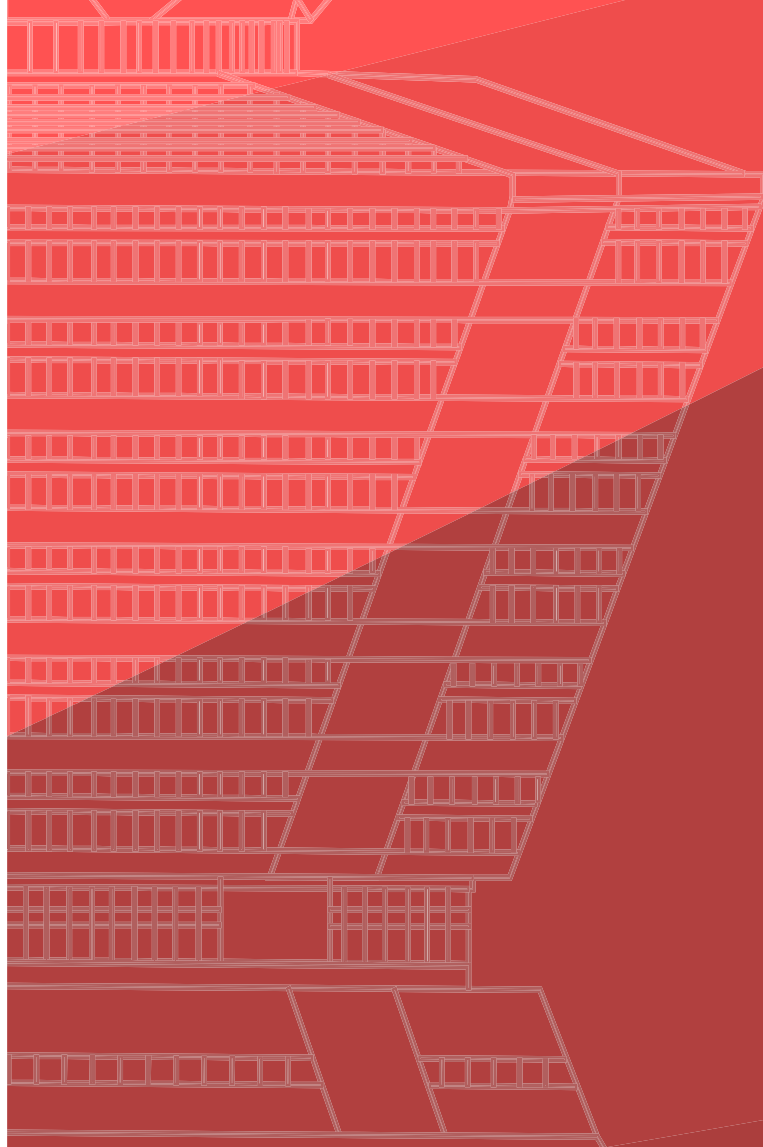


# Guidelines

## For Solar Photovoltaic Installation on Net Energy Metering Scheme

[Electricity Supply Act (Amendment) 2015 (act A1501)]



## Registration Record

Reg. no	Issuance /Amendments	Date of Approval By Commission
1	First issuance	30 September 2016
2	Second issuance with amendment:  i. Improvement of NEM mechanism ii. Implementation of NEM 1:1 iii. Introduction of financing through third party ownership	20 December 2018

## **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.

<b>Term</b>	<b>Definition</b>
<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 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 75% of Maximum Demand of the Consumer's current installation;
- (i) based on the past 1 year average of the recorded Maximum Demand of the Consumer's installation; or
  - (ii) the declared Maximum Demand for Consumers with less than 1 year.

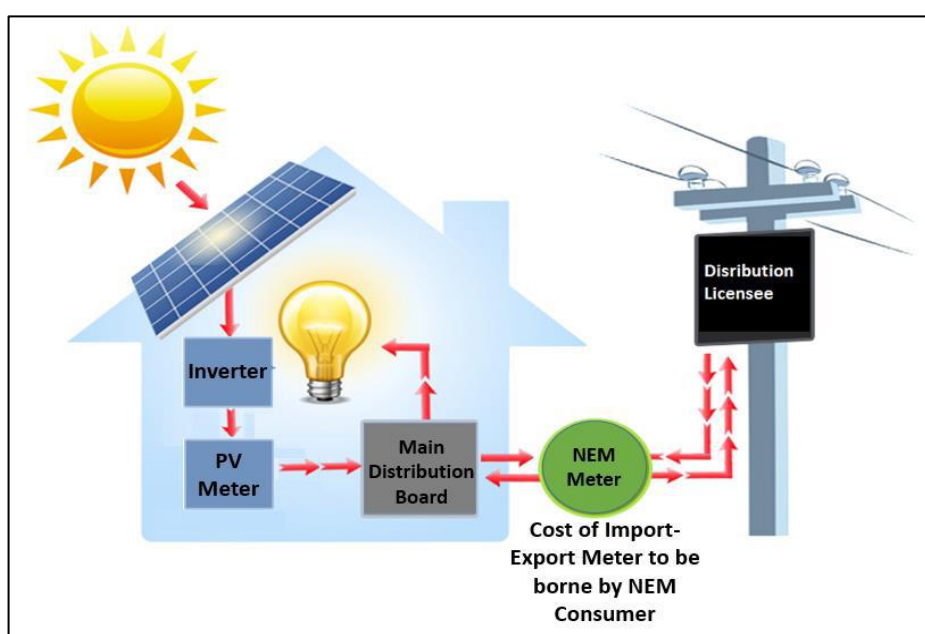
The peak or Maximum Demand is to be supported by actual 24-hour, 4-day load profile consisting of Friday to Monday. The load profile with 30-minute reading interval.

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 to conduct NEMAS for installation above 72kW. 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.
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
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 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: 14 January 2019**

**IR. AZHAR BIN OMAR**

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 before submitting the application to IA (for capacity above 72kW). The study shall be completed by DL within 30 days upon DL 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.

## **SCHEDULE 2**

## **FORM A – NEM APPLICATION**

# BORANG PERMOHONAN PEMETERAN TENAGA BERSIH NET-ENERGY METERING (NEM) APPLICATION FORM



Sila kemukakan borang permohonan anda ke /  
**Please submit your registration form to:**  
Sustainable Energy Development Authority Malaysia  
Galeria PjH, Aras 9, Jalan P4W  
Persiaran Perdana, Presint 4,  
62100 Putrajaya, MALAYSIA

Untuk kegunaan pejabat sahaja /  
**For office use only:**  
Reference No. : .....  
Serial No. : .....  
Date Received : ...../...../.....  
Time received : .....  
Receiving Officer : .....

## BAHAGIAN 1 : MAKLUMAT PERMOHON / SECTION 1 : APPLICANT INFORMATION

**(BORANG INI HENDAKLAH DIISI DENGAN HURUF BESAR) : (FORM TO BE COMPLETED IN CAPITAL LETTERS)**

**Kategori / Category :** ☐ Domestik atau Kediaman / Domestic or Residential ☐ Komersial atau Industri / Commercial or Industrial

*Nota: Sila rujuk bil elektrik anda / Note: Please refer your electricity bill*

### 1A UNTUK DOMESTIK/ FOR DOMESTIC

#### BUTIRAN PEMOHON/APPLICANT DETAIL (INDIVIDU / INDIVIDUAL)

Gelaran/Salutation (Encik/Puan/Cik/Gelaran Lain _____) (Mr./Mrs./Miss/Other Salutation)	No. Mykad: <table border="1" style="display: inline-table; width: 100px; height: 20px; vertical-align: middle;"></table>
Nama / Name	Identity Card No. _____ atau / or
<table border="1" style="width: 100%; height: 20px;"></table>	No. Pasport (bagi bukan warganegara Malaysia) /
<table border="1" style="width: 100%; height: 20px;"></table>	Passport No. ( For non-Malaysian)
Kewarganegaraan / Citizenship	<table border="1" style="width: 100%; height: 20px;"></table>
<table border="1" style="width: 100%; height: 20px;"></table>	No. Tel / Tel. No.: <table border="1" style="width: 100%; height: 20px;"></table>
E-mel / E-mail: <table border="1" style="width: 100%; height: 20px;"></table>	No. Tel. Bimbit / Mobile No. : <table border="1" style="width: 100%; height: 20px;"></table>

### ALTERNATIF ORANG YANG BOLEH DIHUBUNGI / ALTERNATE CONTACT PERSON

Gelaran/Salutation (Encik/Puan/Cik/Gelaran Lain _____) (Mr./Mrs./Miss/Other Salutation)	No. Mykad: <table border="1" style="display: inline-table; width: 100px; height: 20px; vertical-align: middle;"></table>
Nama / Name	Identity Card No. _____ atau / or
<table border="1" style="width: 100%; height: 20px;"></table>	No. Pasport (bagi bukan warganegara Malaysia) /
<table border="1" style="width: 100%; height: 20px;"></table>	Passport No. ( For non-Malaysian)
Hubungan / Relationship:	<table border="1" style="width: 100%; height: 20px;"></table>
<table border="1" style="width: 100%; height: 20px;"></table>	No. Tel / Tel. No.: <table border="1" style="width: 100%; height: 20px;"></table>
Kewarganegaraan / Citizenship	No. Tel. Bimbit / Mobile No. : <table border="1" style="width: 100%; height: 20px;"></table>
<table border="1" style="width: 100%; height: 20px;"></table>	E-mel / E-mail: <table border="1" style="width: 100%; height: 20px;"></table>

### 1B UNTUK DOMESTIK (jika berkenaan)/KOMERSIAL/INDUSTRI / FOR DOMESTIC (if applicable)/COMMERCIAL/INDUSTRIAL

#### BUTIRAN PEMOHON/APPLICANT DETAIL (BUKAN INDIVIDU / NON-INDIVIDUAL)

Nama Syarikat / Organisasi / Persatuan/ PBT / Company / Organization / Society / Local Authority Name:

<table border="1" style="width: 100%; height: 20px;"></table>			
No. Pendaftaran Syarikat / Organisasi / Persatuan/ Badan Kerajaan / Company / Organization / Society Body Registration No or e-PBT No ( untuk PBT / for local authority) : <table border="1" style="width: 100%; height: 20px;"></table>			
Tarikh ditubuhkan / Date of incorporation : <table border="1" style="width: 100px; height: 20px;"></table>		GST No. <table border="1" style="width: 100%; height: 20px;"></table>	
Alamat Berdaftar / Registered Address : <table border="1" style="width: 100%; height: 20px;"></table>			
<table border="1" style="width: 100%; height: 20px;"></table>			
<table border="1" style="width: 100%; height: 20px;"></table>			
Poskod / Post Code <table border="1" style="width: 50px; height: 20px;"></table>	Bandar / Town <table border="1" style="width: 150px; height: 20px;"></table>	Negeri / State <table border="1" style="width: 100px; height: 20px;"></table>	
Alamat Perniagaan/Surat-Menyurat (jika berlainan) / Business/Mailing Address (if different) : <table border="1" style="width: 100%; height: 20px;"></table>			
<table border="1" style="width: 100%; height: 20px;"></table>			
Poskod / Post Code <table border="1" style="width: 50px; height: 20px;"></table>	Bandar / Town <table border="1" style="width: 150px; height: 20px;"></table>	Negeri / State <table border="1" style="width: 100px; height: 20px;"></table>	
No. Tel (P) / Tel (O) No. <table border="1" style="width: 100px; height: 20px;"></table>	No. Faks (P) / Fax No. (O) <table border="1" style="width: 100px; height: 20px;"></table>		
E-mel / E-mail <table border="1" style="width: 150px; height: 20px;"></table>	Laman Web / Website <table border="1" style="width: 150px; height: 20px;"></table>		

**ORANG YANG BOLEH DIHUBUNGI / CONTACT PERSON**Gelaran/Salutation (Encik/Puan/Cik/Gelaran Lain \_\_\_\_\_)  
(Mr./Mrs./Miss/Other Salutation)

Nama / Name


Jawatan / Position :

--

Kewarganegaraan / Citizenship

--

No. Mykad:

Identity Card No.

