

# Guidelines

For Solar Photovoltaic Installation  
on Net Energy Metering Scheme  
[Electricity Supply Act (Amendment) 2015 (act A1501)]



## Registration Record

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## ELECTRICITY SUPPLY ACT 1990

[Act 447]

### GUIDELINES FOR SOLAR PHOTOVOLTAIC INSTALLATION ON NET ENERGY METERING SCHEME

GP/ST/ No. 4/2016 (Pin. 2019)

In exercise of the power conferred by Section 50C of the Electricity Supply Act 1990 [Act 447], the Commission issues the following guidelines:

#### Citation and Commencement

1. These Guidelines may be cited as the Guidelines for Solar Photovoltaic Installation on Net Energy Metering Scheme.
2. These Guidelines shall come into operation on the date of registration.

#### Interpretation

3. In these Guidelines, the term used shall, unless otherwise defined in the Guidelines or the context otherwise requires, have the same meaning as in the Act, regulation or Codes made under the Act. In addition, the following words and expressions shall have the meanings hereby assigned to them.

Term	Definition
<b>Act</b>	means the Electricity Supply Act 1990 and any subsequent amendments thereof.
<b>Billing Cycle or Billing Period</b>	means the period for which electricity bills shall be prepared for the consumers by licensee.
<b>Commission</b>	means the Energy Commission or Suruhanjaya Tenaga established under the Energy Commission Act 2001 (Act 610) and any subsequent amendments thereof.
<b>NEM Contract</b>	means an agreement entered into between the consumer and the Distribution Licensee for connecting rooftop solar

Term	Definition
	PV system on the premises of the consumer indirectly to the distribution system.
<b>Connection Point</b>	the point where indirect solar PV power generation system is connected to the internal consumer network.
<b>Consumer</b>	means an owner or occupier of a premise who is supplied or requires to be supplied with electricity by the Distribution Licensee.
<b>Commercial Consumer</b>	<p>means a consumer occupying or operating as, but not limited to:</p> <ul style="list-style-type: none"> <li>a. Office block</li> <li>b. Hotel</li> <li>c. Service apartment</li> <li>d. Boarding house</li> <li>e. Retail complex</li> <li>f. Shop-house</li> <li>g. Carpark</li> <li>h. Workshop</li> <li>i. Restaurant</li> <li>j. Estate, plantation or farm (except those categories defined in the Specific Agriculture Tariff)</li> <li>k. Port</li> <li>l. Airport</li> <li>m. Railway installation</li> <li>n. Toll plaza</li> <li>o. Street lightings at tolled highway including its bridges and tunnels</li> <li>p. Telecommunications installation</li> <li>q. Broadcasting installation</li> <li>r. Entertainment / recreation / sports outlet</li> <li>s. Golf course</li> <li>t. School / educational institution</li> <li>u. Religious and welfare organisation</li> <li>v. Military and government installation</li> <li>w. Hospital</li> <li>x. Waste treatment plant</li> <li>y. District cooling plant</li> <li>z. Cold storage</li> <li>aa. Warehouse</li> <li>bb. Any other form of business or commercial activities which are not primarily involved in manufacturing, quarrying or mining activities.</li> </ul>

<b>Term</b>	<b>Definition</b>
<b>Commencement Date</b>	means the start of the operation of solar PV installation for NEM scheme.
<b>Distribution Licensee</b>	means TNB in Peninsular Malaysia and SESB in Sabah, who are the holder of a license to distribute electricity issued by the Commission under Section 9 of the Act, for the purpose of this Guideline.
<b>Distribution System</b>	means an electricity system of electric lines, cables, switchgear and associated equipment at nominal voltage of less than 132kV in Peninsular Malaysia and less than 66kV in Sabah and Wilayah Persekutuan Labuan for distribution of electricity.
<b>Domestic Consumer</b>	means a residential/or a consumer occupying a private dwelling which is not used as a hotel, boarding house or used for the purpose of carrying out any form of business, trade, professional activities or services.
<b>Electricity</b>	has the same meaning as in Section 2 of the Act.
<b>Eligible Consumer</b>	means a consumer of electricity of the Distribution Licensee who is not blacklisted in the Distribution Licensee's system for valid reasons (such as not paying the electricity bill, commit offence under the Act, etc.).
<b>Energy</b>	means electric energy or electricity.
<b>Implementing Agency or IA</b>	means Sustainable Energy Development Authority (SEDA), who is appointed by the Commission as the implementing agency.
<b>Indirect Connection</b>	means the connection of a renewable energy installation to a supply line indirectly through the internal distribution board of the NEM Consumer where the renewable energy installation is connected to an electrical point within the premises of the NEM Consumer instead of the point of common connection.
<b>Industrial Consumer</b>	means a consumer engaging in manufacturing of goods and products.
<b>Installation</b>	has the same meaning as in Section 2 of the Act.
<b>Investor/Asset Owner</b>	means a third party who provides third party financing to NEM Consumer for NEM installation and own the assets throughout the contract period.
<b>Invoice</b>	means either a monthly bill or supplementary bill raised by the Distribution Licensee.
<b>kV</b>	means kilovolt or 1,000 volt.
<b>kWh</b>	means kilowatt hour.

