

SINGLE BUYER

WATT UP ("what's up") ELECTRIFYING THE FUTURE

REMARKS FROM

CEO

SINGLE BUYER

I believe it is not too late to wish everyone Selamat Hari Raya! This year is the second time SB organised our Hari Raya event, and I would like to convey my utmost appreciation to SB's event management team as well as guests who have joined our humble celebration.

SB is glad to welcome our first two participants into NEDA – NUR Power Sdn. Bhd. which entered the market on 18 March 2019, and Petronas Chemical Fertilizer Kedah which commenced trading on 15 June 2019. SB is now actively working to facilitate the entrance of Large Scale Solar participants into NEDA. We hope that this new initiative, along with several amendments being made to the NEDA rules will pave the way to many more new entrants in the near future.

SB has recently completed its first Strategic Information Technology (IT) Roadmap study. This study aims to identify the IT infrastructure and resources required for SB to execute its functions effectively and to prepare ourselves with upcoming NEDA enhancements as well as future reform directives. Various IT initiatives are now in the pipeline to further enhance SB's role as a market operator that utilises international best practices.

SB continues to reinforce its ring-fencing through the completion of the IT Infrastructure Ring-fencing Project in May 2019. This project involves the separation of SB's active directory, email and file server from TNB's IT infrastructure. With this new infrastructure design, SB now has its own independent network to host all SB systems, with TNB ICT acting as the technical support service provider through a Service Level Agreement.

Several workshops and stakeholder engagement sessions are being planned by SB for the second half of this year. We look forward to your active participation and fruitful discussion in the upcoming events.✿

Charanjit Singh Gill

Chief Executive Officer

Single Buyer

WATT'S INSIDE:

- 02:** NEDA Viability Study — 2nd Series
- 03:** NEDA News — Price Takers Participants
- 04:** ICPT Calculation & SB IT Ring-Fencing Project
- 05:** Generators Payment Structure
- 06:** Battery Energy Storage System
- 08:** Watt's Happening
- 10:** SB Strategic IT Roadmap

- 11:** Building SB's Credibility Through Paper Presentations
- 12:** SB Raya 2019
- 13:** Did You Know? — Symbolism of Ketupat
- 14:** Meet the People Behind SB — Nor Suraiya
- 15:** Historical Gas Prices 2014 to 2019
- 16:** RP1 & RP2 Base Generation Cost Forecast

NEDA

VIABILITY STUDY

In this second series of articles on the NEDA Viability Study, we discuss the feedback from potential participants, particularly their concerns and suggestions to make NEDA more attractive



To further improve NEDA participation, the study conducted an industry consultation with potential NEDA participants to obtain their perspective on the current provisions of NEDA and suggestions to improve its attractiveness.

PPA/SLA Generators

- ◆ Teknologi Tenaga Perlis Consortium
- ◆ Edra Power Holdings
- ◆ TNB Generation
- ◆ TNB Pasir Gudang Energy
- ◆ TNB Connaught Bridge
- ◆ TNB Prai
- ◆ Malakoff Corporation



Price Takers

- ◆ Nur Power Sdn Bhd
- ◆ Federation of Malaysian Manufacturers



Large Scale Solar (LSS)

- ◆ TNB LSS
- ◆ Solarpack Malaysia Sdn Bhd



Concerns Highlighted by Potential Participants

Uncertainty in revenue under NEDA makes less commercial sense for generators to participate

Limited generators' margins due to bidding being capped at PPA heat rate



Limited market information on Merit Order standings, plant outages, market trends/insights

Concerns over Clean Air Regulation (CAR), which would result in huge expenses to ensure compliance (especially for older plants)

Suggestions from Potential Participants to make NEDA attractive

- ◆ Mechanism for Fixed (Capacity) Payment
- ◆ Flexibility for PPA generators to bid above PPA heat rates
- ◆ Mechanism to guarantee / accurately project the dispatch and thereby making cash flows more predictable
- ◆ Carving out a certain percentage of total energy demand which would necessarily have to be met through NEDA

NEDA

ENGAGEMENT ACTIVITIES

01 WAY FORWARD FOR NEDA BASED ON OUTCOME OF NEDA VIABILITY STUDY

March-May 2019, Bangsar | Several discussions were held with key players to update them on the way forward based on recommendations from the NEDA Viability Study completed in early 2019. Discussions were held with Edra Power on 29 March 2019, TNB Energy Ventures on 7 May 2019 and TNB Generation on 17 May 2019.



02 MEETING WITH ERS ENERGY & HANWHA ENERGY CORPORATION

14 May 2019, Bangsar | SB conducted a briefing session on NEDA to representatives from ERS Energy and Hanwha Energy. ERS Energy is a local solar energy company, which provides solar power design and installation services. The company formed a consortium with Hanwha Energy, a Korean solar company and won the bidding during the LSS2 exercise in 2018. The consortium is currently developing a 30MW LSS plant in Bukit Keteri, Perlis.

The same consortium will be participating in the on-going LSS3 bidding exercise and is looking for opportunities to sell excess solar energy through NEDA.



NEWS & HIGHLIGHTS

SB is pleased to announce that two Price Takers have been officially registered as NEDA participants. SB looks forward to more interests and support from the industry players.



NUR Power Sdn. Bhd. (NUR) is the first Price Taker to operate under NEDA.

NUR is a Small Franchise Utility connected to the 132kV transmission network.

NUR has commenced trading since 18 March 2019 with a registered Export Capacity of 29.9MW.



Petronas Chemical Fertiliser Kedah (PCFK) is the second Price Taker accepted to trade under NEDA after NUR Power Sdn Bhd.