No. Pasport (bagi bukan warganegara Malaysia) /  
Passport No. ( For non-Malaysian)

No. Tel / Tel. No.:

No. Tel. Bimbit / Mobile No. :

E-mel / E-mail:

**BAHAGIAN 2 : MAKLUMAT PROJEK / SECTION 2 : PROJECT INFORMATION****2.1. ALAMAT TAPAK PEPASANGAN/ INSTALLATION SITE ADDRESS**

Alamat Tapak Pemasangan / Site Installation


Poskod / Post Code Bandar / Town Negeri / State

Pemilikan Tapak / Site Ownership : ☐ Sendiri Sepenuhnya / ☐ Sendiri (Dicaik kepada bank) / ☐ Leased  
Fully Owned Owned (Charged to bank)

Lokasi GPS Tapak Pemasangan / GPS Location of Site Installation:

Latitud / Latitude : ° ' " Longitud / Longitude : ° ' "

**2.2 MAKLUMAT PEPASANGAN / INFORMATION OF INSTALLATION**

Nama Pemegang Lesen Pengagihan /

Distribution Licensee :

Maklumat Bil (No. Akaun) / Billing Information (Account No.):

Kategori Tarif / Tariff Category : No. Kontrak / Contract No. :

Tahap Voltan Pada Titik Sambungan ☐ Voltan Rendah / Low Voltage : Satu Fasa / Single Phase/ Voltage level at Connection Point: ☐ Voltan Rendah / Low Voltage : Tiga Fasa / Three Phase☐ Voltan Sederhana / Medium Voltage

Sumber Tenaga Boleh Baharu / Renewable Energy Resources:

Kapasiti Terpasang / Capacity Installed : kWp

Permintaan Maksima / Maximum Demand kW/ kVA

Kadar Fius / Fuse Rating

Status Projek / Project Status: ☐ Projek Baru / New Project ☐ Projek Telah Siap / Existing Project

Jenis Bangunan / Types of Building:

Contoh: Rumah / Kedai / Office / Lain-lain / Example: House / Shop / Office / Others

Jenis Pemasangan / ☐ Atas Bumbung Bangunan / Rooftop of BuildingTypes of Installation : ☐ Garaj atau Kawasan Letak Kereta / Garage or Car Park☐ Lain-lain (Sila Nyatakan) / Others (Please state):Penggunaan Bateri Simpanan ☐ Ya / Yes ☐ Tidak / No

/ Use of Battery Storage : Jika Ya, sila kemukakan reka bentuk terperinci / If Yes, please provide detail design.

**2.3 MAKLUMAT TEKNIKAL / TECHNICAL INFORMATION:**

Peralatan / Equipments	Jenama / Brand	Model	Kuantiti / Quantity
a) Modul/ Module jenis / type (monocrystalline/ polycrystalline/ thin film/others)			
b) Penyongsang / Inverter			
c) Datalogger (Optional) *For capacity more than 72kWp will be required for T&C purpose			



**2.4 TEKNIKAL PENILAIAN KENDIRI / TECHNICAL SELF ASSESSMENT**

\*Hanya Untuk Kategori Komersial atau Industri / Commercial or Industrial Category Only

Permintaan Puncak Waktu Siang / Daytime Peak Demand (11am to 3pm):		kWac
Permintaan Terendah Waktu Siang / Daytime Lowest Demand (11am to 3pm):		kWac
Permintaan Maksima Diisytiharkan / Declared Maximum Demand:		kW/kVA
75% Permintaan Maksima Diisytiharkan / 75% of Declared Maximum Demand:		kW/kVA

Nota: Data akan diambil pada incoming supply pelanggan. Sila rujuk Form Load Profile (Form LP) - NEM Customer Load Profile

Note: Data will be taken at customer incoming supply. Please refer Form Load Profile (Form LP) - NEM Customer Load Profile

**2.5 PEMBEKAL PERKHIDMATAN SURIA FOTOVOLTA BERDAFTAR SEDA M'SIA ATAU KONTRAKTOR ELEKTRIK BERDAFTAR ST/ SEDA MALAYSIA'S REGISTERED PV SERVICE PROVIDER (RPVSP) OR ST'S REGISTERED ELECTRICAL CONTRACTOR**

Nama Syarikat / Company's Name:

No. Pendaftaran Syarikat / No. Perniagaan: 

Company Registration No. / Business Registration No.

No. Sijil Pendaftaran SEDA Malaysia (RPVSP) atau ST (Kontraktor Elektrik) / 

A certificate of registration with SEDA Malaysia (RPVSP) or ST (Electrical

Alamat Pejabat / Office Address : 


Poskod / Post Code  Bandar / Town  Negeri / State Telefon (P)/Telephone (O)  No. Faks / Fax No. (O) Orang Yang Boleh Dihubungi / Contact Person : Jawatan / Position : No. Tel. Bimbit / Mobile No. : E-mel / E-mail: **2.6 JURUTERA PROFESSIONAL [ELEKTRIKAL] (JIKA PERLU) / PROFESSIONAL ENGINEER [ELECTRICAL] (IF REQUIRED)**

\*kapasiti sistem solar pv melebihi 72kW sahaja / capacity solar pv system for more than 72kW only

Nama / Name  No. Mykad:  Identity Card No.Nama Syarikat  Tel./Bimbit / Tel./Mobile No:  E-mel / E-mail 

No. Pendaftaran Jurutera Professional /

Professional Engineer Registration No. **BAHAGIAN 3 : JADUAL KERJA YANG DICADANGKAN / SECTION 3 : PROPOSED WORK PLAN**

No.	Pencapaian / Milestones	Anggaran Tarikh Akhir / Estimated Due date
1	Tarikh Permohonan NEM dikemukakan / NEM application submission date	
2	Pendaftaran Kontrak Tambahan yang telah ditandatangani di antara pemohon dan Pemegang Lesen Pengagihan dengan SEDA Malaysia / Registration of signed Supplementary Contract between applicant and Distribution Licensee with the SEDA Malaysia	
3	Permohonan Lesen Penjanaan daripada Suruhanjaya Tenaga (ST) / Application Generating Licence from Suruhanjaya Tenaga (ST) *kapasiti sistem solar pv melebihi 72kW sahaja / capacity solar pv system for more than 72kW only	
4	Tarikh Pentauliahkan NEM / NEM Commencement Date	

**BAHAGIAN 4 : SENARAI SEMAK DOKUMEN SOKONGAN / SECTION 4 : SUPPORTING DOCUMENTS CHECKLIST**

Salinan yang telah diperakui benar bagi dokumen-dokumen berikut hendaklah dikemukakan bagi menyokong permohonan ini, dimana yang berkenaan / *The certified true copies of the following documents are to be submitted in support of this application, where applicable*

No.	Dokumen Yang Diperlukan / Documents Required	Sila [/] / Please [/]
1.0	<b>Applicant Information:</b>	
1.1	<b>Individual (For Domestic Category)</b> Applicant's MyKad (front and back) / Passport (if foreign person).	
	<b>Company / Organization / Society / Government Body (if applicable)</b> Where applicable, the documents on (if any):	
	i) <b>Company:</b> Form 8 (Certificate of Incorporation of Public Company) or Form 9 (Certificate of Incorporation of Private Company) in connection with the Applicant under the Companies Act 1965;	
	ii) <b>Organisation (Body Corporate):</b> The certificate from the appropriate authority certifying that the body has been duly constituted under the said written law;	
	iii) <b>Organisation (Society):</b> The certificate of registration issued by the Malaysia Co-operative Societies Commission;	
	iv) <b>Organisation (Firm):</b> The certificate of registration (Form D) of the firm issued by the Registrar of Businesses; or the letter or certificate relating to the constitution of the firm from bodies regulating the profession in which the firm is practising in;	
	v) <b>Organisation (Registered Society):</b> The certificate of registration issued by the Malaysia Co-operative Societies Commission;	
	vi) <b>Organisation (Care Centre):</b> The certificate of registration of the care centre issued by the Social Welfare Department of Malaysia or the relevant religious authority;	
	vii) <b>Organisation (Place of Worship):</b> The certificate of registration of the place of worship issued by the relevant religious authority; or the certificate of registration of the society in charge of the place of worship issued by the Registrar of Societies and a letter from the relevant local authority confirming that the place of worship has duly obtained a certificate of completion and compliance or certificate of fitness or other applicable approval; or	
	viii) <b>Organisation (Educational Institution):</b> The certificate of registration of the educational institution issued by the Ministry of Education; or in the case of religious schools, the certificate of registration of the religious school issued by the relevant religious authority.	
2.0	<b>Site Information:</b>	
2.1	Documents proving the Applicant's ownership of the site, or other conditional or unconditional rights (e.g. letter or agreement) that the Applicant has to utilise/lease the site for a minimum period equivalent to the effective period	
3.0	<b>Technical Information:</b>	
3.1	i) <b>Installation less than 72kW:</b> The detailed engineering design of the renewable energy installation, including all relevant calculations to justify the installed capacity and claimed efficiencies, proposed plant layout and AC/DC single line diagram certified by relevant Competent Person under Electricity Supply Act 1990 and the regulations thereunder; or	
	ii) <b>Installation exceeding 72kW:</b> The detailed engineering design of the renewable energy installation, including all relevant calculations to justify the installed capacity and claimed efficiencies, proposed plant layout and AC/DC single line diagram certified by relevant Competent Person under Electricity Supply Act 1990 and the regulations thereunder.	
3.2	<b>Installation exceeding 12kW:</b> Report on the Net Energy Metering Assessment Study;	
3.3	Product data sheet / technical parameter for all electrical components. Please provide rating of each electrical components (SPD, fuses, switches, PV modules, Inverters)	
3.4	Form Load Profile (Form LP) - NEM Customer Load Profile	
3.5	If use battery storage, please provide detail design;	
4.0	<b>Billing information:</b>	
4.1	A copy of three (3) months electricity bill (latest);	

5.0	Competent Person and Electrical Contractor Certificates:	
5.1	Mandatory certificates:	
i)	A certificate of registration as an Electrical Contractor issued by ST;	
ii)	A certificate of registration as a Professional Engineer (Electrical) with Board of Engineers Malaysia for each Competent Person's;	
iii)	A certificate(s) of Competency as a Wireman issued by the ST for each Competent Person's	
5.2	Non-mandatory certificates:	
i)	A certificate of Competency in GCPV System Design issued by SEDA Malaysia for each Competent Person's	
ii)	A certificate of Competency as a Wiremen in GCPV System issued by SEDA Malaysia for each Competent Person's	
6.0	Others (Please specify):	
i)		
ii)		
iii)		
iv)		

## BAHAGIAN 5 : BORANG PENGISYTIHARAN BAGI PERMOHONAN NEM / SECTION 5 : DECLARATION FORM FOR NEM

### 5.1 PENGISYTIHARAN PEMOHON / APPLICANT DECLARATION

Untuk diisi oleh pemohon / To be completed by applicant.

Saya / I, [Nama / Name: .....], No. Mykad atau No. Pasport / Identity Card No. or Passport No.: ..... dan beralamat / and address:

.....

..

- 1.0 Saya dengan ini memberi kuasa kepada Orang Yang Kompeten mewakili pihak saya untuk menguruskan permohonan NEM saya ini / I hereby authorize the Competent Person to act on my behalf to manage my NEM application.
- 2.0 Saya dengan ini membuktikan bahawa Orang Yang Kompeten dilantik oleh saya adalah Orang Kompeten berdaftar dengan SEDA Malaysia atau ST / I hereby attest that the Competent Person appointed by me is a Competent Person registered with SEDA Malaysia or ST.
- 3.0 Saya dengan ini mengesahkan bahawa saya tidak melakukan apa-apa kesalahan di bawah Akta Bekalan Elektrik 1990 (Akta 447) dan/atau mana-mana undang-undang lain yang berkaitan dan peraturan-peraturan yang berkaitan dengan bekalan elektrik / I hereby confirm that I have not committed any offences under the Electricity Supply Act 1990 (Act 447) and/or any other relevant laws and regulations pertaining to the supply of electricity.
- 4.0 Saya dengan ini mengesahkan bahawa semua maklumat yang diberikan adalah benar dan betul / I hereby certify that all information given are true and correct.
- 5.0 Saya faham dan bersetuju bahawa Pihak Berkuasa yang berkenaan berhak mengambil apa-apa tindakan termasuk membatalkan semua yuran permulaan yang dibayar, sekiranya ada maklumat yang diberikan adalah palsu / I understand and agree that the relevant Authority will have the right to take any action including to forfeit all initial fees paid, if any of the information given is false.

.....  
Nama / Name:

No. Mykad atau No. Pasport /

Identity Card No. or Passport No. :

Tarikh / Date:

## 5.2 PENGISYTIHARAN RVPSP ATAU KONTRAKTOR ELEKTRIK / RVPSP OR ELECTRICAL CONTRACTOR DECLARATION

Untuk diisi oleh Orang Yang Kompeten / To be completed by Competent Person.