<b>Term</b>	<b>Definition</b>
<b>kW</b>	means kilowatt in ac rating.
<b>kWp</b>	means kilowatt peak. Rated kWp in relation to a PV installation means the maximum direct current power such installation can produce under standard test conditions of 1000 watts per square meter of solar irradiation and 25 degrees Celsius ambient temperature.
<b>Licensee</b>	means a person licensed under Section 9 of the Act.
<b>Low Voltage</b>	means operation of equipment at a voltage less than 1000V or 1kV.
<b>Mains</b>	has the same meaning as in Section 2 of the Act.
<b>Manufacturing</b>	means the conversion of raw material or components to finished product such as the making, altering, blending, ornamenting, finishing or otherwise treating or adapting any article with a view to use, sell, transport, deliver or dispose; and includes the assembly of parts and food processing but shall not include any activity normally associated with the retail or wholesale trade.
<b>Maximum Demand</b>	means the maximum level of the simultaneous power demand of all the electrical equipment and system of a consumer's installation expressed in kW or kVA units.
<b>Medium Voltage</b>	means a voltage normally exceeding low voltage but equal to or not exceeding 50,000 volts.
<b>Minister</b>	has the same meaning as in Energy Commission Act 2001.
<b>MW</b>	means megawatt or 1,000 kilowatts in ac rating.
<b>MWp</b>	means megawatt peak.
<b>Net Export Capacity</b>	means the maximum level of electrical power which a solar PV system can deliver to the distribution system at the Point of Common Coupling.
<b>Net Energy Metering or NEM</b>	means a mechanism where an eligible consumer installs a solar 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 offset part of the electricity bill for energy provided by the Distribution Licensee to the electricity consumer during the applicable billing period.
<b>Net Energy Metering Assessment Study or NEMAS</b>	means a technical analysis carried out by the Distribution Licensee/qualified consultants to assess the potential impact of the distributed generation on the planning and operation of the Distribution Licensee's distribution system.

<b>Term</b>	<b>Definition</b>
<b>Net Energy Metering Consumer or NEM Consumer</b>	means an eligible consumer who install solar PV system under the Net Energy Metering arrangement.
<b>Net Excess Electricity</b>	means all electricity produced by a NEM Consumer measured in kilowatt hour (kWh) over a 24-month period that exceeds the amount of electricity consumed by that NEM Consumer and exported to the Distribution Licensee.
<b>Point of Common Coupling or PCC / Interconnection</b>	the point of connection between utility system and consumer.
<b>Premises</b>	means rooftops or/and elevated areas on the land, building or infrastructure or part or combination thereof owned by the owner or under the control of the consumer.
<b>Private installation</b>	has the same meaning as in Section 2 of the Act or its subsequent amendments.
<b>Public Installation</b>	has the same meaning as in Section 2 of the Act or its subsequent amendments.
<b>Self-Consumption</b>	means electricity generated is entirely for self-consumption and applicant undertakes to ensure no excess will be injected to the grid.
<b>Settlement Period</b>	means a period starting from 1 <sup>st</sup> January of a year and ending on 31 <sup>st</sup> December of the next year except for the first 2 years from the Commencement Date of NEM scheme. The first two years may not be fully 24 months settlement period. For example, if the Commencement Date of a NEM Consumer fall on July 2016, then the end of settlement period will be on December 2017 which is 18 months duration.
<b>Solar Lease</b>	means an agreement whereby a third party pays for and owns the system while customer pays a fixed fee that is not tied to actual use.
<b>Solar Power Purchase Agreement or Solar PPA</b>	means an agreement whereby a third party owns, develops and finances the project's installation, recovering their costs through the sale of project output generated from solar PV to the consumer's premise at contracted rates.
<b>Specific Agriculture Consumer</b>	means a consumer conducting specific agricultural activities strictly related to agriculture cultivation and breeding. The activities are confined to agriculture livestock (poultry and/or hatching, cattle and/or dairy, rearing of other animals), aquaculture (the breeding and cultivation of water plants and animals), horticulture (growing of fruits,

Term	Definition
	vegetables and flowers) and pumping for irrigation/drainage of land and for controlling water gates for the production of grains such as paddy.
<b>Supply Authority</b>	means any statutory authority established by an Act of Parliament or any other law to generate and/ or supply electricity.
<b>Supply Line</b>	has the same meaning as in Section 2 of the Act.