PCFK's cogeneration plant is registered to produce 8MW of Export Capacity under NEDA. The facility is connected to the 132 kV transmission network.

PCFK has commenced trading as a Price Taker under NEDA beginning 15 June 2019.

INDUSTRY REGULATORY FRAMEWORK

1 How is the ICPT amount calculated?

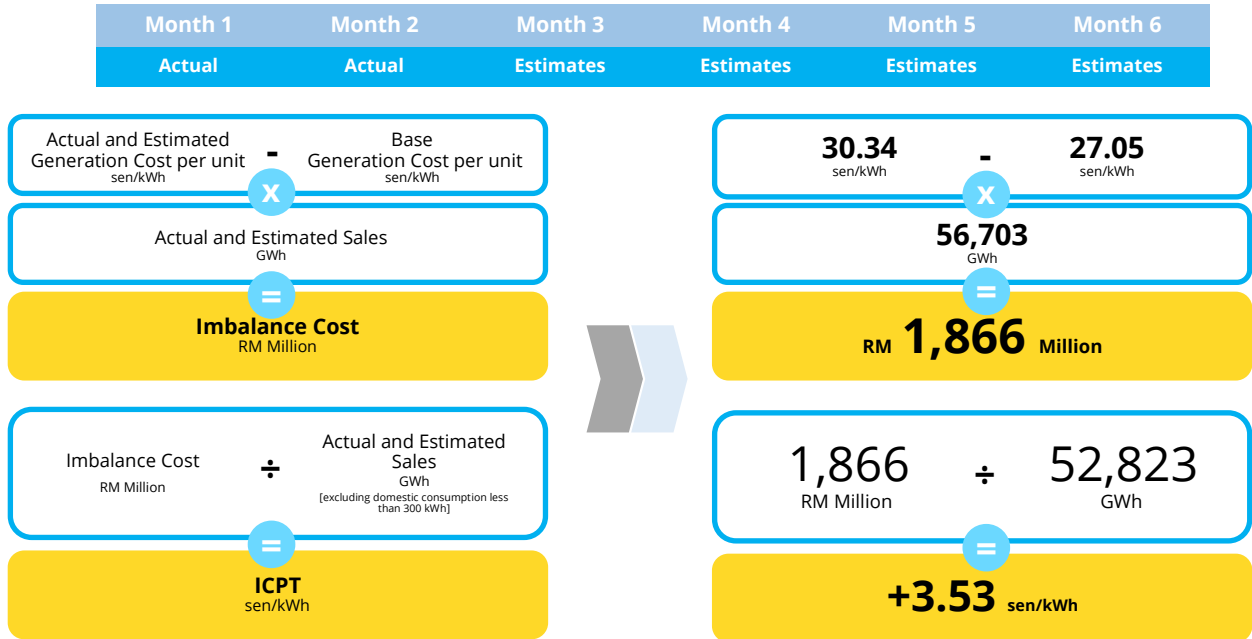
ICPT amount is calculated by comparing the **generation costs** (including fuel prices) between **actual** and **reference Generation Tariff** set in the Base Tariff on a **6-monthly** basis.

2 Which consumers are affected by ICPT?

ICPT is applicable to all TNB consumers **except Domestic consumers** with **monthly** consumption of **300kWh (RM77.00)** and below.

As a continuation from the last issue, let's look at how the 6-monthly Imbalance Cost Pass Through (ICPT) is calculated

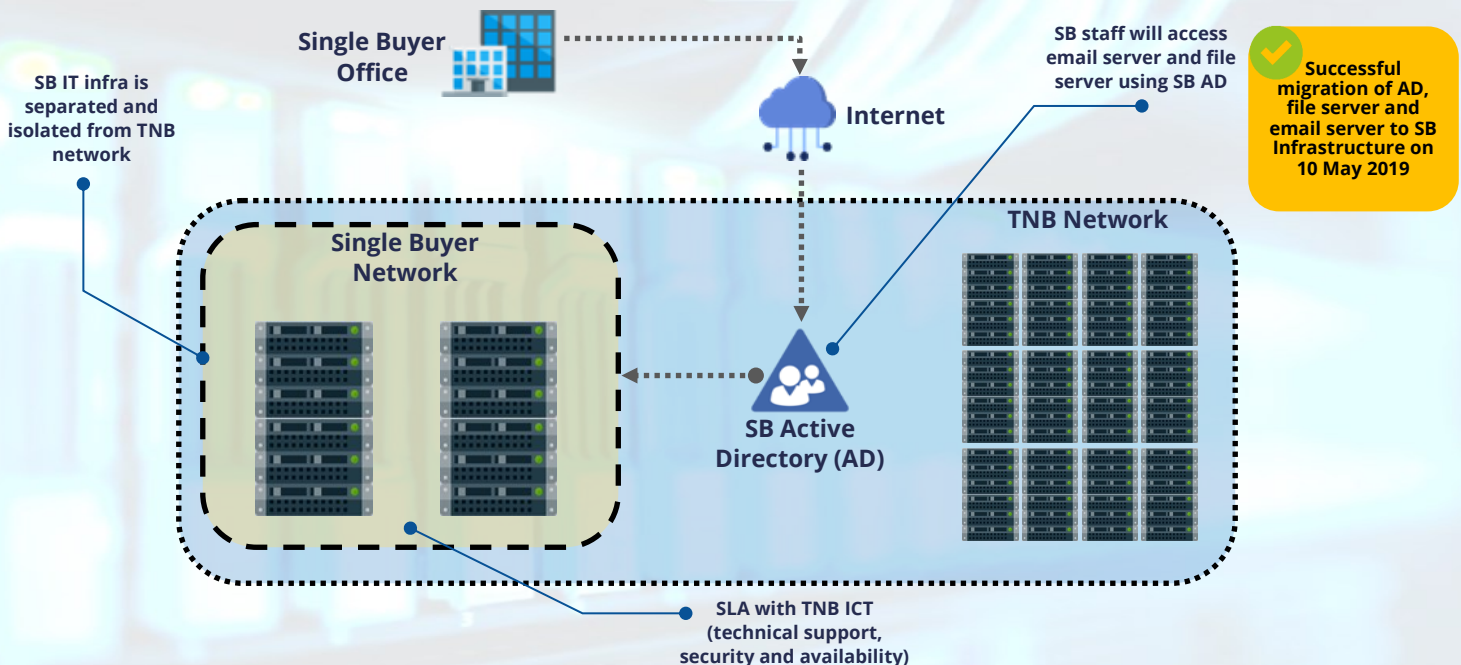
Actual Generation Cost in every 6-month period is represented by:



Notes:
1. Figures shown are for illustrative purposes only.
2. Conversion between units (e.g. sen to RM, kWh to GWh, etc.) are not explicitly shown in the illustration above.

SINGLE BUYER RING-FENCING

SB IT Infrastructure Ring-Fencing Project



GENERATORS

PAYMENT STRUCTURE

- For generators bound by the PPAs and SLAs, TNB shall pay in full all related payments to the Generators within 30 days of receipt of invoice.
- Payments to/from generators can generally be classified into 3 categories: Capacity Payment, Energy Payment and Others.

CAPACITY PAYMENT

01

1. **Fixed payment** made to generators to meet their:
 - Debt service obligations



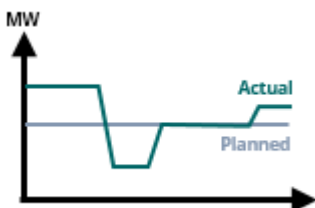
- Shareholders' returns



- Fixed operating costs



2. **Subject to plants' actual availability**



ENERGY PAYMENT

02

1. Payment made for the **energy generated and delivered:**
 - a) **Energy payment for gas and coal plants**



- Fuel payment
- Variable Operating Rate (VOR) payment

- b) **Energy payment for hydro and solar plants**



- Energy rate
- Energy generated

OTHERS

03

Payment made to generators:

1. **Start-up payment**

- Applies to start-ups that are above the predetermined number as stated in the PPA



2. **Interconnection**

- Applies to neighbouring utilities: EGAT¹ and EDL²



3. **Renewable energy at Distribution**

- Applies to the generation connected at Distribution

.....
Payment received from generators:

4. **Import energy**

- Imposed to generators for electricity imported from the Grid System

5. **Liquidated Damages**

- Imposed to generators as a fair compensation for the losses that may reasonably be anticipated due to non-compliance

Note:

1. Electricity Generating Authority of Thailand
2. Electricite Du Laos

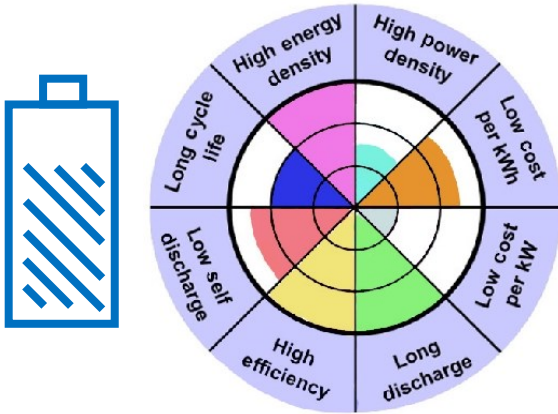
BATTERY ENERGY STORAGE SYSTEM

Battery Energy Storage System (BESS) is one of the energy storage technologies that stores energy via the use of battery. The stored energy is to be used at a later time or when required, particularly in view that some RE technologies – such as wind and solar – have variable outputs. BESS plays an important role in balancing the supply and demand and helps to create a more flexible and reliable grid system.



Battery application can be categorised into two:

Energy-centric



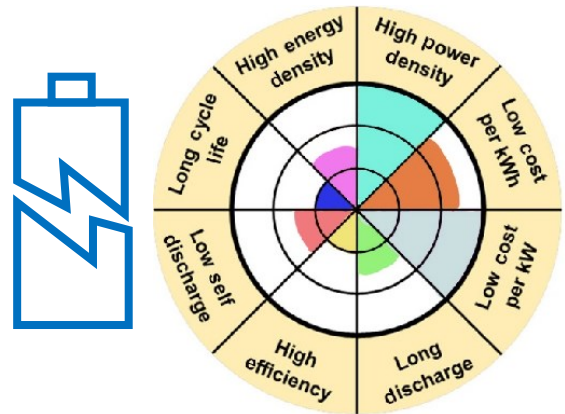
Key features:

- High **energy**
- Charge/discharge in **minutes to hours**
- **Long life cycles** due to infrequent charge/discharge

Key functions:

- **Load shifting**
- **Peak shaving**
- **Management of solar 'duck' curve**

Power-centric



Key features:

- High **power**
- Charge/discharge in **seconds to minutes**
- **Short life cycles** due to frequent charge/discharge

Key functions:

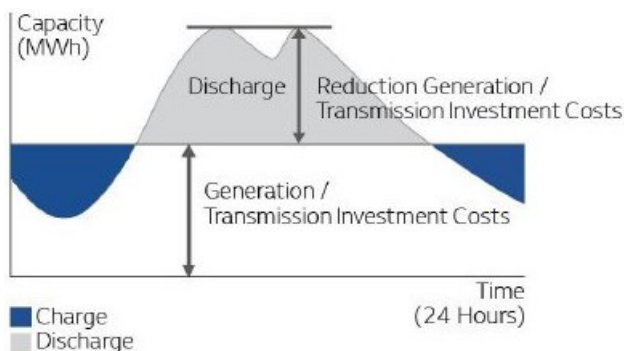
- **Power smoothing**
- Maintain **power quality**
- Improve **grid resilience**

Key functions of energy-centric batteries

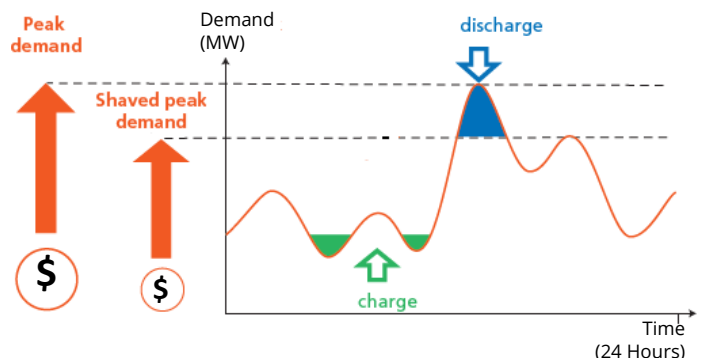


Load shifting refers to a short time reduction in electricity consumption followed by an increase in production at a later time when power prices or grid demand is lower. Large power consumers can:

- **Charge during off-peak time**
- **Discharge during peak time**



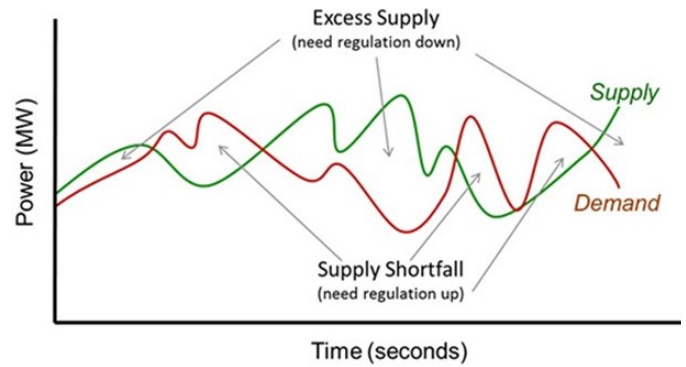
With **peak shaving**, large power consumers can reduce consumption for a short period of time to avoid spikes in demand, thus allowing to optimise operating costs.



Key functions of power-centric batteries



Intermittency of RE sources will affect the quality of supply locally. **Power-centric** battery can be integrated to stabilise RE intermittency, regulate the power levels and smoothen the fluctuations. When more intermittent RE penetrates the grid system, a balance between generation and demand is required to maintain nominal frequency.



Life span of a battery



The battery usage is limited by its charge and discharge cycles. A charge and discharge cycle is the process of charging a rechargeable battery and discharging it as required into a load. For example, a lithium ion battery can only be used up to 6000 cycles. As an illustration:

Size of battery = 10 MW/10 MWh (i.e. charge/discharge rate of 10 MW in 1 hour)

Battery life cycle = 6000

Daily usage = 2 cycles

Yearly usage = 2 cycles × 365 days = 730 cycles

Therefore, if a battery is being used for **two cycles per day**, the battery can only last up to about **8 years**. 💰

References:

1. "Energy Storage Technologies for High-Power Applications", Mustafa Farhadi, Student Member, IEEE, and Osama Mohammed, Fellow, IEEE
2. "Energy Storage Technologies for Grid-Connected and Off-Grid Power System Applications", Faruk A. Bhuiyan, Member, IEEE, and Amiraser Yazdani, Senior Member, IEEE
3. <https://www.edf-re.de/en/faq-energy-storage-solution/>
4. <http://energystorage.org/energy-storage/energy-storage-benefits/benefit-categories/grid-operations-benefits>

BATTERY

STORAGE

=

OPTIMISE COST

+

PROMOTE RE

**BATTERY
STORAGE**

+



FLEXIBLE & RELIABLE SUPPLY



OSSC Training & Update 2.0 at JEV

Lukut, Negeri Sembilan



16-17 April 2019 A session was held with Jimah Energy Ventures Sdn. Bhd. (JEV) staff to explain on new enhancements made to the OSSC settlement platform particularly the operation and commercial data modules. JEV also shared their suggestions and opinions to further improve OSSC. The training was attended by representatives from JEV, SB, GSO, and Chronos. The program ended with a tour of the JEV power plant.



Get well soon Dinesh!

Pantai Hospital, KL



25 April 2019 Dinesh Shankar, an executive in Contract Performance unit of SB, had an unfortunate road accident on 14 April 2019. To ease his burden, a contribution was made through an internal collection amongst SB staff. Dinesh is recovering at home and is expected to return to the office soon. Speedy recovery Dinesh!



Educational visit from UNISEL

Bangsar South, KL



2 May 2019 SB welcomed 15 electrical engineering students and lecturers from Universiti Selangor (UNISEL) for a knowledge-sharing session at SB office. The visitors were given presentations on long term load forecasting, generation capacity planning, and least cost scheduling by SB. Similar sessions with local academic institutions are held from time to time as an initiative to share industry knowledge with academia.