Nama Syarikat / Company's Name: \_\_\_\_\_

No. Pendaftaran Syarikat atau No. Perniagaan /

Company Registration No. or Business Registration No. \_\_\_\_\_

*Dengan menandatangani borang ini, saya mengaku bahawa / By signing this form, I declare that:*

- 1.0 Saya mewakili pemilik premis dan maklumat yang diberikan di atas adalah benar sepanjang pengetahuan dan kepercayaan saya / *I am representing the owner of the premise and the information furnished above is true to my knowledge and belief.*
- 2.0 Saya mengesahkan bahawa rekabentuk sistem solar PV mematuhi piawaian IEEE 1547 , MS 1837 dan keperluan lain yang berkaitan seperti amalan utiliti berhemat / *I confirm that the solar PV system design comply to the standards IEEE 1547, MS 1837 and other relevant requirements as per prudent utility practices.*
- 3.0 Saya juga mengesahkan bahawa keadaan tapak projek ini adalah sesuai untuk pemasangan sistem PV solar mengikut peraturan yang berkenaan / *I also verify that the site condition is fit for installation of the solar PV system as per applicable regulations.*
- 4.0 Saya dengan ini mengaku bahawa semua maklumat yang diberikan adalah benar dan Pihak Berkuasa yang berkenaan berhak untuk mengambil apa-apa tindakan sekiranya maklumat di atas adalah palsu / *I hereby acknowledge that all information given are true and the relevant Authority shall have the right to take any action if the above information are false.*

.....  
Nama Orang Yang Kompeten

/ Name of Competent

Tarikh / Date:

Cop Orang Yang Kompeten / Competent Person Stamp :

## FORM LOAD PROFILE (FORM LP) - NEM Customer Load Profile

TNB Account Number

Customer Name

Installation address

Service Provider

### FORECAST OF A TYPICAL DEMAND PROFILE

(Friday to Monday for capacity of >72kWp)

Friday				Saturday				Sunday				Monday			
Time	Voltage	Amps	MW	Time	Voltage	Amps	MW	Time	Voltage	Amps	MW	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			
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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

## **Form B – NEM Contract**

## NET METERING (NEM) CONTRACT FOR DOMESTIC CONSUMER

### DEFINITIONS

- (a) **ACT**  
means the Electricity Supply Act 1990 (Act 447) and/or any regulations made thereunder and/or any amendment, revision, modification or enactment made thereto or thereof from time to time for the time being in force.
- (b) **BILLING CYCLE PERIOD**  
means (i) the period beginning on the commissioning date of the Net Meter and ending on the last day of the following calendar year in which the commissioning date of the Net Meter occurs; and (ii) each twenty-four (24) months' period thereafter during the term of this Contract, or such other period as may be approved by the Government of Malaysia from time to time.
- (c) **BILLING MONTH**  
means the period between two (2) successive meter readings. The Net Meter is normally read at intervals of approximately thirty (30) days.
- (d) **CHANGE OF TENANCY**  
means a change of the registered consumer who is responsible to make payment of electricity bill of an existing TNB's account.
- (e) **COMPETENT PERSON**  
means a person who holds a Certificate of Registration as an Electrical Contractor issued under the Electricity Regulations 1994.
- (f) **CONSUMER**  
means any domestic consumer who:
  - (i) is an individual of a Malaysian nationality or a foreign nationality having residential address in Malaysia;
  - (ii) is a registered consumer of TNB who has entered into the Electricity Supply Contract;
  - (iii) is or will be supplied with electricity whereby the Premises are at the material time is connected or will be connected; and
  - (iv) is operating the Renewable Energy System at the Premises.
- (g) **CONTRACT**  
means the contract comprising of terms and conditions hereunder and NEM application form.
- (h) **ELECTRICITY SUPPLY CONTRACT**  
means the existing electricity supply contract entered into between the Consumer and TNB for the supply of electricity in accordance with the Act.
- (i) **EXPORT ENERGY**  
means the renewable energy generated and delivered by the Renewable Energy System to TNB's system, as measured in kWh by the Net Meter.

- (j) **GENERATED AMOUNT**  
means an amount (in RM) equal to the Export Energy multiplied by the Tariff.
- (k) **IMPORT ENERGY**  
means the electricity supplied by TNB and consumed by the Consumer, as measured in kWh by the Net Meter.
- (l) **kW**  
means kilowatt.
- (m) **kWh**  
means kilowatt-hour.
- (n) **METER INSTALLATION CHARGES**  
means an upfront contribution amount payable by a Consumer requiring infrastructure for new supply and/or upgrading of existing infrastructure for additional supply requirement and for the purpose of this Contract, the installation and connection of Net Meter, as approved by the Suruhanjaya Tenaga or any relevant authority.
- (o) **NET METER**  
means the metering equipment and devices supplied and installed by TNB for the measurement of the Import Energy and the Export Energy.
- (p) **PREMISES**  
means the residential dwelling unit of the Consumer on which the Renewable Energy System, the Renewable Energy Meter and the Net Meter are installed and located, which property shall not include multi-tenant properties such as but not limited to, condominiums, apartments, hotels or boarding houses and properties used for the purpose of carrying out any business, trades, profession or services.
- (q) **RENEWABLE ENERGY METER**  
means the renewable energy meter to be procured and installed at the Premises for the purpose of capturing the gross renewable energy generated from the Renewable Energy System.
- (r) **RENEWABLE ENERGY SYSTEM**  
means the renewable energy system located at the Premises which generates renewable energy utilizing renewable resources as provided by the Renewable Energy Act 2011 and as approved by the Suruhanjaya Tenaga, grid-connected inverter, the associated protection and control devices, alternating current and direct current cables and other related devices up to the Consumer's termination point.
- (s) **SUPPLIED AMOUNT**  
means an amount (in RM) equal to the Import Energy multiplied by the Tariff.
- (t) **SURUHANJAYA TENAGA**  
means the Suruhanjaya Tenaga established under the Energy Commission Act 2001 and any successor thereof.



- (u) **TARIFF**  
means the prevailing tariff, as provided by the Act and approved by the Government of Malaysia.
- (v) **TECHNICAL GUIDELINES**  
means TNB's technical guidelines as may be amended, revised, modified or supplemented from time to time, which provide the minimum technical, operation and safety requirements in ensuring that the features of the Renewable Energy System and the Net Meter are compatible with TNB's requirements.
- (w) **TNB**  
means Tenaga Nasional Berhad (200866-W), a company incorporated in Malaysia under the Companies Act 1965 and having its registered address at Pejabat Setiausaha Syarikat, Tingkat 2, Ibu Pejabat Tenaga Nasional Berhad, No. 129, Jalan Bangsar, 59200 Kuala Lumpur and having branches in Peninsular Malaysia.

**A. TERM OF CONTRACT**

This Contract shall be effective on the date on which the Net Meter is commissioned as notified by TNB and shall remain in effect unless otherwise terminated by either party in accordance with the provisions of this Contract.

**B. CONSUMER'S COVENANTS**

**1. CONSUMER DECLARATION**

The Consumer shall abide at all times to the Consumer Declaration as stipulated in the NEM application form and the following terms:

- (a) To ensure that the Renewable Energy System complies with the Technical Guidelines, all prevailing statutory requirements and best practices on safety, reliability and power quality of electrical installation as stipulated in the Malaysian Distribution Code and any amendments made thereunder.
- (b) The Renewable Energy System shall incorporate an anti-islanding function to ensure that the Renewable Energy System automatically disconnect from TNB's system during power interruption to allow TNB's personnel to work safely on the TNB's system.
- (c) Any other obligations under the Act.

**2. REPRESENTATIONS AND WARRANTIES OF THE CONSUMER**

The Consumer represents and warrants to TNB that:

- (a) The Consumer is an individual domicile and having a residential address in Malaysia.
- (b) The Consumer has full control and possession of the Premises, including all necessary ownership rights, leases, tenancies, title and/or interest of the Premises.
- (c) The Consumer shall comply with the provisions of all statutes, ordinances, by-laws, regulations and rules for the time being in force affecting the Premises or any constructions, improvements, installations, additions or alterations thereon and forthwith to satisfy all requirements of the municipality or any other local authority with respect to the Premises.

- (d) If the Consumer is a tenant of the Premises, the Consumer shall have obtained the prior written consent of the owner of the Premises for the installation and commissioning of the Net Meter.
- (e) The Consumer is not bankrupt and/or subject to any pending action or proceeding affecting the Consumer before any court, Government Entity or arbitrator that is likely to affect materially and adversely the financial condition or operations of the Consumer and the ability of the Consumer to perform its obligations hereunder, or that purports to affect the legality, validity or enforceability of this Contract.
- (f) The Consumer shall remain a Consumer of record of TNB for its own electricity consumption in good standing at all times, and shall not cause the Renewable Energy System, the Renewable Energy Meter and the Net Meter to be disconnected or removed from the Premises without the prior written consent of TNB.
- (g) If the Consumer is a feed-in-approval holder under the Renewable Energy Act 2011, the total capacity that is generated for the purposes of the Renewable Energy Act 2011 and this Contract shall not exceed:
  - (i) 12kW for single phase wiring system; and
  - (ii) 72kW for three phase wiring system.
- (h) The specifications of the Renewable Energy System shall be as set in the NEM application form. If the Consumer is not a feed-in-approval holder under the Renewable Energy Act 2011, the Renewable Energy System capacity shall not exceed (i) 12kW for single phase wiring system and (ii) 72kW for three phase wiring system. If the Consumer is a feed-in-approval holder under the Renewable Energy Act 2011, the Renewable Energy System capacity for each type of wiring system described in Clause 2(g) above shall be the difference in kW between the total capacity as set out in Clause 2(g) above and the capacity of the renewable energy installation installed by the Consumer for the purpose of the Renewable Energy Act 2011.
- (i) The Consumer shall have procured the installation of the necessary GPRS broadband signal at the Premises which is required for the remote reading of the Net Meter.
- (j) The Consumer shall comply with the terms and conditions under this Contract and the provisions under the Act.
- (k) The Consumer shall not install and operate virtual net meter which enables the Consumer to allocate the net excess in kWh generated by the Renewable Energy System to other resident within the vicinity of the Premises.
- (l) The Consumer shall immediately notify TNB of any change in the Consumer's personal information as provided for the purpose of this Contract.
- (m) The Consumer undertakes to operate and maintain the Renewable Energy System so as to be driven only by renewable resources as provided by the Renewable Energy Act 2011.
- (n) This Contract constitutes a legal, valid and binding obligation of the Consumer.

**3. METER INSTALLATION CHARGE**

To pay to TNB a Meter Installation Charge in full (if any) and such payment to be paid before any work of installation and connection of the Net Meter is commenced by TNB, as provided in the Act.

**4. DISCONNECTION FEE**

In the event the Renewable Energy System is disconnected from TNB's system and/or electricity supply is disconnected from the Premises, then appropriate fees shall be charged for such disconnection.

**5. ACCESS**

The Consumer consents with TNB that the authorised employees, servants, agents and/or representatives of TNB shall be permitted to have access to the Premises at reasonable time, manner and circumstances:

- (a) To carry out their duties which include but not limited to the construction, installation, inspection, testing and/or reading of the Net Meter, the Renewable Energy Meter and/or the Renewable Energy System or other relevant things relevant to the supply of electricity to the Premises.
- (b) To disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises upon the occurrence of any of the circumstances as set out in Clause 22.
- (c) For entry pursuant to Clause 5(a), TNB shall make good any damage, if any, as a result of such entry.

**6. COSTS AND EXPENSES FOR RENEWABLE ENERGY SYSTEM, NET METER AND RENEWABLE ENERGY METER**

All costs and expenses relating to the procurement, installation, testing, energizing and commissioning of the Renewable Energy System, the Net Meter and the Renewable Energy Meter together with the replacement or any future modification or relocation of the Renewable Energy System, the Net Meter and the Renewable Energy Meter shall solely be borne by the Consumer.

**7. NO INTERFERENCE OF ELECTRICITY SUPPLY TO OTHER CONSUMERS**

- (a) To operate and maintain the Renewable Energy System and/or use electricity supply so as not to interfere with the supply of electricity to any other consumers or TNB's electrical installation.
- (b) In the occurrence of the circumstances in Clause 7(a), the Consumer shall make good any loss or damage to TNB and/or made payment for the amount in the reasonable opinion of TNB to be the costs making good for such loss or damage.

**8. NO OBSTRUCTION TO TNB'S INSTALLATION**

- (a) The Consumer shall not create any obstruction and/or undertake any activity in the vicinity of any TNB's electrical installation and/or place any equipment which may endanger life or properties and/or to make any electrical wiring and/or installation to the existing installation without any written permission from the Suruhanjaya Tenaga and/or TNB.
- (b)
  - (i) TNB has the right to take any reasonable actions to remove any obstruction created by the Consumer or representative under Consumer's supervision/control.
  - (ii) TNB shall not be liable to pay any compensation for any losses and/or damages to the Consumer due to the said removal.

**9. RESPONSIBILITY TO MAKE GOOD ALL DAMAGES**

The Consumer shall pay for all damages on TNB's installation within the Premises due to negligence on the Consumer's part or any persons under the Consumer's control.

**10. TERMINATION BY THE CONSUMER**

- (a) To give TNB a notice in writing and shall be served by:
  - (i) hand delivery; or
  - (ii) way of prepaid registered post; or
  - (iii) any applicable means which shall be determined by TNB.
- (b) Termination of this Contract shall be effective three (3) working days after TNB's receipt of termination notice.
- (c) Notwithstanding to the above, in the event the actual disconnection cannot be performed by TNB due to inevitable causes, the Consumer shall be liable to pay all charges relating to the electricity consumed until the actual disconnection.

**11. TO TAKE SUPPLY OF ELECTRICITY**

To take supply of electricity at the Premises according to the Tariff rates pursuant to the provision of the Act.

