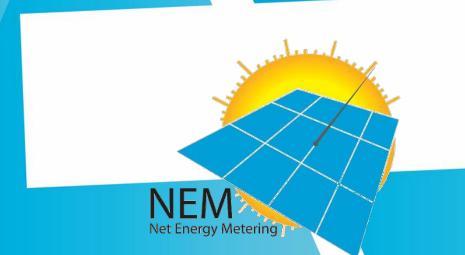


### Sustainable Energy Development Authority (SEDA) Malaysia



Briefing on Net Energy Metering (NEM) Scheme 19 October 2016



### What is Net Energy Metering (NEM)?

A mechanism where an <u>eligible consumer installs a solar</u>

PV system primarily for his own use and the excess energy

to be exported to the grid for which credit to be received that may be used to <u>offset part of the electricity bill</u> for energy provided by the Distribution Licensee (TNB/SESB) to the electricity consumer during the applicable billing period.

For example, if a residential consumer has a PV system on the rooftop, it may generate more electricity than the home uses. The extra electricity produced will provide a credit against electricity that is consumed.



### **NEM Implementation**

#### Implementation of NEM

Suruhanjaya Tenaga (Issuer of NEM Guidelines)

**SEDA** 

(Implementing Agency)

DL

(Customer Contract)

Domestic

Customer

Commercial

Customer

Industrial

Customer



## NEM Quota (2016-2020)

|                       | Quota Allocation (proposed)  |      |      |         |      |      |      |       |      |      |      |
|-----------------------|------------------------------|------|------|---------|------|------|------|-------|------|------|------|
| Location              |                              |      | Po   | eninsul | ar   |      |      | Sabah |      |      |      |
| Year                  |                              | 2016 | 2017 | 2018    | 2019 | 2020 | 2016 | 2017  | 2018 | 2019 | 2020 |
| Category of Consumers | Domestic/Residential,<br>MWp | 20   | 20   | 20      | 20   | 20   | 4    | 4     | 4    | 4    | 4    |
|                       | Commercial, MWp              | 35   | 35   | 35      | 35   | 35   | 4    | 4     | 4    | 4    | 4    |
|                       | Industrial, MWp              | 35   | 35   | 35      | 35   | 35   | 2    | 2     | 2    | 2    | 2    |
| Sum, MWp              |                              | 90   | 90   | 90      | 90   | 90   | 10   | 10    | 10   | 10   | 10   |
| Total, MWp            |                              |      |      | 450     |      |      | 50   |       |      |      |      |

Note: As of 1st Nov 2016



### **Eligibility**

✓ Registered consumers of Distribution Licensee in Peninsular Malaysia (TNB\*), and Sabah & Labuan (SESB\*\*) only

Delinquent consumers who have not paid their bills are not eligible to apply for NEM scheme

- ✓ Open to all categories of TNB/SESB consumers under the following tariff:
  - i. Domestic/Residential
  - ii. Commercial (inclusive of government buildings)
  - iii. Industrial

✓ The resources for producing electricity shall be from <u>Solar</u>
<a href="Photovoltaic">Solar</a>
<a href="Photovoltaic">Photovoltaic</a>
only.

\* Tenaga Nasional Bhd

\*\* Sabah Electricity Sdn Bhd



### **Installation Types and Capacity Limits**

#### ✓ Installation types:

- i. on the <u>rooftop of building</u>; and
- ii. on the garage, car park, and similar buildings