Industry to Class Programme

UiTM, Shah Alam



15 May 2019 SB continues to participate in the UiTM Shah Alam "Industry to Class" programme with the latest session held in May. About 90 students from the Power System II class attended the talk on short term scheduling. At the end of the session, the students participated in a quiz where the top 3 scorers were awarded with some candies and snacks. SB has been part of this programme to share knowledge on the electricity industry since 2015.



Tabung Aman Palestin

Bangsar South, KL



23 May 2019 In conjunction with the holy month of Ramadhan, a collection for "Tabung Aman Palestin" was handed to the relevant authority from Masjid Wilayah. The collection will be channeled to the relief funds managed by the NGO to help people of Palestine, Syria, and Lebanon.



ISMS Cyber Security for Operational Technology Training

Bangsar, KL



26-27 June 2019 SB will be embarking on a project to develop the Single Buyer Cyber Security Framework. This project is one of the key initiatives that was identified in the recent Single Buyer Strategic IT Roadmap. To kick start this project, a 2-day course was organised to provide an introduction to cyber security and to create cyber security awareness at the management level.



37th Senior Officials Meeting on Energy (SOME)

Bangkok, Thailand



24-28 June 2019 Dr Nor Azlan of SB was one of the Malaysian delegates who participated in the recent 37th SOME in Bangkok. The theme this year is "Advancing Energy Transition Through Partnership and Innovation". The event was attended by 10 ASEAN countries as well as international energy agencies to discuss energy policies at the regional level. Issues that were discussed at the meeting will be tabled during the next ASEAN Ministers on Energy Meeting (AMEM).



Monthly Birthday Celebrations

Bangsar South, KL



April-June 2019 SB recently started a new tradition to have a monthly birthday celebration for its fellow SB members. This initiative was mooted as a token of appreciation for each staff as well as to foster camaraderie amidst everyone's busy schedule.

SB STRATEGIC IT ROADMAP

Between October 2018 and March 2019, SB embarked on a project to develop Single Buyer's First Strategic Information Technology (IT) Roadmap with the assistance of PSC Consulting. A one-day workshop was held on 6 March 2019, to conclude and present the findings of the project.



PROJECT OBJECTIVES

- To conduct a detailed assessment of SB's existing IT system and infrastructure, and benchmark against best practices
- To develop a detailed 5-year Strategic IT Roadmap (from 2019-2023) and a high-level roadmap (from 2024-2028)
- To identify the IT infrastructure, resources and budgetary requirements for SB to execute its functions effectively, and fulfil its current and future operational and regulatory requirements

The IT roadmap project follows a three-phase methodology and involved interviews, consultation and syndication across SB units, TNB ICT and GSO.

In the **first phase** of the project, based upon SB's existing Strategic Objectives, SB's Technology Principles were established.

In the **second phase**, an assessment on SB's existing IT infrastructure and processes were conducted to identify gaps and benchmark SB against best practices. From this exercise, the IT Risk Register and the Technology Map for SB were then developed.

Based on the gaps identified and SB's future operational requirements, in the **third phase**, various roadmap initiatives were identified according to seven main categories. These initiatives are now being planned for implementation to enhance SB's role as a reputable market operator.



BUILDING SINGLE BUYER'S CREDIBILITY THROUGH PAPER PRESENTATIONS

1 2019 IERE - PLN BALI WORKSHOP



11-14 March 2019—Ir. Mohamad Hakim Zainuddin of SB presented a paper entitled *"Pumped Storage Hydro Plant: Battery of the Grid"* at a workshop co-organised by the International Electric Research Exchange (IERE) and Perusahaan Listrik Negara (PLN) in Bali, Indonesia. This paper focuses on the impact of growing solar penetration to the Malaysian grid system stability and reliability.

This workshop gathers industry experts who are actively involved in the evolution of the power industry and provides a platform to share current research and technologies, particularly in promoting secure and affordable electricity supply in each country.

2 IEEE PES GENERATION, TRANSMISSION & DISTRIBUTION

20-23 March 2019—A paper entitled *"NEDA - Precursor to Malaysia Electricity Market"* was presented by Nazaitul Idya and Nurhafiza at the IEEE PES Generation, Transmission and Distribution Grand International Conference and Exposition Asia (IEEE PES GTD Asia 2019) in Bangkok, Thailand. The event's theme this year was *"Big Shift in Power and Energy"*. The paper was co-authored by Nor Ziha Zainol Abidin, the former Senior Manager of NEDA unit in SB.

The authors provided a comprehensive overview of NEDA, its unique characteristics and examined the outcomes and challenges in both technical and commercial aspects after one year of NEDA implementation. Discussions on the way forward for NEDA and MESI were also included.

The event provided invaluable opportunity for SB to expand their network and meet other professionals around the nation who share similar interests and expertise on the topic of electricity market.



3 INTERNATIONAL SYMPOSIUM OF FORECASTING (ISF) 2019



16-19 June 2019—Mohd Azlan Uda from SB presented a paper entitled *"Development of an End-Use Load Forecasting Model for Peninsular Malaysia"* at the 39th ISF in Thessaloniki, Greece. ISF is a premier forecasting conference which gathers the world's leading forecasting researchers and practitioners. A total of 543 participants from 44 countries attended the symposium this year.

The author received excellent feedback from other experts on his work, and had the opportunity to make connections, collaborate and explore evidence-based practices that can solve some of the issues faced in the field of forecasting. 🌟



SB RAYA

#inirayakita2019

SB recently organised a Raya open house on 28 June 2019 at Menara PNS, Bangsar South. Guests from MESTECC, ST, TNB, GSO, IPPs, MyPower and others were treated to a sumptuous array of Raya fares while catching up with friends and colleagues. Thank you everyone for making the event a memorable one!