**12. EXCEPTIONS TO ACCEPT THE EXPORT ENERGY**

Notwithstanding any other provision in this Contract, TNB shall not be obligated to accept the Export Energy if any of the following circumstances occurs:

- (a) for such periods and under such circumstances as TNB thinks fit having regard to public safety and private safety;
- (b) any emergency condition occurs;
- (c) the Renewable Energy System delivers the Export Energy which does not conform to the electrical characteristics consistent with prudent utility practices;
- (d) TNB interrupts the acceptance of the Export Energy to conduct necessary maintenance of TNB's system or the Net Meter;
- (e) any constraint in TNB's system to which the Renewable Energy System relates;
- (f) any dishonest consumption of the electricity by the Consumer or any third person;
- (g) any of the force majeure event as set forth in Clause 24;
- (h) the disconnection of the Renewable Energy System from TNB's system due to the failure of the Consumer to pay the amount as stipulated under Clause 21;  
or
- (i) the Consumer is in non-compliance with its obligations under Clause 2.

**13. UPKEEP AND MAINTENANCE OF TNB INSTALLATION**

The Consumer agrees:

- (a) to take steps to ensure that no damage or tampering is caused to the said installation; and
- (b) to allow TNB to maintain any electrical installation within the Premises at any time for safety purposes.

If there is any defect or abnormality on the installation, TNB shall have the right to make good the defects without being liable for any damages provided always it is not due to the negligence or willful acts of TNB, its employees or agents.

**14. VACATED PREMISES**

- (a) If the Consumer vacates the Premises without giving any notice to TNB as provided under Clause 10, the Consumer shall be liable to pay all charges of electricity consumed and any charges payable relating to the electricity

consumed until the installation is disconnected or upon the termination of this Contract, whichever is the later.

- (b) TNB shall have the right not to provide electricity supply to any other premises in which the account is registered under the Consumer's name until the Consumer has made the full payment of the outstanding balance.

**15. NON-TRANSFERABLE AND NO SETTING OFF OF CREDIT AMOUNT**

- (a) The Consumer shall not be entitled to transfer any credit amount as described in Clause 21(c) below to any other accounts of the Consumer or any third party account. For the avoidance of doubt, any remaining credit amount which may be subsisting at the end of each Billing Cycle Period or upon the termination of this Contract, as the case may be, shall be adjusted to zero without any compensation to the Consumer.
- (b) The Consumer shall not be entitled to set off any credit amount as described in Clause 21(c) below against any outstanding sums due and payable to TNB under the Electricity Supply Contract.

**C. TNB'S COVENANTS**

**16. LOCATION OF TNB'S INSTALLATIONS**

- (a) If any removal made to any TNB's installation and equipment which is likely to cause danger as provided under the Act, TNB shall have the right to disconnect electricity supply without notice.
- (b) If any relocation made to any TNB's installation and equipment without consent, TNB shall have the right to disconnect the electricity supply without notice and relocate the said installation and equipment with costs borne by the Consumer.

**17. INSPECTION BY TNB**

- (a) TNB may need to inspect and test all installations before connection of the Renewable Energy System or electricity supply. However, it is the responsibility of the Competent Person appointed by the Consumer to ensure that the installations are safe.
- (b) The Consumer shall inform TNB of any proposed extensions or alterations to the installations so that TNB may make inspection and test of the extension or alteration if TNB so desires.
- (c) TNB does not accept any responsibility for any loss or damage caused by or occurs during or after test due to any defect in the installation and any test carried out by TNB is for TNB's purposes only and does not imply any warranty that the installation is suitable for the Consumer's purposes or that it fully complies with the Technical Guidelines and the Act or any subsequent amendments made thereunder.

**18. TEMPORARY DISCONNECTION**

TNB may temporarily disconnect the supply of electricity to the Premises for any purposes in connection with TNB's efficient electricity supply system. TNB shall not be liable to provide any alternative supply to the Consumer after the disconnection.

**19. USAGE OF INSTALLATION FOR OTHER CONSUMER**

TNB may use its part of the installation to supply electricity to other consumers in the area.

**D. MUTUAL COVENANTS**

**20. EQUIPMENTS AND INSTALLATIONS**

Any installation comprising mains and service lines and other ancillary equipment up to and including the Net Meter will be the property of TNB.

**21. BILLING AND PAYMENT**

- (a) TNB shall read the Net Meter on a monthly basis and shall measure the Import Energy and the Export Energy to determine the Supplied Amount and the Generated Amount respectively.
- (b) If, during any relevant Billing Month, the Import Energy exceeds the Export Energy, then the Consumer shall be billed for an amount (in RM) equal to the difference between (i) the sum of Supplied Amount and the appropriate charges and taxes and (ii) the Generated Amount and the appropriate taxes. The bills rendered by TNB to the Consumer shall be paid by the Consumer within the stipulated period.
- (c) If, during any relevant Billing Month, the Export Energy exceeds the Import Energy, then the Consumer shall be credited for an amount (in kWh) equal to such difference in the following Billing Month. Notwithstanding the above, the Consumer shall pay any appropriate taxes and charges (if any).
- (d) At the end of each Billing Cycle Period or upon the termination of this Contract, as the case may be:
  - (i) any remaining amount as described in Clause 21(b) above shall be billed and paid by the Consumer in accordance with Clause 21(b); and
  - (ii) any credit amount as described in Clause 21(c) above which may be subsisting at the end of such Billing Cycle Period or upon the termination of this Contract shall be adjusted to zero without any compensation to the Consumer.

For the avoidance of doubt, if this Contract is terminated prior to the end of a Billing Cycle Period, any credit amount as described in Clause 21(c) above which may be subsisting shall be adjusted to zero without any compensation to the Consumer.

- (e) In addition to the total payable amount as stated in any monthly bill for any Billing Month as described under Clause 21(b) and Clause 21(c), the Consumer may be imposed with a grid fixed charge and the appropriate taxes as provided in this Contract, if any.
- (f) TNB shall have the right to impose surcharge of one per cent (1%) on the outstanding amount calculated until the date of full payment.
- (g) The Consumer shall be liable for electricity bills issued by TNB including any unpaid amount insofar as the account is registered under the Consumer's name regardless of any consumption of electricity by any third party.
- (h) The Consumer shall be responsible to repay the amount in the bills rendered by TNB including any other relevant charges for any invalid payment made by the Consumer such as false credit card, bounced cheque and any other invalid payment.

- (i) In the event the Consumer fails to make payments as required under this Clause 21, TNB shall have the right to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises or any other premises which is registered under the Consumer's name.
- (j) The Consumer shall be liable for any arrears of electricity bill and/or loss suffered by TNB by reason of dishonest consumption of electricity supply in all circumstances in accordance with the provisions of the Act.
- (k) TNB shall have the right to make adjustment and update of Consumer's account whenever necessary.
- (l) TNB shall be entitled to set off any amount due to it under this Contract against any sums due and payable to the Consumer under the terms of this Contract.

**22. DISCONNECTION OF SUPPLY**

- (a) Subject to the Act, TNB shall have the right to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises without giving prior notice in any situations mentioned below:
  - (i) any default by the Consumer under Clause 23 and such default are not remedied within the stipulated period if any;
  - (ii) by Court Order/Judgment;
  - (iii) if in the opinion of TNB that the continuation of the delivery of renewable energy by the Renewable Energy System to TNB's system or the supply of electricity to the Premises will jeopardize the safety, reliability or security of TNB's system or presents an imminent physical threat or endanger the safety, life or health of any person or property;
  - (iv) upon the receipt of the termination notice indicating the intention to terminate this Contract by either TNB or the Consumer;
  - (v) any removal made to any TNB's installation and equipment as described in Clause 16(a);
  - (vi) the occurrence of the circumstances as described in Clause 12(d) or Clause 12(e); or
  - (vii) any right to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises without notice as provided under the Act.
- (b) For the avoidance of doubt, the Consumer hereby irrevocably and unconditionally agrees and acknowledges that:
  - (i) TNB shall be excused from all its obligations under this Contract in the event TNB exercises its rights to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises in any situations as set out in this Clause 22; and
  - (ii) TNB shall not be responsible for any loss or damage that may arise as a result of the disconnection of the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises.

**23. EVENT OF DEFAULT**

The occurrence of any of the following shall constitute an event of default under this Contract and it is not limited to:

- (a) Act or default of the Consumer affecting the efficiency and/or safety of TNB's installation.

- (b) The Consumer has failed to comply and/or breach with any provision of this Contract and/or the Act and/or commit any offence under the Act.
- (c) The Consumer has obtained consent for the appointment of or the taking of possession by a receiver or liquidator of itself or of all or a substantial part of its property.
- (d) The Consumer acknowledges in writing its inability to pay its debt as such debts become due.
- (e) The Consumer makes a general assignment or an arrangement or composition with or for the benefit of its creditor.
- (f) Instituting a case voluntarily or filing a petition against any party seeking to take advantage of any law relating to bankruptcy, insolvency, restructuring of its debts, winding up or composition.
- (g) The Consumer is under receivership or under special administration or liquidation.
- (h) The Consumer is declared a bankrupt by the Court.
- (i) Upon the Consumer's death.
- (j) Failure to pay the amount as stipulated under Clause 21 above.
- (k) Any warranty, representation or covenant made by the Consumer in this Contract is false or inaccurate in any material respect.
- (l) The occurrence of a Change of Tenancy.
- (m) Consumption of electricity in any dishonest manner.
- (n) The Consumer fails to comply with any of the provisions stipulated under Clause 1 of this Contract.
- (o) The Electricity Supply Contract is terminated for any reason whatsoever.
- (p) In the event the Consumer vacates the Premises pursuant to Clause 14(a).

**24. FORCE MAJEURE**

Neither party shall be liable to the other party for any breach of terms and conditions of this Contract due to any of this event which shall include but not limited to national emergency war, hostilities, riot, civil commotion, earthquake, flood, disposition or by compliance with any order of government, local or any other authorities.

**25. INDEMNITY AND NO LIABILITY CLAIM**

- (a) The Consumer agrees to indemnify and keep indemnified (indemnifying) TNB from and against all and/or any claims, actions, compensations, suits, proceedings, demands and all legal costs incurred thereby, brought against TNB, its servants or agents by a third party to which TNB shall or may be or become liable in respect of or arising from the performance of this Contract provided always it is not due to the negligence or willful acts of TNB, its employees or agents.
- (b) The Consumer shall at all times be fully liable to TNB and remain responsible for all damages flowing from any breach or default of any term or obligation in this Contract regardless of whether the Renewable Energy System and the Renewable Energy Meter are installed and owned by a third party or otherwise.
- (c) The Consumer hereby agrees that neither TNB nor its employees, servants, agents, representatives shall be liable and/or make good the Consumer in respect of any damage, injury or loss to any of the Consumer's property and/or life arising from any fault of the TNB's system or the Consumer's installation at the Premises unless such damage, injury or loss have been



proven as a result of any willful act, negligence, omission and/or failure to comply with any safety measures as provided under any written law.

- (d) The Consumer hereby agrees further that TNB shall not be liable for any cost incurred, loss and/or damage of industrial goods, product, property or life of the Consumer as a result of any unavoidable accident, voltage fluctuation, interruption, reduction and/or cessation of the electricity supply, fire or accident that may occur in consequence of the supply of electricity or the use or misuse which is not due to the negligence or willful act of TNB and/or its employees.

**26. NOTICES**

Unless and otherwise provided under the Act and any Clause stated under this Contract, any notice, demand or other communication which is required or allowed to be given or made under this Contract shall be in writing and shall be served by hand delivery or by way of prepaid registered post or ordinary post or any electronic means as mutually agreed by both parties to the address stated in this Contract. Proof of posting or service of any notice, demand or communication shall be deemed to be duly served:

- (a) if service is delivered by hand, at the time of such delivery and duly acknowledged;
  - (b) if service is by way of post, on the third (3<sup>rd</sup>) working day after posting thereof;  
or
  - (c) if service is delivered by electronic means, at the time of such delivery report.
- Provided that the above Clause 26 shall not be applied to the termination of this Contract.

**27. REMOVAL OF TNB INSTALLATION**

If the Consumer or the proprietor of the Premises requests TNB to remove or relocate the supply line, pole, sub-station, pylon or any other TNB's installation or equipment within or outside the Premises, subject to consent by TNB, all costs of executing the removal or relocation shall be fully borne by the Consumer or the proprietor as the case may be.

**28. SERVICES OF LEGAL PROCESS**

The service of any legal process shall be by way of prepaid registered post sent to the address as stated in this Contract. Proof of posting shall be regarded as proof of acceptance and the said service shall be deemed to have been duly served and duly received upon the expiry of five (5) days from the date of posting.