## Introduction

4. The solar PV sector has been booming over the last decade and is forecasted to confirm this trend in the coming years. Net Energy Metering (NEM) scheme which allows consumers who generate electricity from solar energy for their own use, as well feeding electricity they do not use back into the grid, is expected to accelerate in the next few years, in line with the Government initiatives under the RMK11 to increase the penetration of renewable energy in the energy mix.

NEM scheme is a billing mechanism that credits indirect solar PV system owners for the electricity they add to the grid. For example, if a residential consumer has a PV system on the rooftop, it may generate more electricity than the home uses during daylight hours. If the home is net-metered, the extra electricity produced will provide a credit against what electricity is consumed at night or other periods where the home's electricity use exceeds the solar energy system's output. Consumers are billed for their energy use taken from the Distribution Licensee supply, which will be offset with the energy produced from their solar PV generation.

In line with the functions of the Commission under Section 14 of the Energy Commission Act 2001 (Act 610) to promote the use of renewable energy and the conservation of non renewable energy, these Guidelines are issued by the Commission for the purpose of implementing the Solar Photovoltaic Installation on NEM scheme.

## Application of these Guidelines

5. These Guidelines shall apply to:
- (i) any person seeking approval for installing solar photovoltaic generating facility via Indirect Connection to the Distribution Licensee network in Peninsular Malaysia through NEM scheme;
  - (ii) any person who have installed a solar PV system in his premises before the NEM scheme is introduced.



- (iii) the relevant Distribution Licensee, whose network is to be connected with the NEM Consumer;
- (iv) the Implementing Agency appointed by the Commission to implement and administer the NEM scheme; and
- (v) the Investor/Asset Owner under financing through third party ownership.

### **Target Capacity**

- 6. The target capacity for the NEM scheme is 500MW by 2020 for the period from 2016 to 2020.
- 7. These quotas will be reviewed and redistributed annually based on the outcome of the yearly off take. IA shall obtain concurrence from the Commission before recommending to review the quota for approval by the Minister. Upon approval, IA shall publish and ensure adequate publicity of the quota approved by the Government.

### **Eligibility Criteria**

- 8. The applicant shall be a registered Consumer of the Distribution Licensee in Peninsular Malaysia only.
- 9. Delinquent Consumers who have not paid their bills and/or pending meter tampering case are not eligible to apply for NEM scheme.
- 10. Participation in the NEM scheme is open to all categories of Consumer under the following tariff as follows:
  - (i) Domestic/ Residential
  - (ii) Commercial (inclusive government buildings)
  - (iii) Industrial
  - (iv) Agricultural
- 11. The resources for producing electricity shall be from Solar PV only. Other renewable energy resources such as biogas, biomass or micro hydro may be allowed on case to case basis at the sole discretion of the Commission.

### **Types of Installation Allowed**

- 12. Installation of PV modules can only be done as per the following:
  - (i) on the rooftop of building; and
  - (ii) on the garage, car park, and similar buildings.

13. For ground-mounted system, it may be allowed on case by case basis and the installation shall be within compound of applicant's premise and approved by the IA.

### **Financing Through Third Party Ownership**

14. Participation of eligible Consumers in NEM with financing through a third party ownership is allowed subject to mutual agreement between the NEM Consumer and Investor/Asset Owner.
15. Types of financing options that may be allowed to fund the NEM installations are as follows:
  - (i) Solar Lease
  - (ii) Solar PPA
  - (iii) Hybrid of Solar Lease/PPA
16. Supply Agreement with Renewable Energy (SARE) is one of the allowed program under financing through third party ownership for NEM, which is a tripartite agreement between NEM Consumer, Distribution Licensee and Investor/Asset Owner.
17. Roles of parties in SARE and implementation of SARE are as follows:
  - (i) the Investor/Asset Owner conducts energy audit, design and propose the optimum solar PV system for installation;
  - (ii) the Investor/Asset Owner invests, owns and operates the solar system throughout the contract period;
  - (iii) NEM Consumer will own the solar PV system after contract period; and
  - (iv) NEM Consumer's solar energy purchase will be billed by the Distribution Licensee on the same utility bill and be subjected to the same terms and conditions.
18. For NEM scheme with third party ownership, the Investor/Asset Owner shall be licensed under Section 9 of the Act. The application for license shall be made upon approval of quota from IA and valid until end of contract period. The NEM Consumer may apply new license upon termination of contract period, subject to Commission's approval.