Visit our website for the full gallery (www.singlebuyer.com.my/gallery.php)



DID YOU KNOW ?

Our famous Raya food — *ketupat* — needs no introduction in Malaysia. Some historians believed that this delicacy has existed in the region as early as the 15th and 16th century and has its symbolic meanings.

Ketupat comes from the term '*kupat*' which means '*ngaku lepat*' or to admit one's mistakes in the Javanese language. It is believed that this particular style of rice preparation is attributed to the need of seafarers going on long sea voyages to keep cooked rice from spoiling.

SYMBOLISM

Crossed weavings of palm leaves

Represents mistakes and sins driven by human nature.



White inner rice

Symbolises purity and deliverance from sins after the Ramadhan fast, prayer and rituals.

Package shape

Facilitates moisture to drip away from the cooked rice. The leaves allow the rice to be aerated and simultaneously prevent flies and insects from touching it.

HOW IS KETUPAT MADE?



1

A diamond-shaped container is weaved out of coconut or palm leaves.



2

Rice grains are poured into a small opening up to two thirds to three quarters full.



3

They are then boiled for five hours. The characteristic form and texture of a rice dumpling slowly forms as the grains expand to fill the pouch and become compressed.



4

Ketupat is usually eaten with *rendang* and *kuah kacang* or even *satay*.

Watt Say You

Raya Edition!

What are your favourite Raya dish and *kuih*?



Akmal Faizi

My favourite Raya dish is *ketupat palas*, a special traditional dish of glutinous rice wrapped in *palas* leaves. My grandmother and I will make this dish using a special family recipe every year. And *kuih rose* would be at the top of my *kuih* Raya list. It is a crispy and sweet delicacy which you can only find during Raya.

Nur Nabilah

My favourite main cuisine during Hari Raya is *roti jala* with *kuzi ayam* because it is our signature homemade food on every first day of Raya since my childhood. My favourite *kuih* Raya would be the *cornflakes madu* as they are so crunchy and are usually served during the celebration.



Khairul Husna

I love *lemang* with *daging dendeng* the most and my aunt makes the best *daging dendeng* I've ever tasted. She cooks it only during Hari Raya which makes it even more special. *Biskut mazola* has to be my favourite *kuih* Raya. It is the simplest yet the most delicious *kuih*!





MEET THE PEOPLE BEHIND SB

PERSONAL ASSISTANT TO THE CEO/HEAD OF SINGLE BUYER

NOR SURAIYA BT ABDUL RAHMAN

In this issue, we speak to our bubbly colleague Nor Suraiya Bt Abdul Rahman, Personal Assistant (PA) to the CEO/Head of Single Buyer. Known as the motherly figure in SB and with almost 4 decades of working experience, she definitely has interesting stories to share!

01 **WattsUp: Thank you for making time for us to get to know you better. Can you share with us a brief background about yourself and how you started joining the company?**

Suraiya: I spent most of my early life in Petaling Jaya. Currently I'm living in Bangi, close to my 5 children and 6 grandchildren. I first joined LLN when I was 20 years old as a pool typist. It is amazing how different things are done back then as compared to now. I'm sure the new generation may not even know what a typist does! Imagine there were 10 of us placed in a room just to perform all the typing related works.

02 **WattsUp: How did you transition from a typist to becoming a PA and subsequently joining SB?**

Suraiya: While working as a typist, I thought to myself, "I cannot live like this forever". So I started taking a secretarial course at Institut Trengkas Malaysia on a part time basis. For 4 years daily, I had to rush off after work at 4.15pm to catch the 4.20pm bus to go to my classes.

My first assignment was in 1988 as a pool secretary. It was a challenging environment given you have to always be ready to replace other secretaries whenever they are not available. It taught me to be independent and become a fast learner. A few years later, I applied for a position in the Planning Department of TNB and became the PA to the General Manager, En Azemi Zainol Abidin.

As to the start of my experience working in SB, my boss then, En Mohd Yusof Rakob, was about to retire. I was given a choice to either stay with Planning or to join SB. Since there was a vacancy, I decided to come over to SB, and here I am until today! To date, I had the privilege of working with more than 8 different bosses.

03 **WattsUp: Can you share with us a memorable experience that you have working in TNB?**

Suraiya: The most memorable one would be the opportunity for me and a few other TNB staff to have lunch with the late Tan Sri Ani Arope, who was TNB's executive chairman back in 1995. It was an informal lunch and we talked about our experiences in TNB in general. I shared my personal views on how the competency development courses that we have been attending seem to be less effective at that time. I also shared my thoughts on how culture and behavioural changes need to begin from the respective work place and the transformation would then be gradually seen throughout the company.

04 **WattsUp: What do you love most about working in SB?**

Suraiya: The friendly working environment and the politeness of the bosses. Everyone is approachable here.

05 **WattsUp: Would you share with us what you enjoy doing in your leisure time?**

Suraiya: I enjoy gardening, cooking, reciting the Quran and spending time with my family. I am also looking forward to spending more time with my family after I retire next year. I have been working since the age of 20 up till now. I really enjoy working and will definitely miss my time here.