### ✓ Capacity limit:

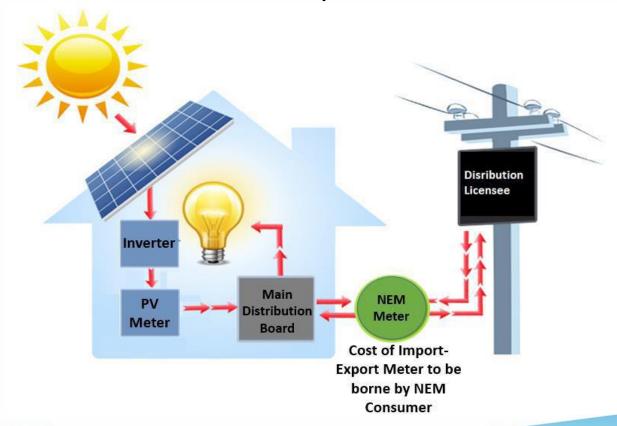
- For domestic or residential consumers, the maximum capacity of the PV system installed is  $\leq$  12 kWp for single phase or 72 kWp for 3 phase systems
- ➤ For commercial and industrial consumers, the maximum capacity of the PV system installed shall be 1 MWp or 75% of maximum demand or 60% of fuse rating or 60% of current transformer (whichever is lower)





### **Connection Type**

✓ The connection to the DL's (TNB/SESB) network shall be done only through <u>indirect connection</u>, i.e. within the owner's internal distribution board only





### **Excess Energy**

The credit (excess energy) to NEM consumer will be based on prevailing Displaced Cost for the relevant supply voltage level at the Point of Common Coupling. The calculation for the net billing of electricity will be based on the following calculation:

- ✓ Net billing = [Energy Consumed from DL (kWh) x Gazetted Tariff] – [Energy Exported to DL (kWh) x Displaced Cost]
- ✓ The net billing or credit shall be allowed to <u>roll over for a</u> maximum of 24 months. Any available credits after 24 months will be forfeited.



### **NEM Assessment Study**

**NEM Assessment Study (NEMAS)** report is required prior to NEM application to SEDA Malaysia. The study shall be conducted by the relevant distribution licensee (TNB or SESB). The requirement is based on kWp of installation as below:

| Installed Capacity  | Study Required | Fee of Study (RM) |
|---------------------|----------------|-------------------|
| 1 – 12 kWp          | No             | -                 |
| > 12 kWp – 180 kWp  | Yes            | 1,000.00          |
| > 180 kWp – 425 kWp | Yes            | 5,000.00          |
| > 425 kWp – 1 MWp   | Yes            | 8,000.00          |





### **NEM Assessment Study**

#### Please contact:

#### TENAGA NASIONAL BERHAD (TNB)

Mr. Sansubari Che Mud

03 - 7967 9346 / 019 - 959 7745 or email Sansubari@tnb.com.my

Sustainable Energy Development

Tenaga Nasional Berhad

No. 129, Jalan Bangsar

59200 Kuala Lumpur

#### SABAH ELECTRICITY SDN. BHD. (SESB)

Mr. Terrence John Kouju

088 - 282 478 or email terrencek@sesb.com.my

Chief Engineer

Sustainable Energy Development,

Asset Development,

6<sup>th</sup> Floor, Wisma SESB,

Jalan Tunku Abdul Rahman,

88673 Kota Kinabalu,

Sabah





### **How to Apply?**

Start

Submit application to SEDA Malaysia via appointed RPVSP or REC

Obtain NEM approval and certificate from SEDA

End

Check eligibility of the applicant and the capacity limit based on electricity tariff

Appoint
Registered PV
Service Provider
(RPVSP) or
Registered
Electrical
Contractor (REC)

Perform PV system installation Perform T&C, signing NEM contract and upload all documents at NEM system as proof

Perform the NEMAS for PV system > 12kWp Seek
confirmation
on the max
capacity from
DL for PV
system >
12kWp

Apply for public generation license from ST (if applicable) Check and replace (if applicable) the existing DL's meter to a bidirectional meter



### **How to Apply?**

#### **Documents to be submitted by the Applicant:**

- i. NEM Application Form (**Form A**) or via online system <a href="https://services.seda.gov.my/nem">https://services.seda.gov.my/nem</a>
- ii. Design of installation and Single Line Diagram (SLD) endorsed by relevant Competent Person under Electricity Regulations 1994
- iii. The latest THREE (3) months of electricity bills
- iv. NEM Assessment Study (for application > 12 kW)
- v. Maximum Demand, fuse or CT rating (if applicable), endorsed by Professional Engineer or Wireman

# The NEM Application Form shall be accompanied with information as stipulated in Form A:

- a) Applicant's Profile (Individual/Company/Other Entities)
- b) Information of project
- c) Technical information
- d) Proposed work plan



### **Things You Need to Know**

#### ✓ NEM Application

Application can be made either by Registered PV Service Providers or ST's Registered Electrical Contractors via online at SEDA's portal

#### ✓ Verification and approval

NEM application shall be processed by SEDA within 30 days from the date of complete submission. NEM certificate will be issued to the successful applicants.