**29. TERMINATION OF CONTRACT BY TNB**

- (a) TNB may terminate this Contract at any time upon giving not less than fourteen (14) working days' notice in writing of its intention to do so.
- (b) TNB may terminate this Contract under Clause 22(a) by giving fourteen (14) working days' notice from the date of expiry of the remedy period, except for the situations in Clause 22(a)(ii) and Clause 22(a)(iv).
- (c) If the Consumer renders to TNB a temporary notice of disconnection of the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises thereby it shall be deemed as a notice of termination of the Contract and subject to the issuance of notice under Clause 29(a).
- (d) If TNB discovers that the information given is false and/or is disputed with the existence of prima facie proof relating to the delivery of renewable energy by

the Renewable Energy System and the supply of electricity to the Premises and proven by any applicable laws or court order, TNB shall have the right to terminate this Contract upon giving a written notice of not less than twenty-four (24) hours.

- (e) If TNB for any reasons pursuant to any laws or under any direction of the Suruhanjaya Tenaga and/or relevant authority has been given the right to terminate this Contract.

**30. CONSEQUENCES OF TERMINATION**

On such effective date of termination under Clause 10 or Clause 29,

- (a) TNB shall be discharged from any obligations and liabilities under this Contract including any claim for damages without prejudice to TNB's rights to make such claim due to the disconnection of the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises and the termination of this Contract;
- (b) the terms and conditions as specified in the Electricity Supply Contract shall then be applicable; and
- (c) this Clause 30 shall survive the termination of this Contract.

**31. TRANSFER OF OUTSTANDING AMOUNT AND BALANCE OF DEPOSIT**

- (a) TNB shall have the right to transfer any outstanding amount of electricity bills from any vacated account of the Consumer to any active account registered under the Consumer's name.
- (b) If there is a balance of deposit from the Consumer's vacated account, TNB shall have the right to use the balance of the deposit to adjust for any outstanding amount from whichever active account registered under the Consumer's name.

**32. ENVIRONMENT ATTRIBUTE**

The value of any credits or financial benefits which are available or may become available for reductions of "green house gas" emissions earned from the generation of renewable energy by the Renewable Energy System shall be solely for the benefit of the Consumer or the owner of the Renewable Energy System.

**E. MISCELLANEOUS**

**33. AMENDMENT, MODIFICATION OR REPLACEMENT**

TNB reserves the right to amend, modify, revise or replace the terms and conditions stipulated under this Contract from time to time. TNB may give notice of amendment to the Consumer in such a manner as TNB reasonably deems appropriate.

**34. CHANGE IN NEM SCHEME AND/OR THE ACT**

In the event of any change in the NEM scheme and/or the Act including but not limited to the application of the Technical Guidelines or the discontinuation of the NEM scheme as decided by the Government of Malaysia, TNB may by written notice to the Consumer unilaterally amend the terms and conditions of this Contract in any manner that it deems fit in order to ensure the compliance of the Government of Malaysia's decision, the Act and the Technical Guidelines.

**35. ASSIGNMENT**

The Consumer shall not assign any of the rights or obligations arising under this Contract to any third party without the prior consent in writing of TNB. TNB shall be entitled to assign or transfer its interest, rights and obligations in whole or in part under this Contract without the Consumer's prior written consent and the Consumer hereby agrees to execute such agreement and do such things as may be required by TNB to give effect to such assignment and/or transfer.

**36. CONFIDENTIALITY**

Except as it is or becomes a part of the public domain, all information provided by either party under this Contract shall be confidential at all times unless specified otherwise in writing.

**37. GOVERNING LAW**

This Contract shall be governed by and construed in accordance with the Act and any regulations made thereunder including any amendment thereto as well as any other relevant written laws.

**38. INSTALLATION OF EQUIPMENT TO GENERATE RENEWABLE ENERGY**

- (a) The Consumer shall inform TNB on any equipment installed at the Premises for the purpose of generating renewable energy.
- (b) If the Consumer is a feed-in-approval holder under the Renewable Energy Act 2011, the equipment installed at the Premises for the purpose of generating renewable energy under the Renewable Energy Act 2011 and this Contract shall be deemed separate and not to be used interchangeably.

**39. PERSONAL DATA PROTECTION**

- (a) TNB respect the privacy of all individuals with whom TNB has a contractual relationship. TNB is committed in protecting all personal data kept by TNB. For this reason, TNB has adopted its Personal Data Protection Policy which is in compliance with the Personal Data Protection Act 2010.
- (b) The Consumer has read and fully understands TNB's Personal Data Protection Policy which is available at <https://www.tnb.com.my/terms-policy/personal-data-protection-policy-pdpa/>.

**40. SEVERABILITY**

If any one or more of the provisions or part thereof contained in this Contract should be or become invalid or unenforceable due to whatsoever reasons this shall not in any way affect or impair the validity or enforceability of the remaining provision hereof.

**41. STAMP DUTY**

The stamp duty in respect of this Contract shall be borne and fully paid by the Consumer.

**42. SUCCESSORS-IN-TITLE**

This Contract shall be binding upon the successors-in-title and permitted assigns of the respective parties hereto.

**43. TAXES**

The Consumer shall be responsible for all present and future taxes, duties, levies and other similar charges including any related interest and penalties, however designated, arising out or in connection with the supply of any kind imposed by law.

**44. TIME PERIOD**

Time wherever mentioned shall be the essence of this Contract.

**45. WAIVER**

Knowledge or acquiescence by TNB of or in breach of any of the conditions or covenants herein contained shall not operate as or be deemed to be waiver of such conditions or covenants or any of them and notwithstanding such acknowledge or acquiescence, TNB shall be entitled to exercise its rights under this Contract.

**46. APPLICABILITY OF THE ELECTRICITY SUPPLY CONTRACT**

- (a) The terms and conditions as specified in the Electricity Supply Contract shall continue in full force and effect during the term of this Contract.
- (b) For the avoidance of doubt, in the event of any inconsistency between the terms and conditions of this Contract and the terms and conditions of the Electricity Supply Contract, the terms and conditions of this Contract shall prevail.

## NET METERING (NEM) CONTRACT FOR NON-DOMESTIC CONSUMER

### DEFINITIONS

- (a) **ACT**  
means the Electricity Supply Act 1990 (Act 447) and/or any regulations made thereunder and/or any amendment, revision, modification or enactment made thereto or thereof from time to time for the time being in force.
- (b) **BILLING CYCLE PERIOD**  
means (i) the period beginning on the commissioning date of the Net Meter and ending on the last day of the following calendar year in which the commissioning date of the Net Meter occurs; and (ii) each twenty-four (24) months' period thereafter during the term of this Contract, or such other period as may be approved by the Government of Malaysia from time to time.
- (c) **BILLING MONTH**  
means the period between two (2) successive meter readings. The Net Meter is normally read at intervals of approximately thirty (30) days.
- (d) **CHANGE OF TENANCY**  
means a change of the registered consumer who is responsible to make payment of electricity bill of an existing TNB's account.
- (e) **COMPETENT PERSON**  
means a person who holds a Certificate of Registration as an Electrical Contractor issued under the Electricity Regulations 1994.
- (f) **CONSUMER**  
means any Non-Domestic Consumer who:  
(i) is a registered consumer of TNB who has entered into the Electricity Supply Contract;  
(ii) is or will be supplied with electricity whereby the Premises are at the material time is connected or will be connected; and  
(iii) is operating the Renewable Energy System at the Premises.
- (g) **CONTRACT**  
means the contract comprising of terms and conditions hereunder and NEM application form.
- (h) **ELECTRICITY SUPPLY CONTRACT**  
means the existing electricity supply contract entered into between the Consumer and TNB for the supply of electricity in accordance with the Act.
- (i) **EXPORT ENERGY**  
means the renewable energy generated and delivered by the Renewable Energy System to TNB's system, as measured in kWh by the Net Meter.
- (j) **GENERATED AMOUNT**  
means an amount (in RM) equal to the Export Energy multiplied by the Tariff.

- (k) **IMPORT ENERGY**  
means the electricity supplied by TNB and consumed by the Consumer, as measured in kWh by the Net Meter.
- (l) **INSTALLED CAPACITY**  
means in respect of the Consumer falling under the tariff classification of Low Voltage or Medium Voltage, the installed capacity of the Renewable Energy System shall not exceed seventy-five per cent (75%) of the maximum demand of the Consumer's existing installations. Maximum demand shall be determined based on (A) in respect of a Consumer with less than one (1) year history of recorded maximum demand, the declared maximum demand, and (B) in respect a Consumer with at least one (1) year history of recorded maximum demand, the average of the recorded maximum demand for the immediately preceding one (1) year period.
- (m) **kW**  
means kilowatt.
- (n) **kWh**  
means kilowatt-hour.
- (o) **LOW VOLTAGE**  
in the context of tariff classification means a supply voltage less than 1000 volts.
- (p) **MEDIUM VOLTAGE**  
in the context of tariff classification means a supply voltage from 1,001 volts to 50,000 volts.
- (q) **METER INSTALLATION CHARGES**  
means an upfront contribution amount payable by a Consumer requiring infrastructure for new supply and/or upgrading of existing infrastructure for additional supply requirement and for the purpose of this Contract, the installation and connection of Net Meter, as approved by the Suruhanjaya Tenaga or any relevant authority.
- (r) **NET METER**  
means the metering equipment and devices supplied and installed by TNB for the measurement of the Import Energy and the Export Energy.
- (s) **NON-DOMESTIC CONSUMER**  
means any entity:  
(i) duly incorporated under the laws of Malaysia and having its registered business in Malaysia; and  
(ii) within the commercial or industrial tariff classification of Low Voltage or Medium Voltage under the Tariff Book.
- (t) **PREMISES**  
means the premises or properties of the Consumer on which the Renewable Energy System, the Renewable Energy Meter and the Net Meter are installed and located, which property shall not include multi-tenant properties such as but not limited to,

condominiums, apartments, hotels or boarding houses and properties used for the purpose of carrying out any business, trades, profession or services.

- (u) **RENEWABLE ENERGY METER**  
means the renewable energy meter to be procured and installed at the Premises for the purpose of capturing the gross renewable energy generated from the Renewable Energy System.
- (v) **RENEWABLE ENERGY SYSTEM**  
means the renewable energy system located at the Premises which generates renewable energy utilizing renewable resources as provided by the Renewable Energy Act 2011 and as approved by the Suruhanjaya Tenaga, grid-connected inverter, storage devices (if any), the associated protection and control devices (including but not limited to isolator and relay), alternating current and direct current cables, switches and other related devices up to the Consumer's termination point.
- (w) **SUPPLIED AMOUNT**  
means an amount (in RM) equal to the Import Energy multiplied by the Tariff.
- (x) **SURUHANJAYA TENAGA**  
means the Suruhanjaya Tenaga established under the Energy Commission Act 2001 and any successor thereof.
- (y) **TARIFF**  
means the prevailing tariff, as provided by the Act and approved by the Government of Malaysia.
- (z) **TARIFF BOOK**  
means TNB's tariff book as may be amended, revised, modified or supplemented from time to time.
- (aa) **TECHNICAL GUIDELINES**  
means TNB's technical guidelines as may be amended, revised, modified or supplemented from time to time, which provide the minimum technical, operation and safety requirements in ensuring that the features of the Renewable Energy System and the Net Meter are compatible with TNB's requirements.
- (bb) **TNB**  
means Tenaga Nasional Berhad (200866-W), a company incorporated in Malaysia under the Companies Act 1965 and having its registered address at Pejabat Setiausaha Syarikat, Tingkat 2, Ibu Pejabat Tenaga Nasional Berhad, No. 129, Jalan Bangsar, 59200 Kuala Lumpur and having branches in Peninsular Malaysia.

#### **A. TERM OF CONTRACT**

This Contract shall be effective on the date on which the Net Meter is commissioned as notified by TNB and shall remain in effect unless otherwise terminated by either party in accordance with the provisions of this Contract.

**B. CONSUMER'S COVENANTS**

**1. CONSUMER DECLARATION**

The Consumer shall abide at all times to the Consumer Declaration as stipulated in the NEM application form and the following terms:

- (a) To ensure that the Renewable Energy System complies with the Technical Guidelines, all prevailing statutory requirements and best practices on safety, reliability and power quality of electrical installation as stipulated in the Malaysian Distribution Code and any amendments made thereunder.
- (b) The Renewable Energy System shall incorporate an anti-islanding function to ensure that the Renewable Energy System automatically disconnect from TNB's system during power interruption to allow TNB's personnel to work safely on the TNB's system.
- (c) Any other obligations under the Act.