### **Capacity Limit**

19. For domestic or residential Consumers, the maximum capacity of the PV system shall be not more than 12kW for single phase and 72kW for 3 phase systems. This capacity will be subjected to annual review depending on demand for residential quota.
20. For commercial, industrial and agricultural Consumers, the maximum capacity of the PV system installed shall be:

- a. for medium and high voltage Consumers, the maximum capacity limit is 75% of Maximum Demand based on;
  - (i) average of the recorded Maximum Demand of the past 1 year; or
  - (ii) the declared Maximum Demand for Consumers with less than 1 year's record;
- b. for low voltage Consumers, the maximum capacity limit is 60% of fuse rating (for direct meter) or 60% of current transformer (CT) rating.

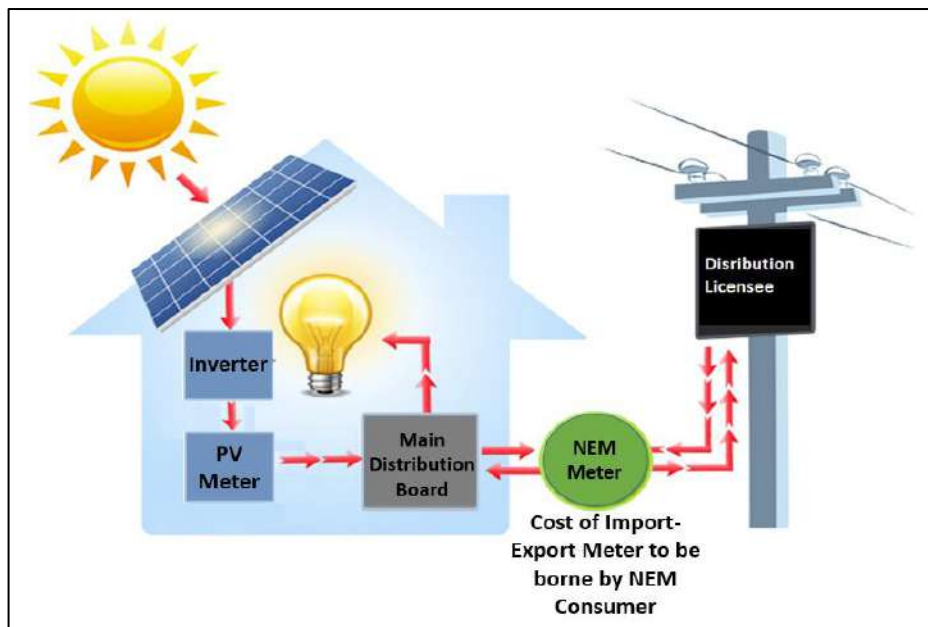
The peak or Maximum Demand is to be supported by actual 24-hour, 4-day load profile consisting of Friday to Monday. The load profile with 30-minute reading interval.

Installation above 1MW is subjected to Distribution Code requirement.

21. The permissible net export capacity for connection to the distribution system shall be not less than 1kW rating measured at the Connection Point, provided that the net export capacity at the Connection Point shall not exceed 75% of the Maximum Demand of the energy metering Consumer.

### Connection Type

22. The connection to the Distribution Licensee network shall be done only through Indirect Connection. **Figure 1** shows the diagram of the connection between the Consumer's solar PV system and the Distribution Licensee distribution system.



**Figure 1: The connection of a solar PV generating facility**

23. For interconnection with the distribution system, **Section 3 of Schedule 1** shall be complied with.

## Net Energy Metering Assessment Study or NEMAS

24. The study will determine the technical impact to the Distribution Licensee's electricity distribution network and establish technical and safety requirements that may be necessary for the installation.
25. The study is a pre-requisite for NEM application approval and will thus be performed prior to the approval of the NEM application. At this stage the NEM applicant has not yet committed to the physical construction. The findings of the study will assist the NEM applicant to decide on the feasibility of the project.

It will also assist the Distribution Licensee to prepare the technical requirements or necessary modification to Distribution Licensee network needed for interconnection to facilitate the acceptance of energy generated by the installation.