06 **WattsUp: Any advice to incoming PAs to SB?**

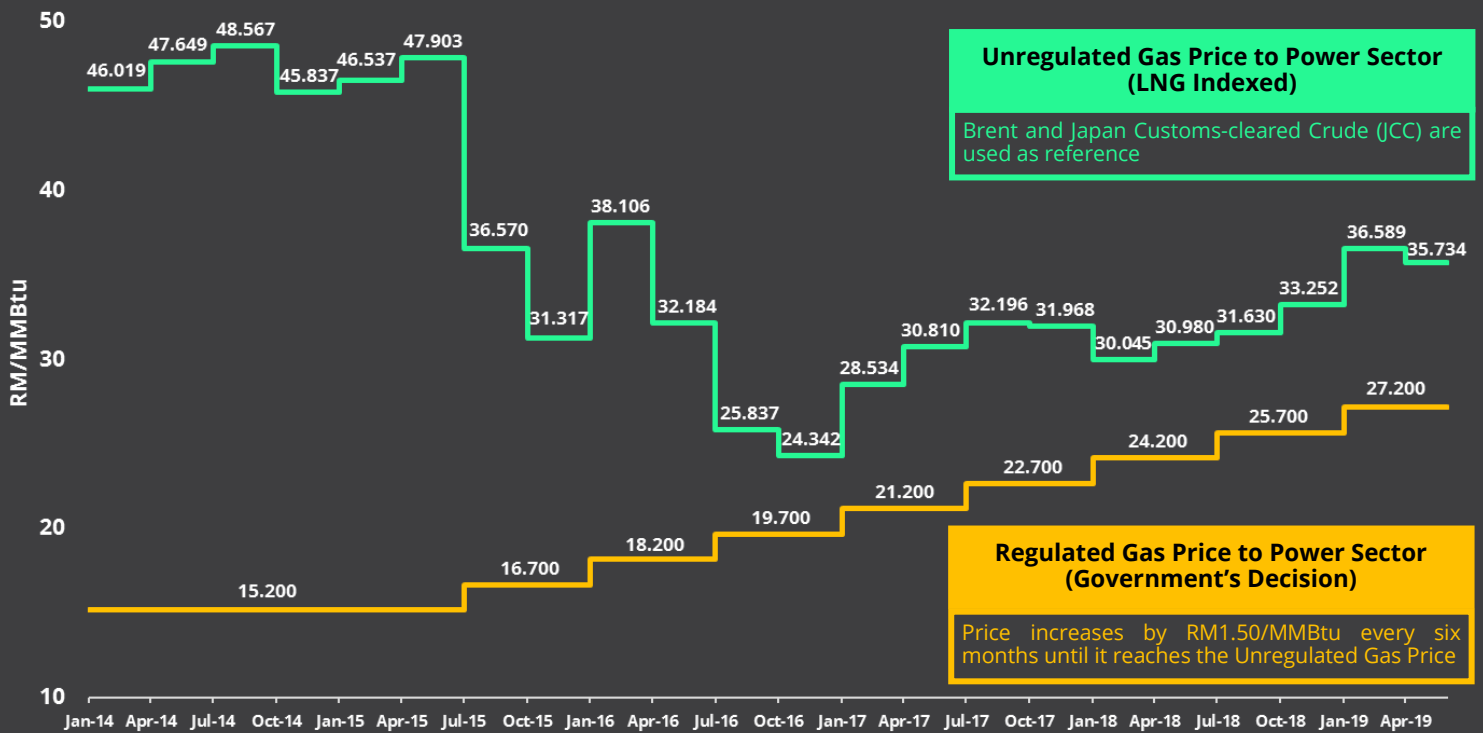
Suraiya: No matter who your boss is (good or bad), please respect them.

07 **WattsUp: Lastly, what is your life motto?**

Suraiya: Be happy and make everyone happy. Always bear in mind, to forgive and forget in life. If we were to hold grudges against people, we are only going to get hurt. Always be positive with the people around you. It took me years to understand what being positive really is. Treasure the sweet moments and let go of the bad ones as life is short. 🌸

MARKET WATCH

HISTORICAL GAS PRICES 2014 TO 2019



Unregulated Gas Price to Power Sector (LNG Indexed)

Brent and Japan Customs-cleared Crude (JCC) are used as reference

Regulated Gas Price to Power Sector (Government's Decision)

Price increases by RM1.50/MMBtu every six months until it reaches the Unregulated Gas Price

Source: SB's database

SB CORNER

In this edition, we spoke to some of the young individuals who recently joined SB for their training and internship programs. We asked them to share their thoughts on working life in general and in SB.



One of my assignments was to create a corporate banner for the SB website. This is a new learning experience for me and I discovered a different perspective of creativity throughout completing the assignment. It has been a pleasant experience working in SB as all the staff are very friendly.

Muhammad Syahizzat Arshad
(Intern) Enterprise Management



I get to experience a good work life balance here in SB. I find the colleagues here really friendly and patient in providing guidance. There is always great food around the office as well. I learnt that we should not be afraid to ask questions even those that may sound silly.

Ng Chaw Chuen
(Intern) Short Term Scheduling



My experience in SB has been great so far. I have learned a lot in a fast paced environment. The atmosphere here is also very friendly as everyone is always willing to help. I also learnt that it is vital to be reliable at work in order to be entrusted with important responsibilities.

Nor Aida Abdul Wahab
(PROTÉGÉ) Settlement & Clearance



The knowledge and skills that I have gained in SB has complemented my academic studies. The experience here has also taught me about both the value and challenges in working with others. I have learnt to actively listen to ideas while having the opportunity to deal with colleagues of different backgrounds, needs and thinking styles.

Raja Nurul Hawa Raja Azyun
(PROTÉGÉ) Enterprise Management

WORDS OF WISDOM

Tough times never last, but tough people do.