**2. REPRESENTATIONS AND WARRANTIES OF THE CONSUMER**

The Consumer represents and warrants to TNB that:

- (a) The Consumer is an entity duly organised and validly existing under the laws of Malaysia and having a registered business in Malaysia.
- (b) The Consumer has all requisite power and authority to execute, deliver and perform its obligations under this Contract.
- (c) The Consumer has full control and possession of the Premises, including all necessary ownership rights, leases, tenancies, title and/or interest of the Premises.
- (d) The Consumer shall comply with the provisions of all statutes, ordinances, by-laws, regulations and rules for the time being in force affecting the Premises or any constructions, improvements, installations, additions or alterations thereon and forthwith to satisfy all requirements of the municipality or any other local authority with respect to the Premises.
- (e) If the Consumer is a tenant of the Premises, the Consumer shall have obtained the prior written consent of the owner of the Premises for the installation and commissioning of the Net Meter.
- (f) The Consumer is not insolvent and/or subject to any pending action or proceeding affecting the Consumer before any court, Government Entity or arbitrator that is likely to affect materially and adversely the financial condition or operations of the Consumer and the ability of the Consumer to perform its obligations hereunder, or that purports to affect the legality, validity or enforceability of this Contract.
- (g) The Consumer shall remain a Consumer of record of TNB for its own electricity consumption in good standing at all times, and shall not cause the Renewable Energy System, the Renewable Energy Meter and the Net Meter to be disconnected or removed from the Premises without the prior written consent of TNB.
- (h) If the Consumer is a feed-in-approval holder under the Renewable Energy Act 2011, the total capacity that is generated for the purposes of the Renewable Energy Act 2011 and this Contract shall not exceed the Installed Capacity.
- (i) The specifications of the Renewable Energy System shall be as set in the NEM application form. If the Consumer is not a feed-in-approval holder under the Renewable Energy Act 2011, the Renewable Energy System



capacity shall not exceed the Installed Capacity. If the Consumer is a feed-in-approval holder under the Renewable Energy Act 2011, the Renewable Energy System capacity shall be the difference between the Installed Capacity and the capacity of the renewable energy installation installed by the Consumer for the purpose of the Renewable Energy Act 2011.

- (j) The Consumer shall have procured the installation of the necessary GPRS broadband signal at the Premises which is required for the remote reading of the Net Meter, if applicable.
- (k) The Consumer shall comply with the terms and conditions under this Contract and the provisions under the Act.
- (l) The Consumer shall not install and operate virtual net meter which enables the Consumer to allocate the net excess in kWh generated by the Renewable Energy System to other resident within the vicinity of the Premises.
- (m) The Consumer shall immediately notify TNB of any change in the Consumer's information as provided for the purpose of this Contract.
- (n) The Consumer undertakes to operate and maintain the Renewable Energy System so as to be driven only by renewable resources as provided by the Renewable Energy Act 2011.
- (o) The Consumer shall have obtained a licence under Section 9 of the Act from the Suruhanjaya Tenaga if the installation of the Consumer exceeds (i) 24kW for single phase wiring system and (ii) 72kW for three phase wiring system.
- (p) This Contract constitutes a legal, valid and binding obligation of the Consumer.

**3. METER INSTALLATION CHARGE**

To pay to TNB a Meter Installation Charge in full (if any) and such payment to be paid before any work of installation and connection of the Net Meter is commenced by TNB, as provided in the Act.

**4. DISCONNECTION FEE**

In the event the Renewable Energy System is disconnected from TNB's system and/or electricity supply is disconnected from the Premises, then appropriate fees shall be charged for such disconnection.

**5. ACCESS**

The Consumer consents with TNB that the authorised employees, servants, agents and/or representatives of TNB shall be permitted to have access to the Premises at reasonable time, manner and circumstances:

- (a) To carry out their duties which include but not limited to the construction, installation, inspection, testing and/or reading of the Net Meter, the Renewable Energy Meter and/or the Renewable Energy System or other relevant things relevant to the supply of electricity to the Premises.
- (b) To disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises upon the occurrence of any of the circumstances as set out in Clause 22.
- (c) For entry pursuant to Clause 5(a), TNB shall make good any damage, if any, as a result of such entry.

**6. COSTS AND EXPENSES FOR RENEWABLE ENERGY SYSTEM, NET METER AND RENEWABLE ENERGY METER**

All costs and expenses relating to the procurement, installation, testing, energizing and commissioning of the Renewable Energy System, the Net Meter and the Renewable Energy Meter together with the replacement or any future modification or relocation of the Renewable Energy System, the Net Meter and the Renewable Energy Meter shall solely be borne by the Consumer.

**7. NO INTERFERENCE OF ELECTRICITY SUPPLY TO OTHER CONSUMERS**

- (a) To operate and maintain the Renewable Energy System and/or use electricity supply so as not to interfere with the supply of electricity to any other consumers or TNB's electrical installation.
- (b) In the occurrence of the circumstances in Clause 7(a), the Consumer shall make good any loss or damage to TNB and/or made payment for the amount in the reasonable opinion of TNB to be the costs making good for such loss or damage.

**8. NO OBSTRUCTION TO TNB'S INSTALLATION**

- (a) The Consumer shall not create any obstruction and/or undertake any activity in the vicinity of any TNB's electrical installation and/or place any equipment which may endanger life or properties and/or to make any electrical wiring and/or installation to the existing installation without any written permission from the Suruhanjaya Tenaga and/or TNB.
- (b)
  - (i) TNB has the right to take any reasonable actions to remove any obstruction created by the Consumer or representative under Consumer's supervision/control.
  - (ii) TNB shall not be liable to pay any compensation for any losses and/or damages to the Consumer due to the said removal.

**9. RESPONSIBILITY TO MAKE GOOD ALL DAMAGES**

The Consumer shall pay for all damages on TNB's installation within the Premises due to negligence on the Consumer's part or any persons under the Consumer's control.

**10. TERMINATION BY THE CONSUMER**

- (a) To give TNB a notice in writing and shall be served by:
  - (i) hand delivery; or
  - (ii) way of prepaid registered post; or
  - (iii) any applicable means which shall be determined by TNB.
- (b) Termination of this Contract shall be effective three (3) working days after TNB's receipt of termination notice.
- (c) Notwithstanding to the above, in the event the actual disconnection cannot be performed by TNB due to inevitable causes, the Consumer shall be liable to pay all charges relating to the electricity consumed until the actual disconnection.

**11. TO TAKE SUPPLY OF ELECTRICITY**

To take supply of electricity at the Premises according to the Tariff rates pursuant to the provision of the Act.

**12. EXCEPTIONS TO ACCEPT THE EXPORT ENERGY**

Notwithstanding any other provision in this Contract, TNB shall not be obligated to accept the Export Energy if any of the following circumstances occurs:

- (a) for such periods and under such circumstances as TNB thinks fit having regard to public safety and private safety;
- (b) any emergency condition occurs;
- (c) the Renewable Energy System delivers the Export Energy which does not conform to the electrical characteristics consistent with prudent utility practices;
- (d) TNB interrupts the acceptance of the Export Energy to conduct necessary maintenance of TNB's system or the Net Meter;
- (e) any constraint in TNB's system to which the Renewable Energy System relates;
- (f) any dishonest consumption of the electricity by the Consumer or any third person;
- (g) any of the force majeure event as set forth in Clause 24;
- (h) the disconnection of the Renewable Energy System from TNB's system due to the failure of the Consumer to pay the amount as stipulated under Clause 21; or
- (i) the Consumer is in non-compliance with its obligations under Clause 2.

**13. UPKEEP AND MAINTENANCE OF TNB INSTALLATION**

The Consumer agrees:

- (a) to take steps to ensure that no damage or tampering is caused to the said installation; and
- (b) to allow TNB to maintain any electrical installation within the Premises at any time for safety purposes.

If there is any defect or abnormality on the installation, TNB shall have the right to make good the defects without being liable for any damages provided always it is not due to the negligence or willful acts of TNB, its employees or agents.

**14. VACATED PREMISES**

- (a) If the Consumer vacates the Premises without giving any notice to TNB as provided under Clause 10, the Consumer shall be liable to pay all charges of electricity consumed and any charges payable relating to the electricity consumed until the installation is disconnected or upon the termination of this Contract, whichever is the later.
- (b) TNB shall have the right not to provide electricity supply to any other premises in which the account is registered under the Consumer's name until the Consumer has made the full payment of the outstanding balance.

**15. NON-TRANSFERABLE AND NO SETTING OFF OF CREDIT AMOUNT**

- (a) The Consumer shall not be entitled to transfer any credit amount as described in Clause 21(c) below to any other accounts of the Consumer or any third party account. For the avoidance of doubt, any remaining credit amount which may be subsisting at the end of each Billing Cycle Period or upon the termination of this Contract, as the case may be, shall be adjusted to zero without any compensation to the Consumer.
- (b) The Consumer shall not be entitled to set off any credit amount as described in Clause 21(c) below against any outstanding sums due and payable to TNB under the Electricity Supply Contract.

**C. TNB'S COVENANTS**

**16. LOCATION OF TNB'S INSTALLATIONS**

- (a) If any removal made to any TNB's installation and equipment which is likely to cause danger as provided under the Act, TNB shall have the right to disconnect electricity supply without notice.
- (b) If any relocation made to any TNB's installation and equipment without consent, TNB shall have the right to disconnect the electricity supply without notice and relocate the said installation and equipment with costs borne by the Consumer.

**17. INSPECTION BY TNB**

- (a) TNB may need to inspect and test all installations before connection of the Renewable Energy System or electricity supply. However, it is the responsibility of the Competent Person appointed by the Consumer to ensure that the installations are safe.
- (b) The Consumer shall inform TNB of any proposed extensions or alterations to the installations so that TNB may make inspection and test of the extension or alteration if TNB so desires.
- (c) TNB does not accept any responsibility for any loss or damage caused by or occurs during or after test due to any defect in the installation and any test carried out by TNB is for TNB's purposes only and does not imply any warranty that the installation is suitable for the Consumer's purposes or that it fully complies with the Technical Guidelines and the Act or any subsequent amendments made thereunder.

**18. TEMPORARY DISCONNECTION**

TNB may temporarily disconnect the supply of electricity to the Premises for any purposes in connection with TNB's efficient electricity supply system. TNB shall not be liable to provide any alternative supply to the Consumer after the disconnection.

**19. USAGE OF INSTALLATION FOR OTHER CONSUMER**

TNB may use its part of the installation to supply electricity to other consumers in the area.

**D. MUTUAL COVENANTS**

**20. EQUIPMENTS AND INSTALLATIONS**

Any installation comprising mains and service lines and other ancillary equipment up to and including the Net Meter will be the property of TNB.

**21. BILLING AND PAYMENT**

- (a) TNB shall read the Net Meter on a monthly basis and shall measure the Import Energy and the Export Energy to determine the Supplied Amount and the Generated Amount respectively.
- (b) If, during any relevant Billing Month, the Import Energy exceeds the Export Energy, then the Consumer shall be billed for an amount (in RM) equal to the difference between (i) the sum of Supplied Amount and the appropriate charges and taxes and (ii) the Generated Amount and the appropriate taxes.

The bills rendered by TNB to the Consumer shall be paid by the Consumer within the stipulated period.

- (c) If, during any relevant Billing Month, the Export Energy exceeds the Import Energy, then the Consumer shall be credited for an amount (in kWh) equal to such difference in the following Billing Month. Notwithstanding the above, the Consumer shall pay any appropriate taxes and charges (if any).
- (d) At the end of each Billing Cycle Period or upon the termination of this Contract, as the case may be:
  - (i) any remaining amount as described in Clause 21(b) above shall be billed and paid by the Consumer in accordance with Clause 21(b); and
  - (ii) any credit amount as described in Clause 21(c) above which may be subsisting at the end of such Billing Cycle Period or upon the termination of this Contract shall be adjusted to zero without any compensation to the Consumer.

For the avoidance of doubt, if this Contract is terminated prior to the end of a Billing Cycle Period, any credit amount as described in Clause 21(c) above which may be subsisting shall be adjusted to zero without any compensation to the Consumer.

- (e) In addition to the total payable amount as stated in any monthly bill for any Billing Month as described under Clause 21(b) and Clause 21(c), the Consumer may be imposed with a grid fixed charge and the appropriate taxes as provided in this Contract, if any.
- (f) TNB shall have the right to impose surcharge of one per cent (1%) on the outstanding amount calculated until the date of full payment.
- (g) The Consumer shall be liable for electricity bills issued by TNB including any unpaid amount insofar as the account is registered under the Consumer's name regardless of any consumption of electricity by any third party.
- (h) The Consumer shall be responsible to repay the amount in the bills rendered by TNB including any other relevant charges for any invalid payment made by the Consumer such as false credit card, bounced cheque and any other invalid payment.
- (i) In the event the Consumer fails to make payments as required under this Clause 21, TNB shall have the right to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises or any other premises which is registered under the Consumer's name.
- (j) The Consumer shall be liable for any arrears of electricity bill and/or loss suffered by TNB by reason of dishonest consumption of electricity supply in all circumstances in accordance with the provisions of the Act.
- (k) TNB shall have the right to make adjustment and update of Consumer's account whenever necessary.
- (l) TNB shall be entitled to set off any amount due to it under this Contract against any sums due and payable to the Consumer under the terms of this Contract.

