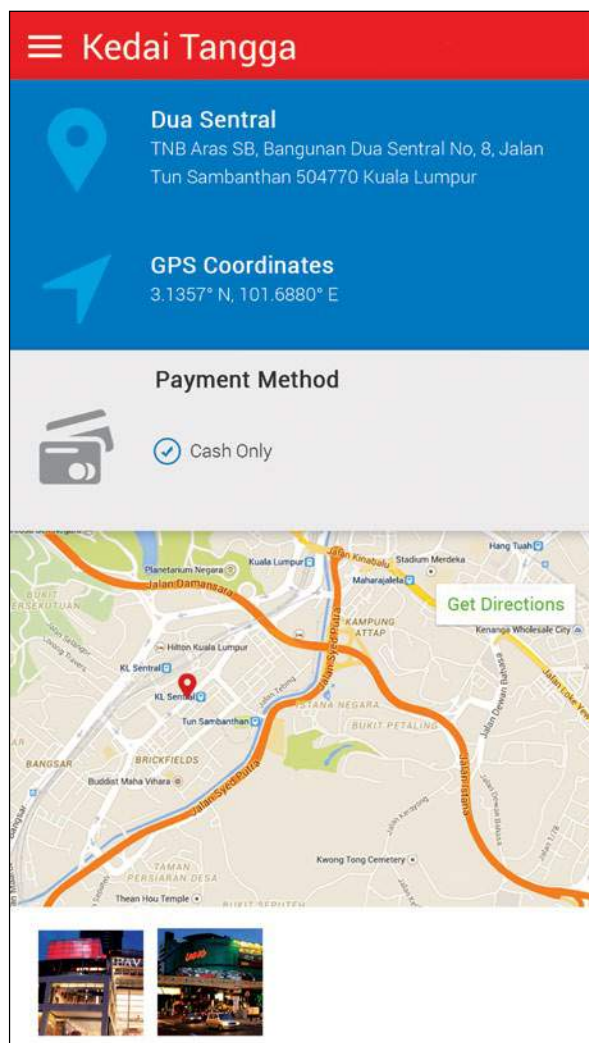
**Affected Area (Person In-Charge)**

**15** 10:00 PM 8 Hours Hamid 1256-2359-15  
P/E KINTEX JLN TSGO 2 P?E Binariang kepong JLN Tago 1 P/E JLN Tago 5 SRI Damansara

**16** 10:00 PM 8 Hours Hamid 1256-2359-15  
P/E KINTEX JLN TSGO 2 P?E Binariang kepong JLN Tago 1 P/E JLN Tago 5 SRI Damansara

**18** 10:00 PM 8 Hours Hamid 1256-2359-15  
P/E KINTEX JLN TSGO 2 P?E Binariang kepong JLN Tago 1 P/E JLN Tago 5 SRI Damansara





*Left: From power disruption alerts to TNB news, the myTNB app gives you access to a myriad of information.*

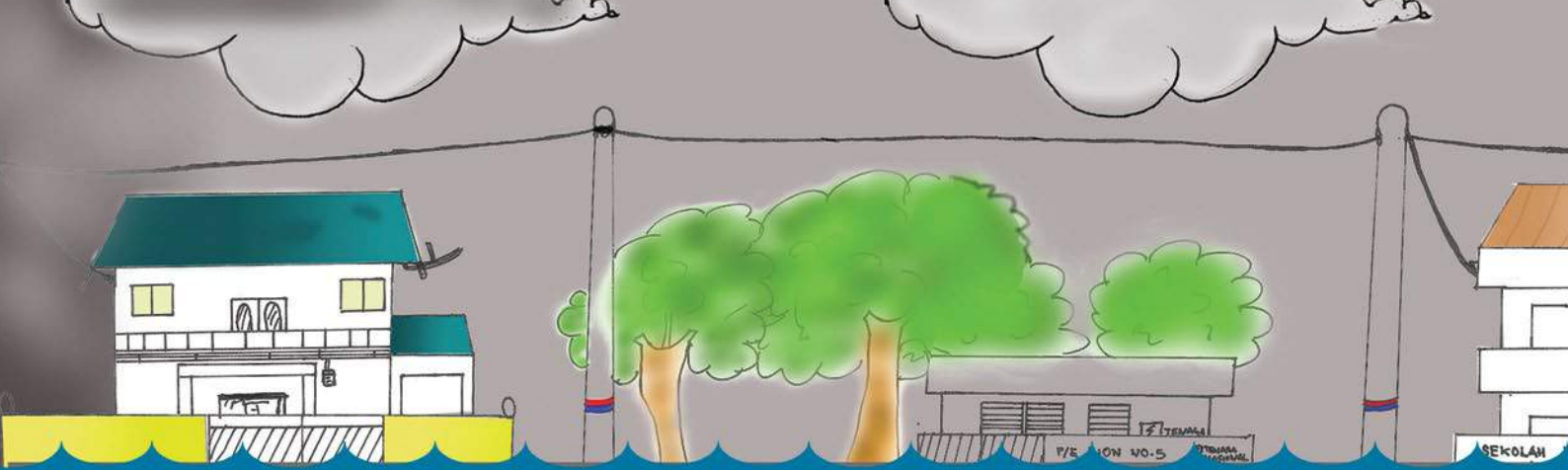
it detects the nearest Kedai Tenaga to the user's present location, and the directions there are uploaded on Waze and Google Maps.