26. The NEM Consumer shall engage with Distribution Licensee/qualified consultants to conduct NEMAS for installation above 72kW. Upon request by the NEM Consumer, distribution network data will be provided by Distribution Licensee subject to signing off Non-Disclosure Agreement (NDA) between the party that will perform the NEMAS and Distribution Licensee, if required by Distribution Licensee. The assessment conducted will be based on the Consumer's load profile which shall include, but are not limited to:
  - (i) general description of the electrical supply system and connection of solar PV system;
  - (ii) simple network study from Consumer side to the Point of Common Coupling;
  - (iii) analysis on voltage and power factor impact to Distribution Licensee network; and
  - (iv) any other analysis required by the Distribution Licensee for the purpose of safety and security of the distribution network and other electricity consumer.

All NEMAS conducted by the qualified consultants must be presented to Distribution Licensee prior to the approval of the NEM application.

27. Any modification costs involved described in paragraph above shall be borne by the NEM Consumer.
28. Each study will be valid for 1 year commencing from the date of the Distribution Licensee's approval of the study.
29. The requirement for a mandatory study is generally based on the rated kW of the proposed installation as shown in **Table 1**:

**Table 1: Requirement for a mandatory study based on kW of installation**

Installed Capacity	Study Required	Fee of Study (if conducted by Distribution Licensee)
1-72kW	No	-
>72kW – 180kW	Yes	RM1,000
>180kW – 425kW	Yes	RM5,000
>425kW – 1MW	Yes	RM8,000
>1MW – 2MW	Yes	RM15,000
>2MW – 5MW	Yes	RM20,000
>5MW – 10MW	Yes	RM30,000
>10MW – 30MW	Yes	RM40,000

The technical study report is required prior to NEM application to IA. All study shall be conducted by Distribution Licensee/qualified consultants to establish the technical and safety requirements and determine the feasibility of connection.

Should there be a necessity for additional technical study after report has been published, additional fee will be imposed to the NEM Consumer.

30. Battery storage may be allowed on case to case basis and subject to approved connection scheme by the IA.
31. For capacity below 72kW, where there will be no analysis by the Distribution Licensee, the Consumer shall ensure that the exported power shall be less than the existing capacity of the Distribution Licensee and Consumer's equipment. Appropriate functionality within the inverter or use of external device to be provided to mitigate such a condition.

### **Technical Requirements**

32. NEM Consumer shall refer to the existing Renewable Energy (Technical and Operational Requirements) Rules 2011 (where applicable) as in **Schedule 3** and any subsequent amendments thereof, and Technical Guideline for Connection of Indirect Solar PV Power Generation for Net Energy Metering as in **Schedule 4** for any technical requirements and specifications of design, equipment, installation works, testing, commission and operation of the solar PV system and the interconnection facility.
33. NEM installation shall be equipped with smart inverter features as described in **Schedule 4**.

## Metering

34. The Distribution Licensee's meter shall have import and export functions. In the event that the Distribution Licensee's meter is required to be replaced or upgraded, for NEM installation, the cost is to be borne by the NEM Consumer.
35. The NEM Consumer shall install a dedicated PV meter in order to record PV generation, at their own cost.
36. More meter arrangements are as described in the **Section 4 of Schedule 1**.

## Testing & Commissioning

37. The NEM Consumer is advised to refer to the existing procedures for the testing and commissioning of Grid Connected PV System in Malaysia prepared by IA. The NEM Consumer are required to follow testing and commissioning procedure by IA.

## Matters Relating to Pricing and Tariff

38. For NEM, the credit to Consumer will be based on prevailing gazetted tariff for the relevant supply voltage level at the Point of Common Coupling. The calculation for the net charge amount of electricity will be based on the following calculation:

$$\text{Net Charge Amount (RM)} = (\text{Energy Imported from Distribution Licensee}^* \times \text{Gazetted Tariff}) - (\text{Energy Exported to Distribution Licensee} \times \text{Gazetted Tariff})$$

\*Energy imported is subjected to SST, KWTBB, ICPT, where applicable

39. The net energy shall be allowed to roll over for a maximum of 24 months. Any available energy after 24 months will be forfeited.

## Energy Accounting and Settlement

40. The Distribution Licensee shall be responsible for billing the NEM Consumer for each Billing Period in accordance with the provisions in the Licensee's Supply Regulations 1990 and its subsequent amendments. More requirements for billing purposes between NEM Consumer and Distribution Licensee can be found in **Section 5 of Schedule 1**.
41. The energy accounting and settlement procedures for the NEM Consumer shall be as per the procedures mentioned in **Section 5 of Schedule 1**.