## **22. DISCONNECTION OF SUPPLY**

- (a) Subject to the Act, TNB shall have the right to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises without giving prior notice in any situations mentioned below:
  - (i) any default by the Consumer under Clause 23 and such default are not remedied within the stipulated period if any;

- (ii) by Court Order/Judgment;
  - (iii) if in the opinion of TNB that the continuation of the delivery of renewable energy by the Renewable Energy System to TNB's system or the supply of electricity to the Premises will jeopardize the safety, reliability or security of TNB's system or presents an imminent physical threat or endanger the safety, life or health of any person or property;
  - (iv) upon the receipt of the termination notice indicating the intention to terminate this Contract by either TNB or the Consumer;
  - (v) any removal made to any TNB's installation and equipment as described in Clause 16(a);
  - (vi) the occurrence of the circumstances as described in Clause 12(d) or Clause 12(e); or
  - (vii) any right to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises without notice as provided under the Act.
- (b) For the avoidance of doubt, the Consumer hereby irrevocably and unconditionally agrees and acknowledges that:
- (i) TNB shall be excused from all its obligations under this Contract in the event TNB exercises its rights to disconnect the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises in any situations as set out in this Clause 22; and
  - (ii) TNB shall not be responsible for any loss or damage that may arise as a result of the disconnection of the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises.

**23. EVENT OF DEFAULT**

The occurrence of any of the following shall constitute an event of default under this Contract and it is not limited to:

- (a) Act or default of the Consumer affecting the efficiency and/or safety of TNB's installation.
- (b) The Consumer has failed to comply and/or breach with any provision of this Contract and/or the Act and/or commit any offence under the Act.
- (c) The Consumer has obtained consent for the appointment of or the taking of possession by a receiver or liquidator of itself or of all or a substantial part of its property.
- (d) The Consumer acknowledges in writing its inability to pay its debt as such debts become due.
- (e) The Consumer makes a general assignment or an arrangement or composition with or for the benefit of its creditor.
- (f) Instituting a case voluntarily or filing a petition against any party seeking to take advantage of any law relating to bankruptcy, insolvency, restructuring of its debts, winding up or composition.
- (g) The Consumer is under receivership or under special administration or liquidation.
- (h) Upon the Consumer's dissolution.
- (i) Failure to pay the amount as stipulated under Clause 21 above.
- (j) Any warranty, representation or covenant made by the Consumer in this Contract is false or inaccurate in any material respect.
- (k) The occurrence of a Change of Tenancy.
- (l) Consumption of electricity in any dishonest manner.

- (m) The Consumer fails to comply with any of the provisions stipulated under Clause 1 of this Contract.
- (n) The Electricity Supply Contract is terminated for any reason whatsoever.
- (o) In the event the Consumer vacates the Premises pursuant to Clause 14(a).
- (p) Any change of the Consumer in the tariff classification without TNB's written approval.

**24. FORCE MAJEURE**

Neither party shall be liable to the other party for any breach of terms and conditions of this Contract due to any of this event which shall include but not limited to national emergency war, hostilities, riot, civil commotion, earthquake, flood, disposition or by compliance with any order of government, local or any other authorities.

**25. INDEMNITY AND NO LIABILITY CLAIM**

- (a) The Consumer agrees to indemnify and keep indemnified (indemnifying) TNB from and against all and/or any claims, actions, compensations, suits, proceedings, demands and all legal costs incurred thereby, brought against TNB, its servants or agents by a third party to which TNB shall or may be or become liable in respect of or arising from the performance of this Contract provided always it is not due to the negligence or willful acts of TNB, its employees or agents.
- (b) The Consumer shall at all times be fully liable to TNB and remain responsible for all damages flowing from any breach or default of any term or obligation in this Contract regardless of whether the Renewable Energy System and the Renewable Energy Meter are installed and owned by a third party or otherwise.
- (c) The Consumer hereby agrees that neither TNB nor its employees, servants, agents, representatives shall be liable and/or make good the Consumer in respect of any damage, injury or loss to any of the Consumer's property and/or life arising from any fault of the TNB's system or the Consumer's installation at the Premises unless such damage, injury or loss have been proven as a result of any willful act, negligence, omission and/or failure to comply with any safety measures as provided under any written law.
- (d) The Consumer hereby agrees further that TNB shall not be liable for any cost incurred, loss and/or damage of industrial goods, product, property or life of the Consumer as a result of any unavoidable accident, voltage fluctuation, interruption, reduction and/or cessation of the electricity supply, fire or accident that may occur in consequence of the supply of electricity or the use or misuse which is not due to the negligence or willful act of TNB and/or its employees.

**26. NOTICES**

Unless and otherwise provided under the Act and any Clause stated under this Contract, any notice, demand or other communication which is required or allowed to be given or made under this Contract shall be in writing and shall be served by hand delivery or by way of prepaid registered post or ordinary post or any electronic means as mutually agreed by both parties to the address stated in this Contract. Proof of posting or service of any notice, demand or communication shall be deemed to be duly served:

- (a) if service is delivered by hand, at the time of such delivery and duly acknowledged;
- (b) if service is by way of post, on the third (3<sup>rd</sup>) working day after posting thereof; or
- (c) if service is delivered by electronic means, at the time of such delivery report.

Provided that the above Clause 26 shall not be applied to the termination of this Contract.

**27. REMOVAL OF TNB INSTALLATION**

If the Consumer or the proprietor of the Premises requests TNB to remove or relocate the supply line, pole, sub-station, pylon or any other TNB's installation or equipment within or outside the Premises, subject to consent by TNB, all costs of executing the removal or relocation shall be fully borne by the Consumer or the proprietor as the case may be.

**28. SERVICES OF LEGAL PROCESS**

The service of any legal process shall be by way of prepaid registered post sent to the address as stated in this Contract. Proof of posting shall be regarded as proof of acceptance and the said service shall be deemed to have been duly served and duly received upon the expiry of five (5) days from the date of posting.

**29. TERMINATION OF CONTRACT BY TNB**

- (a) TNB may terminate this Contract at any time upon giving not less than fourteen (14) working days' notice in writing of its intention to do so.
- (b) TNB may terminate this Contract under Clause 22(a) by giving fourteen (14) working days' notice from the date of expiry of the remedy period, except for the situations in Clause 22(a)(ii) and Clause 22(a)(iv).
- (c) If the Consumer renders to TNB a temporary notice of disconnection of the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises thereby it shall be deemed as a notice of termination of the Contract and subject to the issuance of notice under Clause 29(a).
- (d) If TNB discovers that the information given is false and/or is disputed with the existence of prima facie proof relating to the delivery of renewable energy by the Renewable Energy System and the supply of electricity to the Premises and proven by any applicable laws or court order, TNB shall have the right to terminate this Contract upon giving a written notice of not less than twenty-four (24) hours.
- (e) If TNB for any reasons pursuant to any laws or under any direction of the Suruhanjaya Tenaga and/or relevant authority has been given the right to terminate this Contract.

**30. CONSEQUENCES OF TERMINATION**

On such effective date of termination under Clause 10 or Clause 29,

- (a) TNB shall be discharged from any obligations and liabilities under this Contract including any claim for damages without prejudice to TNB's rights to make such claim due to the disconnection of the Renewable Energy System from TNB's system and/or the supply of electricity to the Premises and the termination of this Contract;
- (b) the terms and conditions as specified in the Electricity Supply Contract shall then be applicable; and



(c) this Clause 30 shall survive the termination of this Contract.

**31. TRANSFER OF OUTSTANDING AMOUNT AND BALANCE OF DEPOSIT**

- (a) TNB shall have the right to transfer any outstanding amount of electricity bills from any vacated account of the Consumer to any active account registered under the Consumer's name.
- (b) If there is a balance of deposit from the Consumer's vacated account, TNB shall have the right to use the balance of the deposit to adjust for any outstanding amount from whichever active account registered under the Consumer's name.

**32. ENVIRONMENT ATTRIBUTE**

The value of any credits or financial benefits which are available or may become available for reductions of "green house gas" emissions earned from the generation of renewable energy by the Renewable Energy System shall be solely for the benefit of the Consumer or the owner of the Renewable Energy System.

**E. MISCELLANEOUS**

**33. AMENDMENT, MODIFICATION OR REPLACEMENT**

TNB reserves the right to amend, modify, revise or replace the terms and conditions stipulated under this Contract from time to time. TNB may give notice of amendment to the Consumer in such a manner as TNB reasonably deems appropriate.

**34. CHANGE IN NEM SCHEME AND/OR THE ACT**

In the event of any change in the NEM scheme and/or the Act including but not limited to the application of the Technical Guidelines or the discontinuation of the NEM scheme as decided by the Government of Malaysia, TNB may by written notice to the Consumer unilaterally amend the terms and conditions of this Contract in any manner that it deems fit in order to ensure the compliance of the Government of Malaysia's decision, the Act and the Technical Guidelines.

**35. ASSIGNMENT**

The Consumer shall not assign any of the rights or obligations arising under this Contract to any third party without the prior consent in writing of TNB. TNB shall be entitled to assign or transfer its interest, rights and obligations in whole or in part under this Contract without the Consumer's prior written consent and the Consumer hereby agrees to execute such agreement and do such things as may be required by TNB to give effect to such assignment and/or transfer.

**36. CONFIDENTIALITY**

Except as it is or becomes a part of the public domain, all information provided by either party under this Contract shall be confidential at all times unless specified otherwise in writing.

**37. GOVERNING LAW**

This Contract shall be governed by and construed in accordance with the Act and any regulations made thereunder including any amendment thereto as well as any other relevant written laws.

**38. INSTALLATION OF EQUIPMENT TO GENERATE RENEWABLE ENERGY**

- (a) The Consumer shall inform TNB on any equipment installed at the Premises for the purpose of generating renewable energy.
- (b) If the Consumer is a feed-in-approval holder under the Renewable Energy Act 2011, the equipment installed at the Premises for the purpose of generating renewable energy under the Renewable Energy Act 2011 and this Contract shall be deemed separate and not to be used interchangeably.

**39. PERSONAL DATA PROTECTION**

- (a) Both parties agree to comply and have adequate measures in place to ensure compliance at all times with the provisions and obligations contained in all applicable laws and regulations in Malaysia, including but not limited to the Personal Data Protection Act 2010, its subsidiary legislation and associated code of practice as amended from time to time in order to collect, use, process, record, hold, store, share and/or disclose any or all information related to the performance and obligations under this Contract.
- (b) The Consumer shall not cause or permit the Personal Data to be transferred outside Malaysia without the prior written consent of TNB or the Consumer shall ensure that the cross-border country must have the data protection legislation at least equivalent to the level of protection afforded by the Personal Data Protection Act 2010 (if any).
- (c) The Consumer shall implement adequate technical and organisational security measures to protect the Personal Data from any loss, misuse, modification, unauthorised or accidental access or disclosure, alteration or destruction.
- (d) The Consumer shall have the obligation to securely dispose of all Personal Data whether in written, electronic or other form or media given by TNB, and certify in writing to TNB that such Personal Data has been disposed of securely, upon expiry or termination of this Contract.
- (e) Upon default, the defaulting party shall be liable for and shall indemnify (and keep indemnified) against each and every action, proceeding, liability, cost, claim, loss, expense (including reasonable legal fees and disbursements on a solicitor client basis) and demands incurred by the aggrieved party which arise directly or in connection with the defaulting party's processing of Personal Data pursuant to this Contract, including without limitation those arising out of any third party demand, claim or action, or any breach of contract, negligence, fraud, willful misconduct, breach of statutory duty or non-compliance with any part of the data protection legislation by the defaulting party or its employees, servants, agents or representatives.
- (f) The Consumer has read and fully understands TNB's Personal Data Protection Policy which is available at <https://www.tnb.com.my/terms-policy/personal-data-protection-policy-pdpa/>.
- (g) The Consumer shall provide assistance as reasonably requested by TNB in relation to any complaint or request made, including by:
  - (i) providing any information reasonably requested by TNB; and
  - (ii) providing TNB with full details of the complaint or request (if any).
- (h) For the purpose of this Clause 38, the term Personal Data shall have the meaning given to it in TNB's Personal Data Protection Policy.

**40. SEVERABILITY**

If any one or more of the provisions or part thereof contained in this Contract should be or become invalid or unenforceable due to whatsoever reasons this shall not in any way affect or impair the validity or enforceability of the remaining provision hereof.

**41. STAMP DUTY**

The stamp duty in respect of this Contract shall be borne and fully paid by the Consumer.

**42. SUCCESSORS-IN-TITLE**

This Contract shall be binding upon the successors-in-title and permitted assigns of the respective parties hereto.

**43. TAXES**

The Consumer shall be responsible for all present and future taxes, duties, levies and other similar charges including any related interest and penalties, however designated, arising out or in connection with the supply of any kind imposed by law.

**44. TIME PERIOD**

Time wherever mentioned shall be the essence of this Contract.

**45. WAIVER**

Knowledge or acquiescence by TNB of or in breach of any of the conditions or covenants herein contained shall not operate as or be deemed to be waiver of such conditions or covenants or any of them and notwithstanding such acknowledge or acquiescence, TNB shall be entitled to exercise its rights under this Contract.