#### ✓ Application fee

The application fee for NEM scheme shall be at a rate of RM10/kWp during application. The fee paid is not refundable even if the application is unsuccessful.



### Things You Need to Know (cont.)

#### ✓ NEM meter

TNB/SESB's existing meter shall be bi-directional (with import-export feature). The replacement (if required) shall be borne by NEM consumer.

#### ✓ Insurance

The NEM consumers shall obtain an insurance to cover their PV Solar Installation from fire.

#### ✓ Goods and Services Tax (GST)

Each energy exported to the grid under the NEM scheme is <u>subjected to GST</u> and if NEM consumer is a GST-registered person or company, he/she shall invoice the DL for the electricity exported to the grid. The calculation of tax involved for the exported energy will be based on the following calculation:

Invoice to DL = Energy Exported to DL (kWh) x Displaced Cost x 6% GST





### What are the benefits of NEM to the consumers?

- ➤ Encourage consumers to play an active role in renewable energy (RE) generation, which addresses climate agenda and national energy security
- > Reduction in greenhouse gas emissions
- ➤ Hedge against any possibility of future electricity tariff increase
- ➤ Availability of power for consumer during grid failure (if energy storage system is incorporated)







### What are the benefits to the utility and country?

- Reduction in utility peak demand which coincides with the PV generation profile
  - Avoid/reduce running expensive distillate and open cycle gas turbine plants
- > Reduction in distribution system losses
- Deferment of distribution and transmission system reinforcement investments
- Creation of solar PV industry and economy







### **NEM Online System: Documents and Download**

### <u>www.seda.gov.my</u> → Net metering

- > NEM guidelines
- > Manual application form (or online application)
- > NEM contract
  - Domestic/residential
  - Non-domestic (commercial & industrial)
- Technical guideline for connection of indirect solar PV under NEM scheme



## **Application Form**

### Form A (NEM Application Form)

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|  |  | No. of the second              |                      |                       |
| Telefon (P)/Telephone (O)  |  | No. Faks / Fo                  | x No. (0)            |                       |
| Orang Yang Boleh Dihubungi<br>Jawatan / Position :   | / Contact Person :   |                                |                      |                       |
| No. Tel. Birmbit / Mobile No. :  |  |                                |                      |                       |
| t-mel / E-most:  |  |                                |                      |                       |
|  |  |                                |                      | to account that       |
|  | AL (ELEKTRIKAL) (JIKA PERLU)                                 |                                |                      | ] (IF REQUIRED)       |
|  | hi 72kW sahaja / copocity solor j                            |                                | 72kW anly            |                       |
| Nama / Name  |  | No. Myked:<br>Identity Cord No |                      |                       |
|  |  | Tel./Bimbit / Tel              |                      |                       |
| Nama Syaritat  |  | E-mel                          | Cymoune race         |                       |
| nama ayarnas   |  | /E-moV                         |                      |                       |
| No. Pendaftaran Jurutera Pro   | rfessional /   |                                |                      |                       |
| Professional Engineer Registr  | rotion No.   |                                |                      |                       |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
| *TO BE FILED BY APPLICA  | NT (NON-INDIVIDUAL) (If or                                   | apilicable]                    |                      |                       |
| I Nome:  |  |                                |                      | Mukad No./ Passport N |
|  | a (designation)  |                                |                      |                       |
|  |  |                                |                      | stion/etc)            |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
|  |  |                                |                      |                       |
| an authorized representati   | ive of this Applicant sincerely                              | r decrare the following        |                      |                       |
| L. I hereby authorize (n   | ome of the Competent Perso                                   | el                             |                      | with MyX              |
|  |  |                                |                      |                       |
| No./Pasport No.:   | as the Co  | impetent Person to ac          | t on my behalf to n  |                       |
| No./Pasport No.:<br>OR   | elf with MyKad No./Pasport                                   | impetent Person to ac          |                      |                       |