## Application Process

### 42. Submission of application:

- (i) An application for NEM shall be on first come first serve basis up to the allocated quota.
- (ii) The application shall be submitted to the IA with the required documents either online or manual as may be determined by the IA.
- (iii) Only completed application shall be processed and any incomplete application shall be re-submitted.
- (iv) Documents for electronic submission can only be uploaded to the portal in the following forms: pdf, jpg, png, gif and doc. The maximum size for each file to be uploaded is 2MB, except in the case of copies of applicants' NRIC or passport, where the maximum size is 1MB only. The recommended scanning resolution is 200 dpi.
- (v) A manual application shall be made by filling up the relevant form. The form can be obtained either by downloading and printing it out from web portal of IA [www.seda.gov.my] or by obtaining the hardcopy from IA office. The maximum page size for attachments and supporting documents is A3.
- (vi) The completed manual application is to be submitted during working days (9.00 am to 5.00 pm Monday to Friday) to IA offices below:

#### **Sustainable Energy Development Authority (SEDA)**

Galeria PjH, Aras 9, Jalan P4W,

Persiaran Perdana, Presint 4

62100 Putrajaya.

Phone No: +603-8870 5800

Fax: +603-8870 5900

- (vii) The documents to be submitted by the applicant shall include:
  - (a) NEM application forms (**Form A** and **Form B** as in **Schedule 2**);
  - (b) Design of installation and single line diagram (SLD) by relevant Competent Person under Electricity Regulations 1994;
  - (c) Latest 3 months electricity bills;
  - (d) NEMAS (for application >72kW);
  - (e) Maximum Demand, fuse or CT rating (if applicable), endorsed by Professional Engineer or wireman;
- (viii) An application for NEM shall be accompanied with the information as stipulated in the **NEM Form A**:
  - (a) Applicant's Profile (Individual, Company):
    - i. Full Name/Company Name
    - ii. MyKad / Company Registration No.

- iii. Address
- iv. Contact Person

- (b) Information of project:
  - i. Site address/location
  - ii. Renewable energy resource
  - iii. Building type
  - iv. Consumer connection voltage (LV/MV)
  - v. Name of Distribution Licensee
  - vi. Name of service provider
- (c) Technical Information
  - i. Maximum Demand of Consumer
  - ii. Proposed total installed capacity
  - iii. Yield projection
- (d) Proposed date for signing of NEM Contract
- (e) Proposed NEM Commencement Date

43. **Section 2 of Schedule 1** also describes in more details the procedures of application and registration for Consumer who intends to apply for NEM scheme.

### **Verification and Approval**

- 44. The application shall be processed and verified by the IA within 10 days from the date of complete submission.
- 45. The IA will issue NEM approval to the successful applicants and notify them.

### **Contract Signing**

- 46. The NEM Consumer shall sign a NEM Contract with Distribution Licensee upon NEM Commencement Date approval by the IA.

### **Application fee**

- 47. The fee for each application for NEM scheme shall be at a rate of RM10/kW and shall be paid together with the application on the advice of the IA. The fee paid is not refundable no matter whether the application is successful or not.



## **Services Tax**

48. Each energy imported from the grid under NEM scheme is subjected to services tax (SST), depending on the government decision.

## **Insurance**

49. The NEM Consumer shall obtain an insurance to cover their PV solar Installation from fire.

## **Conversion to Feed-in Tariff (FiT) Scheme**

50. The Consumer who is approved to install a PV installation under NEM scheme can apply to convert it to FiT scheme provided that the Consumer is successful in getting the FiT quota. In such cases all the requirement under FiT scheme shall be applicable.

## **Change of Ownership**

51. In the case of a NEM Consumer who intends to sell his/her premise including its PV system to a new buyer, the NEM approval shall be transferred to the new owner and a new NEM Contract is required to be signed between the Distribution Licensee and the new owner.

## **Relocation or Transfer of Solar PV System**

52. NEM Consumer may apply to relocate or transfer his/her PV system by submitting written application to IA. Such application shall be accompanied with all relevant particulars of the proposed relocation or transfer. The IA may, after considering the application made and being satisfied with the information or other documents given, approve with or without conditions or reject the application.
53. NEM Consumer shall not be entitled to transfer any credit amount (if any) to any other accounts of the NEM Consumer or any third party account. New NEM Contract is required to be signed between the Distribution Licensee and the NEM Consumer upon relocation or transfer of the PV system.
54. All costs and expenses due to the relocation or transfer of the PV system shall be solely be borne by the NEM Consumer.