Another feature is the improved Appliance Calculator which enables users to better manage their electricity usage and therefore cut down on their power bills. They can do this by calculating which appliance uses the most energy, work-out their average bill costs, and even check whether a new appliance will help them save electricity.

Power Alert is a useful tool which enables users to check whether there is a scheduled shutdown of supply during important personal or corporate events. That way, the organisers can be better prepared for service interruption and can also speak with the TNB liaison officer (whose name and number is listed) to work out a possible compromise.

Also, in keeping with the company's green endeavours, the Renewable Energy Payment Advice allows renewable energy (RE) customers – those generating electricity using renewable sources such as solar power, which they then sell back to the grid – to view their returns.

**True to its tagline 'A Bright Idea in your Hands', the myTNB app is an immensely functional tool to have at your fingertips, thanks to its collection of handy features that are bettered with every new update. With the practicality of TNB's online services and the convenience of mobility contained within this application, the myTNB team is proud that it has found homes in over 35,000 devices, and counting.** 



# BE SAFE

Prolonged heavy rainfall may cause flood in your area.



## WATCH OUT FOR WATER

Avoid walking across flowing streams or drive through flooded roadways. Moving water just 6 inches deep can knock a person off his feet and water at 2 feet high can sweep vehicles off the road.



## TURN OFF POWER

Switch off all utilities at the main power socket and close the main gas valve. Disconnect your electrical appliances and devices from all power plugs.



## MOVE TO HIGHER GROUND

Be prepared to go to a safer and higher ground. Be aware of streams, drainage channels and areas prone to flooding. Identify evacuation centres near you and the accessible routes going there.



## LISTEN FOR UPDATE

Listen to the radio or TV for important announcements and follow instructions from local authorities. Avoid contact with flood water, which may contain oil, gasoline, raw sewage or undesirable materials.



# TNB STATE OFFICES



## Wilayah Persekutuan

### Kuala Lumpur

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Aras 11, Wisma TNB  
Peti Surat 11050  
50990 Kuala Lumpur  
Tel : 03 – 6250 6030  
Fax : 03 – 6250 6500

## Selangor Darul Ehsan

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Wisma TNB Subang Jaya  
Jln USJ 10/1A, USJ 10  
47620 Subang Jaya  
Tel : 03 – 8022 9400  
Fax : 03 – 8022 9554

## Johor Darul Takzim

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Aras 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 – 774 5600  
Fax : 04 – 732 4185

## Melaka

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

## Wilayah Persekutuan Putrajaya/Cyberjaya

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Blok 4802-0-7, Jalan Perdana  
CBD Perdana, 63000 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 – 747 3611

## Pulau Pinang

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Aras 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  
Wisma TNB, 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

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Aras 2, Wisma TNB  
Jalan Lahat, 30200 Ipoh  
Tel : 05 – 208 8000  
Fax : 05 – 254 5199

## Negeri Sembilan Darul Khusus

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Aras 5, Wisma TNB  
Jalan Dato Bandar Tunggal  
70990 Seremban  
Tel : 06 – 768 3400  
Fax : 06 – 764 4271

## Terengganu Darul Iman

Pengurus Besar Negeri  
Bahagian Pembahagian  
Tenaga Nasional Berhad  
Jln Cherong Lanjut  
20673 Kuala Terengganu  
Tel : 09 – 622 3022  
Fax : 09 – 624 3896

# What makes your world better?

For some, it's the thrill of bringing dreams to life  
For some, it's the wonder of discovering new things  
For some, it's the warmth of a helping hand when in need  
While others just want to be loved

We all seek different things  
But as priorities change with time  
It's nice to know that one thing remains  
And that's our promise:  
To always keep the light on  
To keep the energy flowing  
To make it all happen

For you  
For the planet  
For our tomorrow

To make everyone's search for better  
A much brighter one

*Better. Brighter.*



Watch the *Better. Brighter.* film on [youtube.com/TENAGAofficial](https://youtube.com/TENAGAofficial)

TENAGA NASIONAL BERHAD (200866-W)

*Better. Brighter.*