- Dr. Robert Schuller-

CONTACT US

We welcome any comments or content that you would like us to include in the upcoming editions of WattsUp.

Please email us at sbet@singlebuyer.com.my

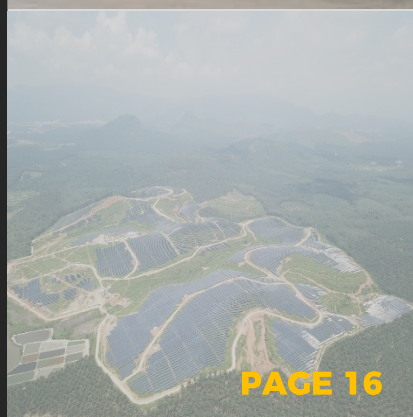
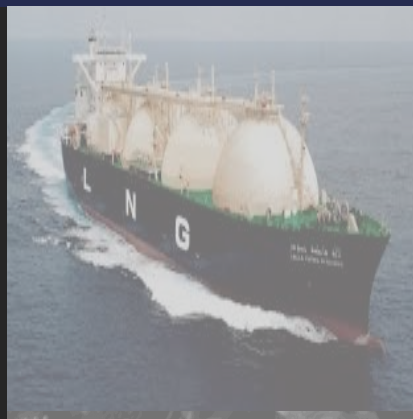
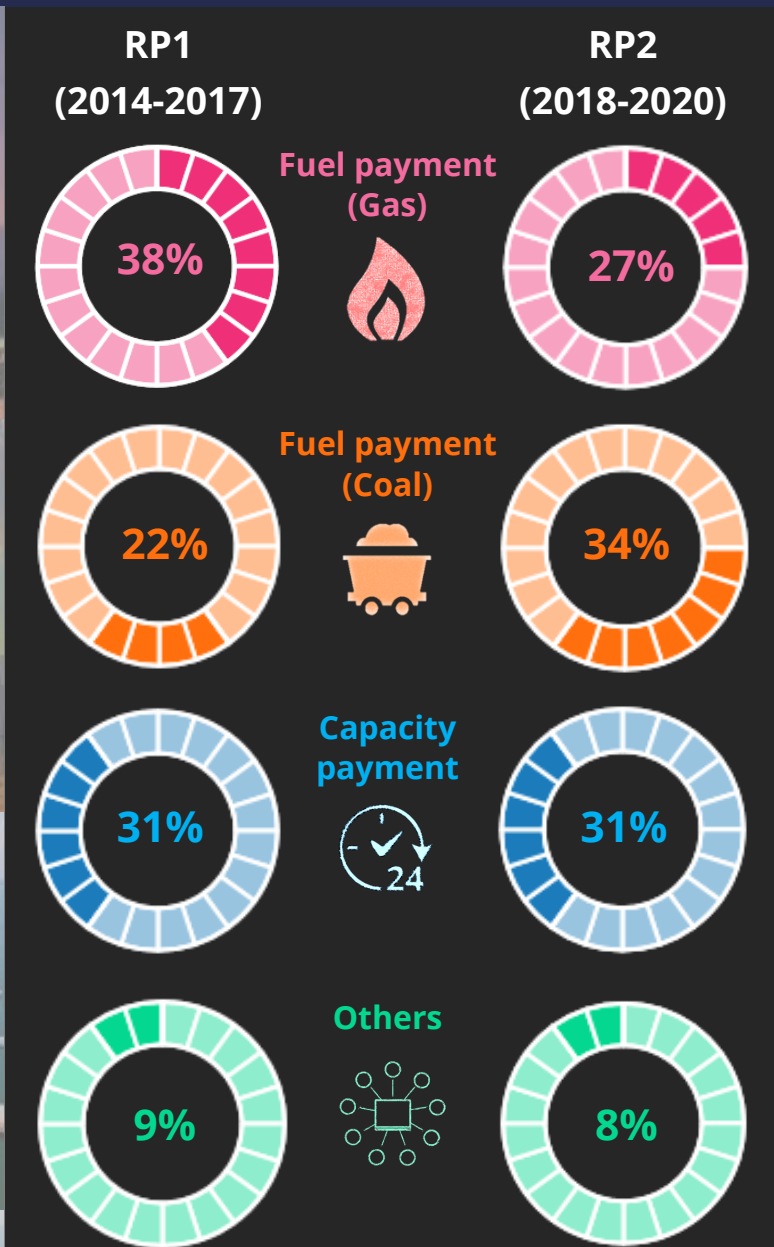
DISCLAIMER

Disclaimer: The contents of this newsletter are of a general nature and are intended for informational purposes only. You are advised to seek specific advice on any matter that may be affected by such information. The views of third parties set out in this newsletter are not necessarily the views of SB.

BASE GENERATION COST

RP1 & RP2 Forecasts

Base Generation Cost refers to the forecasted generation cost relating to the specific Regulatory Period (RP) as approved by ST. For RP1 and RP2, fuel payment for gas and fuel payment for coal are the two main components as they both make up 60% of the total generation cost.



A significant increase in RP2 Fuel Payment (Coal) is mainly due to 2 new coal plants with CODs in 2017 and 2019. Coal generation is projected to be maximised with coal being the cheapest generation to meet the least cost dispatch mechanism.

Note:

- Others for RP1 include VOR payment, Hydro energy payment and Renewable energy at Distribution.
- Others for RP2 include VOR payment, Hydro energy payment, Solar energy payment and Renewable Energy at Distribution.
- COD is Commercial Operation Date.