### **Licensing Requirement**

55. For commercial and industrial installation above 72kWp for three phase system and above 24kWp for single phase system, the NEM Consumer shall apply for a license from the Commission under Section 9 of the Act. The application for license shall be made upon approval of quota from IA.
56. For licensing purposes, the Guidelines on Licensing is available on the Commission's website [www.st.gov.my](http://www.st.gov.my), and an application shall be made through the on-line application at [oas.st.gov.my](http://oas.st.gov.my) link.

### **Environment Attribute**

57. The value of any credits or financial benefits which are available or may become available for reductions of "green house gas" emission earned from the generation of solar PV energy by the facility of NEM Consumer or Investor/Asset Owner shall be solely for the benefit of NEM Consumer or Investor/Asset Owner.

### **Dispute Resolution**

58. Any dispute in relation to the implementation these Guidelines shall be resolved in accordance with the dispute resolution process and procedures as set out by the Act.

### **Notice by the Commission**

59. The Commission may issue written notices from time to time in relation to implementation of these Guidelines.

### **Amendment and Variation**

60. The Commission may at any time amend, modify, vary or revoke these Guidelines.

**Dated: 3 July 2019**



**ABDUL RAZIB BIN DAWOOD**  
Acting Chief Executive Officer  
for Energy Commission

# SCHEDULE 1

# Schedule 1

This **NEM Schedule 1** shall apply to Implementing Agency (IA), Distribution Licensee (DL) and the NEM Consumer.

## **1. Available Quota for Application**

- 1.1 The IA shall provide information on its website regarding quota available for application for Net Energy Metering scheme within three months from the coming into force of this **Schedule 1** and update the information as and when necessary.
- 1.2 The IA shall furnish such information at no cost to the eligible consumer within one month from the receipt of official enquiry from the said person.

## **2. Procedure for Application and Registration**

- 2.1 The IA and DL shall prepare uniform application forms for the approval of Energy Commission. The application forms together with the application procedure and information required to be submitted shall be published in IA website and shall be sent to eligible consumer upon request.
- 2.2 The consumer who intends to supply excess energy produced by its solar PV system for NEM shall submit the application to the IA with the application form together with the information and document required. He shall apply for NEM quota on first come first serve basis.
- 2.3 Blacklisted consumers (such as not paying the electricity bill, commit offence under the Act, etc.) are not eligible to apply for NEM scheme and if they do apply, their processing fee will be forfeited. For application with capacity less than 72kW, IA shall submit the application lists to DL to check on high risk customer. For capacity more than 72kW, DL shall check during submission for technical study. DL will not proceed with the study if the consumer is in the high risk lists.
- 2.4 The consumer shall perform the NEMAS with DL/qualified consultants before submitting the application to IA (for capacity above 72kW). The study shall be completed by DL/qualified consultants within 30 days upon DL/qualified consultants receiving the proof of payment.
- 2.5 The IA shall receive and process all NEM applications. The IA shall acknowledge the receipt of the application, register the application and process the application in order of the receipt.

- 2.6 The processing fee of RM10/kW shall be applicable to NEM Consumer for application processes by IA.
- 2.7 The IA shall perform technical review on the submission and validate completeness of submission based on the agreed criteria.
- 2.8 The IA shall administer the agreed quota for NEM. IA shall deduct annual quota for domestic, commercial, agriculture and industrial consumer category accordingly.
- 2.9 The IA shall notify successful NEM Consumer and inform DL by providing them with the application documents of the successful consumers.
- 2.10 Upon successful application, a maximum of 12 months is given from the date of the approval quota if the NEM Consumer is unable to complete the proposed works as plan in the Form A. If the consumer exceeds the maximum period given, IA has the right to revoke the approved quota.
- 2.11 The successful NEM Consumer shall apply generating license from the Energy Commission for installation more than 24kWp for single phase system and more than 72kWp for 3 phase system.
- 2.12 NEM Consumer shall submit application to DL to check existing meter. The meter shall be changed to a bidirectional meter if applicable.
- 2.13 The successful NEM Consumer shall perform system test on his PV system and forward the test report to the IA.
- 2.14 IA shall grant commencement approval to NEM Consumer to proceed with NEM Contract signing with DL.
- 2.15 Once the NEM Contract executed, the consumer is deemed to be registered as NEM Consumer under the NEM scheme.

### **3. Interconnection with the Distribution System**

- 3.1 The design, equipment, installation works, testing, commission and operation of the solar PV system and the interconnection facility shall comply with the Electricity Supply Act 1990, the Electricity Supply Regulations 1994, the Licensee's Supply Regulations 1990, the Distribution Codes and other relevant legislations, as amended from time to time and any rules, codes, guidelines, directions or orders as may be issued by the Energy Commission.