| L    | I hereby authorize (name of the Competent Person)  |
|------|--|
|      | No./Pasport No.:as the Competent Person to act on my behalf to man                                   |
|      | OR   |
|      | I hereby declare myself with MyKad No./Pasport No.:  |
|      | own NEM application; (alease strikethrough where applicable);  |
| R.   | I hereby attest that the Competent Person appointed here is a Competent Person within the d          |
|      | Person under Electricity Supply Act 1990 [Act 447] and the regulations thereunder;                   |
| AL.  | I hereby confirm that I have not committed any offences under the Electricity Supply Act 1990        |
|      | relevant laws and regulations pertaining to the supply and licensing of electricity;                 |
| W.   | I hereby certify that all information given is true and correct to my knowledge and belief;          |
| 10   | I understand and agree that SEDA Malaysia will have the right to take any action including to        |
|      | ony of the Information given is false;   |
| vi.  | SEDA Malaysia shall not be held liable for any loss, damage and inconvenience suffered by m          |
|      | been approved by SEDA Molaysia;  |
|      | I hereby agree, understand and will comply with all the relevant laws and guidelines applicab        |
| vii, | For whatever reason if my application is rejected by TNB/SESB after my application being application |
|      | application fees paid by me or by the authorized Competent Person to SEDA Malaysia shall no          |

| No. | Pencapaian / Milestones   | Anggaran Tarikh Akhir / Estimated I   | Dive dote           |
|-----|---|---|---------------------|
| 1   | Tarikh Permohonan NEM dikemukakan / NEM application submission date   |   |                     |
| 2   | Cadangan tarikh menandatangani kontrak NEM / Proposed date for<br>signing of NEM contract   |   |                     |
| 3   | Permithonan Lesen Penjanaan daripada Suruhanjaya Tenaga (ST) /<br>Application Generating Licence from Suruhanjaya Tenaga (ST) /<br>Hapusta salam soler pr melebih 24kW (fasa fungat bukan domastir) etou<br>22kW (fasa fasa) sahajo / ospocity soler pr solem for more then 24kW (single<br>phare: nen-demaid or 22kW (fare spheel only).   |   |                     |
| 4   | Tarikh cadangan T&C bersama Pemegang Lesen Pengaghan (bagi<br>penukaran meter utiliti) / T&C proposol date with Distribution Ucensee<br>(for changing utility meter)  | 0   |                     |
| 5   | Tarikh Pentauliahan NEM / NEM Commencement Date   | -   |                     |
| No. | Dokumen Yang Diperlukan / Documents   | Required  | Stalft.<br>Pierre I |
| 1.0 | Applicant Information:  | No. Court N   | Transa.             |
| 1.0 | Against an Entomatical Commental Configuration of the property parameter of the property parameter of the property parameter of the property parameter of the property of the | way) or Form 9 (Centificate of<br>fictort under the Companies &ct 1963;<br>regarder extracting certifying that the<br>sy the Adalysis of proportion Societies<br>of the firm issued by the Registrar of<br>on of the firm from bodies regulating,<br>son issued by the Malaysia<br>the care cantre issued by the Social<br>nonty. |                     |