- 3.2 The NEM Consumer shall be responsible for safe operation and maintenance of the solar PV system in its premises up to the interconnection of the Distribution Licensee's supply line as follow:
- (i) Low voltage (230 volt or 400 volt, nominal): the cut-out fuse or the termination of service cable of the Distribution Licensee;
  - (ii) Medium voltage (11,000 volt or 33,000 volt, nominal): the termination of service cable at incoming switchgear of the consumer.

The Supply Line and equipment beyond the Point of Common Coupling and the metering facilities for measurement of energy supplied by and exported to the distribution system shall be responsibility of the Distribution Licensee.

NEM Consumer shall provide proper labelling of solar PV system (refer to Technical Guideline for Connection of Indirect Solar PV Power Generation for Net Energy Metering in **Schedule 4**).

- 3.3 The Distribution Licensee shall have the right to disconnect the supply at Point of Common Coupling in the event of any danger or risk to the safety, reliability or security to the distribution system which the solar PV system may cause.

Provided that the solar PV system shall be reconnected to the distribution system as soon as possible if such danger or risk has ceased or has been alleviated.

Provided further that no supply to the premises of the NEM Consumer shall be disconnected unless under circumstances provided for under the Act or any subsidiary legislation under the Act.

#### **4. Meter Arrangement**

- 4.1 Application to check and replace the existing DL meter to a bi-directional meter shall be made to DL before testing and commissioning application.
- 4.2 All costs and expenses relating to the procurement, installation, testing, energizing and commissioning of the solar PV system, bi-directional meter and PV meter together with the replacement or any future modification caused by the Consumer to the solar PV system, bi-directional meter and PV meter shall solely be borne by the Consumer.
- 4.3 A NEM Consumer, may install check meter for measurement of the energy export at their own cost. The check meter shall be of the same or equivalent to the standards of the Consumer meter installed at the premises by the Distribution Licensee and complying with the metering requirements prescribed by the Energy Commission.

- 4.4 The reading of the bi-directional meters for import and export of energy shall be *prima facie* evidence of the amount of electricity consumed, produced or exported and the meter reading taken by the Distribution Licensee shall form the basis of commercial settlement as provided for under the Licensee's Supply Regulations 1990.
- 4.5 The installation, usage, reading, checking, testing, compensation, penalty, punishment and any other matters relating to the metering arrangement shall comply with the provisions under Electricity Supply Act 1990 and the requirements and practices as prescribed in the Licensee's Supply Regulation 1990 as amended from time to time in the same manner as far the Consumer meter installed by the Distribution Licensee.

## **5. Energy Accounting and Settlement**

- 5.1 The energy accounting and settlement procedure for the NEM Consumer shall be as per the following procedure:
- (i) For each Billing Period, the Distribution Licensee shall show the quantum of electricity exported by the solar PV system in the Billing Period, quantum of electricity supplied by the Distribution Licensee in the Billing Period, net billed electricity for payment by the NEM Consumer for that Billing Period and net carried over electricity to the next Billing Period;
  - (ii) If the electricity exported exceeds the electricity consumed during the Billing Period, such excess exported electricity shall be carried forward to next Billing Period as electricity credit and may be utilized to net electricity exported or consumed in future Billing Period but within the settlement period;
  - (iii) If the electricity supplied by the Distribution Licensee during any Billing Period exceeds the electricity exported by the NEM Consumer, the Distribution Licensee shall raise invoice for the net electricity consumption after taking into account any electricity credit balance remaining from previous Billing Period;
- 5.2 The Distribution Licensee shall provide the following details with the electricity bill for each Billing Period:
- (i) Quantum of electricity exported into the distribution system by the solar PV system;
  - (ii) Quantum of electricity supplied by the Distribution Licensee to the NEM Consumer;

- (iii) Quantum of net electricity that has been billed for payment by the NEM Consumer;
- (iv) Quantum of electricity credits available to the NEM Consumer which is carried over from the previous Billing Period;
- (v) Quantum of electricity exported by the NEM Consumer into the distribution system in excess of the electricity supplied by the Distribution Licensee (quantum of electricity credits) which shall be carried forward to the next Billing Period.

5.3 The net energy shall be allowed to roll over for a maximum of 24 months. The credits will be net-off at gazetted tariff. Any available credits after 24 months will be forfeited. There will be no cash transaction involved in NEM scheme.