| 2 PEN                             | GISYTIHARAN RPVSP ATAU KONTRAKTOR ELEK   | TRIK / RPVSP OR ELECTRICAL CONTRACTOR DECLARATION   |
|-----------------------------------|--|---|
| Intuk d                           | itsi oleh Orang Yang Kompeten / To be complete   | d by Competent Person.  |
| omoor                             | y's Name:  |   |
|                                   | y Registration No. or Business Registration No. :  |   |
| ly signi                          | ng this form, I (Name)   | (MyKad No. /Passport No.)   |
| ii. 10<br>pi<br>iii. 10<br>hi. 15 | confirm that the solar PV system design comply to<br>be prudent utility practices;<br>also verify that the site condition is fit for installar | e affection of provided down is that the real involveding and belief, the distinction of the Edit of the distinction of the Edit of the distinction of the Edit of the distinction of the death of the provided of the distinction of the death of the provided of the distinction of the death of the distinction of the death of the EDIA Additional shall have the right to take any action if |
|                                   |  | Name of Competent Person: Myriad No Passport No.:   |



### **Form of Load Profile**

#### > 12 kW, 4 days (Friday to Monday), together with application form

|                      | FORM LOAD PROFILE (FORM LP) - I | NEM Customer Lo | oad Profile |   |      |
|----------------------|---------------------------------|-----------------|-------------|---|------|
| TNB Account Number   |                                 |                 |             |   |      |
| Customer Name        |                                 |                 |             |   |      |
| Installation address |                                 |                 |             |   |      |
| Service Provider     |                                 |                 | <del></del> | - | <br> |

#### FORECAST OF A TYPICAL DEMAND PROFILE

(Friday to Monday for capacity of >12kW)

|       | Frida   | ay   |    |       |         | rday | ,  |       |         | nday |    |       | Mon     | day  |    |
|-------|---------|------|----|-------|---------|------|----|-------|---------|------|----|-------|---------|------|----|
| Time  | Voltage | Amps | MW |
| 7:00  |         |      |    | 7:00  |         |      |    | 7:00  |         |      |    | 7:00  |         |      |    |
| 8:00  |         |      |    | 8:00  |         |      |    | 8:00  |         |      |    | 8:00  |         |      |    |
| 9:00  |         |      |    | 9:00  |         |      |    | 9:00  |         |      |    | 9:00  |         |      |    |
| 10:00 |         |      |    | 10:00 |         |      |    | 10:00 |         |      |    | 10:00 |         |      |    |
| 11:00 |         |      |    | 11:00 |         |      |    | 11:00 |         |      |    | 11:00 |         |      |    |
| 12:00 |         |      |    | 12:00 |         |      |    | 12:00 |         |      |    | 12:00 |         |      |    |
| 13:00 |         |      |    | 13:00 |         |      |    | 13:00 |         |      |    | 13:00 |         |      |    |
| 14:00 |         |      |    | 14:00 |         |      |    | 14:00 |         |      |    | 14:00 |         |      |    |
| 15:00 |         |      |    | 15:00 |         |      |    | 15:00 |         |      |    | 15:00 |         |      |    |
| 16:00 |         |      |    | 16:00 |         |      |    | 16:00 |         |      |    | 16:00 |         |      |    |
| 17:00 |         |      |    | 17:00 |         |      |    | 17:00 |         |      |    | 17:00 |         |      |    |
| 18:00 |         |      |    | 18:00 |         |      |    | 18:00 |         |      |    | 18:00 |         |      |    |
| 19:00 |         |      |    | 19:00 |         |      |    | 19:00 |         |      |    | 19:00 |         |      |    |
| 20:00 |         |      |    | 20:00 |         |      |    | 20:00 |         |      |    | 20:00 |         |      |    |
| 21:00 |         |      |    | 21:00 |         |      |    | 21:00 |         |      |    | 21:00 |         |      |    |

Note: Voltage (V) and Current (Amps) must be taken at customer incoming supply

Data taken by:

Signature

Name

## **NEM Billing**

#### BIL ELEKTRIK DAN INVOIS CUKAI

No. Akaun : 1510 00129055 01 No. Kontrak : 131429

Deposit : RM500.00 : 206129820 No. Invois Cukai

NEM CUSTOMER 12, JLN PING PONG **SEKSYEN 20** 

40100 SHAH ALAM SELANGOR







15454 (Gangguan bekalan)

trocareline@nb.com.my www.tnb.com.my www.faceboot.com/inbcarelin

| Jumlah Perlu Dibayar RM 265.80 | Tarikh Bil : 04.03.20 |
|--------------------------------|-----------------------|

|                               |    | Amaun         | Bayar Sebelum                 |    |        |
|-------------------------------|----|---------------|-------------------------------|----|--------|
| Tunggakan                     | RM | -             |                               |    |        |
| Caj Semasa                    | RM | 265.82        | 04.04.2016                    |    |        |
| Penggenapan                   | RM | -0.02         |                               |    |        |
| Jumlah Bil                    | RM | 265.80        |                               |    |        |
| Bil Terdahulu<br>(02.02.2016) | RM | 389.50        | Bayaran Akhir<br>(20.02.2016) | RM | 389.50 |
| Jenis Bacaan                  | В  | acaan Sebenar |                               |    |        |

| Tempoh Bil :<br>Tariff : |  | 02.02.2016 - 04.03.2016 (31 Hari)<br>A - 13 (Domestik) | F          | Faktor Prorata<br>1.00000 |  |  |
|--------------------------|--|--|------------|---------------------------|--|--|
| Blok Tarif (kWh)         |  | Blok Prorata (kWh)                                     | Kadar (RM) | Amaun (RM)                |  |  |
| 200                      |  | 200  | 0.218      | 43.60                     |  |  |
| 100                      |  | 100  | 0.334      | 33.40                     |  |  |
| 300                      |  | 300  | 0.516      | 154.80                    |  |  |
| 300                      |  | 274  | 0.546      | 149.60                    |  |  |
| Jumlah                   |  | 874  |            | 381.40                    |  |  |

| Keterangan                 |     | Tidak Kena<br>GST | Kena<br>GST | Jumlah |
|----------------------------|-----|-------------------|-------------|--------|
| Kegunaan (kWh Import)      | kWh | 300               | 574         | 874    |
| Kegunaan                   | RM  | 77.00             | 304.40      | 381.40 |
| ICPT (RM0.0152-)           | RM  | -4.56             | -8.72       | -13.28 |
| Kegunaan Bulan Semasa      | RM  | 72.44             | 295.68      | 368.12 |
| 6% GST (6% x RM295.68)     | RM  | 1000              |             | 17.74  |
| KWTBB (1.6%)               | RM  |                   |             | 6.10   |
| Jumlah Caj Semasa Import   | RM  |                   |             | 391.96 |
| kWh Eksport: 500 @ RM0.238 | RM  |                   | 119.00      | 119.00 |
| 6% GST (6% x RM119.00)     | RM  |                   |             | 7.14   |
| Jumlah Caj Semasa Eksport  | RM  |                   |             | 126.14 |
| Jumlah Caj Bersih          | RM  |                   |             | 265.82 |

| No Meter  | Faktor Meter | Bacaan Meter |        | Kegunaan | Unit        |  |
|-----------|--------------|--------------|--------|----------|-------------|--|
|           |              | Dahulu       | Semasa |          |             |  |
| M98044931 | 1.0000       | 6719         | 7593   | 874      | kWh Import  |  |
| M98044931 | 1.0000       | 4000         | 4500   | 500      | kWh Eksport |  |



Untuk maklumat bil dan bayaran terdahulu, sila https://e-services. tnb.com.my/eservices

Untuk pertanyaan, sila hubungi: TNB Shah Aalm XXXX XXXX XXXX Tel: 03-xxxxxxxxxx Fax - 03-xxxxxxxx

Subsidi Bahan Api Dibiayai Kerajaan Persekutuan RM62.15

GST bagi penggunaan domestik 300kWh dan ke bawah berkadar sifar.

KWTBB - Kumpulan Wang Tenaga Boleh Baharu

ICPT - Imbalance Cost Pass Through / Pelepasan Imbangan Kos Penjanaan

**NEM CUSTOMER** 12, JLN PING PONG **SEKSYEN 20** 40100 SHAH ALAM SELANGOR



#### For further enquiries, please contact:

# Thank You

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