**46. APPLICABILITY OF THE ELECTRICITY SUPPLY CONTRACT**

- (a) The terms and conditions as specified in the Electricity Supply Contract shall continue in full force and effect during the term of this Contract.
- (b) For the avoidance of doubt, in the event of any inconsistency between the terms and conditions of this Contract and the terms and conditions of the Electricity Supply Contract, the terms and conditions of this Contract shall prevail.

## **SCHEDULE 3**

## **Renewable Energy (Technical and Operational Requirements) Rules 2011**



30 November 2011  
30 November 2011  
P.U. (A) 387

# WARTA KERAJAAN PERSEKUTUAN

## *FEDERAL GOVERNMENT GAZETTE*

### KAEDAH-KAEDAH TENAGA BOLEH BAHARU (KEHENDAK TEKNIKAL DAN PENGENDALIAN) 2011

### *RENEWABLE ENERGY (TECHNICAL AND OPERATIONAL REQUIREMENTS) RULES 2011*



DISIARKAN OLEH/  
PUBLISHED BY  
JABATAN PEGUAM NEGARA/  
ATTORNEY GENERAL'S CHAMBERS

AKTA TENAGA BOLEH BAHARU 2011

KAEDAH-KAEDAH TENAGA BOLEH BAHARU  
(KEHENDAK TEKNIKAL DAN PENGENDALIAN) 2011

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AKTA TENAGA BOLEH BAHARU 2011

KAEDAH-KAEDAH TENAGA BOLEH BAHARU  
(KEHENDAK TEKNIKAL DAN PENGENDALIAN) 2011

PADA menjalankan kuasa yang diberikan oleh seksyen 15 dan perenggan 61(c) Akta Tenaga Boleh Baharu 2011 [Akta 725], Pihak Berkuasa Pembangunan Tenaga Lestari Malaysia, dengan persetujuan Suruhanjaya Tenaga, membuat kaedah-kaedah yang berikut:

BAHAGIAN I  
PERMULAAN

**Nama dan permulaan kuat kuasa**

1. (1) Kaedah-kaedah ini bolehlah dinamakan **Kaedah-Kaedah Tenaga Boleh Baharu (Kehendak Teknikal dan Pengendalian) 2011**.

(2) Kaedah-Kaedah ini mula berkuat kuasa pada 1 Disember 2011.

**Tafsiran**

2. Dalam Kaedah-Kaedah ini, melainkan jika konteksnya menghendaki makna yang lain—

“amalan utiliti berhemat” ertinya amalan, kaedah dan piawaian yang secara amnya diikuti oleh industri bekalan elektrik di Malaysia semasa tempoh yang terpakai, berkenaan dengan reka bentuk, pembinaan, pemasangan, pengujian, pengendalian dan penyenggaraan bagi pemasangan penjanaan dan pengagihan elektrik daripada jenis yang digunakan oleh pemasangan tenaga boleh baharu, kemudahan antara sambungan, kemudahan perhubungan atau rangkaian pengagihan elektrik, mengikut mana-mana yang berkenaan, dan termasuklah—

(a) kehendak bagi semua undang-undang yang terpakai termasuklah Akta, Akta Bekalan Elektrik 1990 [Akta 447] dan perundangan subsidiarinya;

- (b) kehendak bagi semua kod yang dikeluarkan oleh Suruhanjaya;
- (c) apa-apa kehendak yang ditentukan oleh Pihak Berkuasa dalam garis panduan yang dikeluarkan dari semasa ke semasa;
- (d) garis panduan yang terpakai yang dikeluarkan oleh pemegang lesen pengagihan yang selaras dengan kehendak perenggan (a) hingga (c);
- (e) piawaian pengendalian dan penyenggaraan yang disyorkan oleh pembekal dan pengilang bagi apa-apa kelengkapan penjanaan dan pengagihan elektrik; dan
- (f) piawaian Suruhanjaya Elektroteknik Antarabangsa.

“gangguan” ertinya kejadian apa-apa kehilangan, rintangan kepada atau pengurangan dalam keupayaan sesuatu pemasangan tenaga boleh baharu untuk menjanakan tenaga boleh baharu;

“gangguan penyenggaraan” ertinya suatu gangguan terancang bagi maksud menjalankan kerja pada pemasangan tenaga boleh baharu utama, yang kerja itu boleh ditangguhkan sekurang-kurangnya selama tujuh puluh dua jam, tetapi pada pendapat pemegang kelulusan galakan tidak sepatutnya ditangguhkan sehingga gangguan yang berjadual yang berikutnya;

“gangguan yang berjadual” ertinya suatu gangguan terancang, selain gangguan penyenggaraan, yang dikehendaki bagi—

- (a) pemeriksaan, penyenggaraan pencegahan atau penyenggaraan pembetulan, pembaikan atau penambahbaikan sesuatu pemasangan tenaga boleh baharu utama; atau
- (b) pembaikpulihan besar sesuatu pemasangan tenaga boleh baharu utama mengikut amalan utiliti berhemat,



yang telah diselaraskan dengan pemegang lesen pengagihan mengikut subperenggan 4(1) hingga (3) Jadual Keempat;

“kajian penyelarasan penebatan” ertinya suatu kajian untuk menentukan kecukupan penebatan yang digunakan dalam rangkaian pengagihan elektrik berikutan sambungan yang dicadangkan bagi pemasangan tenaga boleh baharu bervoltan rendah kepada tempat sambungan;

“kajian penyelarasan perlindungan” ertinya suatu kajian tentang penyelarasan antara skim perlindungan elektrik sesuatu pemasangan tenaga boleh baharu dengan rangkaian pengagihan elektrik pemegang lesen pengagihan, termasuklah pengiraan kesemua penetapan geganti dalam pemasangan tenaga boleh baharu berdasarkan tahap litar pintas pada tempat sambungan;

“kajian sistem kuasa” ertinya suatu kajian untuk menentukan kaedah boleh laksana secara teknikal yang optimum bagi suatu sambungan yang dicadangkan bagi pemasangan tenaga boleh baharu bervoltan sederhana ke tempat sambungan, termasuk perkara yang dinyatakan dalam perenggan 4(6)(a) hingga (e);

“kapasiti eksport bersih” berhubungan dengan sesuatu pemasangan bukan FV, ertinya tahap maksimum kuasa elektrik yang dihantar oleh sesuatu pemasangan itu ke suatu rangkaian pengagihan elektrik di tempat sambungan;

“keadaan kecemasan” ertinya suatu situasi yang—

- (a) diperihalkan atau dianggap sedemikian dalam mana-mana kod yang dikeluarkan oleh Suruhanjaya; atau
- (b) mengikut pendapat munasabah pemegang lesen pengagihan dan berdasarkan amalan utiliti berhemat—

- (i) memberikan ancaman fizikal yang hampir membahayakan nyawa, kesihatan atau harta;
- (ii) mengancam keselamatan, kebolehpercayaan atau keutuhan rangkaian pengagihan elektrik;
- (iii) dengan munasabahnyanya dijangkakan akan menyebabkan gangguan yang ketara kepada rangkaian pengagihan elektriknya; atau
- (iv) dengan munasabahnyanya dijangkakan akan menjejaskan kepada keupayaan pemegang lesen pengagihan untuk memenuhi obligasinya untuk memberikan perkhidmatan elektrik yang selamat, mencukupi dan boleh dipercayai kepada pengguna, termasuk utiliti lain yang dengannya rangkaian pengagihan elektrik itu saling bersambungan;

“kemudahan antara sambungan” ertinya kemudahan dan kelengkapan yang perlu, mengikut amalan utiliti berhemat, bagi menyambung suatu pemasangan tenaga boleh baharu ke tempat sambungan dan membolehkan pemegang lesen pengagihan menerima tenaga boleh baharu daripada pemasangan tenaga boleh baharu itu di samping mengekalkan kestabilan rangkaian pengagihan elektrik, termasuklah peranti perlindungan, kelengkapan permeteran dan kemudahan perhubungan yang terpakai;

“kemudahan perhubungan” ertinya kemudahan dan kelengkapan yang perlu, mengikut amalan utiliti berhemat, bagi membolehkan pusat kawalan ditentukan untuk berhubung dengan pemasangan tenaga boleh baharu yang bersambung dengan suatu tempat sambungan melalui sambungan langsung bervoltan sederhana atau tinggi;

“kerja pengukuhan rangkaian” ertinya kerja atau tindakan untuk menaik taraf atau mengukuhkan rangkaian pengagihan elektrik pemegang lesen pengagihan bagi mengagihkan tenaga boleh baharu yang dijana oleh pemasangan tenaga boleh baharu mengikut amalan utiliti berhemat;



“kW” ertinya kilowatt;

“kWp” ertinya kilowatt puncak;

“kWp berkadar”, berhubungan dengan sesuatu pemasangan FV, ertinya kuasa arus langsung maksimum yang pemasangan itu boleh menghasilkan di bawah syarat ujian piawaian bagi 1000 watt bagi setiap meter persegi penyinaran suria dan suhu ambien 25 darjah Celsius;

“MW” ertinya megawatt;

“meter hasil” ertinya kelengkapan permeteran yang dipasang mengikut kaedah 17 dan digunakan untuk mengukur kuantiti tenaga boleh baharu yang dijana oleh suatu pemasangan tenaga boleh baharu yang dihantar melalui kabel saling hubungan sehingga ke suatu tempat sambungan;

“meter penggunaan”, berhubung dengan sesuatu pemasangan tenaga boleh baharu bervoltan rendah yang bersambung dengan tempat sambungan melalui sambungan tidak langsung bervoltan rendah, ertinya meter yang digunakan bagi merekodkan penggunaan elektrik yang disebut dalam perenggan 8(b);

“orang berkelayakan” ertinya seseorang yang memiliki kelayakan sebagaimana yang dinyatakan dalam Jadual Kelima;

“pemasangan tenaga boleh baharu bervoltan rendah” ertinya—

- (a) berhubung dengan Semenanjung Malaysia, suatu pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih sehingga dan termasuk 180 kW atau kWp berkadar sehingga dan termasuk 180 kWp;
- (b) berhubung dengan Negeri Sabah dan Wilayah Persekutuan Labuan, suatu pemasangan tenaga boleh baharu yang mempunyai kapasiti

eksport bersih sehingga dan termasuk 72kW atau kWp berkadar sehingga dan termasuk 72kWp;

“pepasangan tenaga boleh baharu utama” ertinya—

- (a) berhubung dengan Semenanjung Malaysia, suatu pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih yang melebihi 5MW atau kWp berkadar yang melebihi 5,000kWp; dan
- (b) berhubung dengan Negeri Sabah dan Wilayah Persekutuan Labuan, suatu pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih melebihi 3MW atau kWp berkadar yang melebihi 3,000kWp;

“pepasangan tenaga boleh baharu bervoltan sederhana” ertinya—

- (a) berhubung dengan Semenanjung Malaysia, suatu pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih yang melebihi 180kW atau kWp berkadar yang melebihi 180kWp; dan
- (b) berhubung dengan Negeri Sabah dan Wilayah Persekutuan Labuan, suatu pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih melebihi 72kW atau kWp berkadar yang melebihi 72kWp;

“pepasangan bukan FV” ertinya suatu pemasangan tenaga boleh baharu yang menggunakan sumber boleh baharu selain fotovoltan suria;

“pepasangan FV” ertinya suatu pemasangan tenaga boleh baharu yang menggunakan fotovoltan suria sebagai sumber boleh baharunya;

“peranti perlindungan” ertinya peranti dan kelengkapan dalam suatu skim perlindungan elektrik termasuklah geganti, pemutus litar dan fius yang berkaitannya;



“pusat kawalan ditentukan” berhubungan dengan suatu pemasangan tenaga boleh baharu utama, ertinya pusat kawalan pemegang lesen pengagihan sebagaimana yang ditentukan secara bertulis oleh pemegang lesen pengagihan dari semasa ke semasa, bagi maksud perhubungan dengan pemasangan tenaga boleh baharu utama;

“sambungan langsung bervoltan rendah” ertinya sambungan sesuatu pemasangan tenaga boleh baharu secara langsung ke suatu talian bekalan bervoltan rendah;

“sambungan tidak langsung bervoltan rendah” ertinya sambungan sesuatu pemasangan tenaga boleh baharu ke suatu talian bekalan voltan rendah secara tidak langsung melalui papan pengagihan dalaman pemegang kelulusan galakan di mana pemasangan tenaga boleh baharu itu disambungkan kepada suatu punca elektrik dalam premis pemegang kelulusan galakan itu dan bukannya titik penyambungan bersama;

“sambungan langsung bervoltan sederhana” ertinya sambungan sesuatu pemasangan tenaga boleh baharu secara langsung ke suatu talian bekalan bervoltan sederhana;

“sambungan langsung bervoltan tinggi” ertinya sambungan sesuatu pemasangan tenaga boleh baharu secara langsung ke suatu talian bekalan bervoltan tinggi;

“sempadan pemunyaan” berhubungan dengan sesuatu pemasangan tenaga boleh baharu, ertinya tempat sambungan;

“skim perlindungan elektrik” ertinya suatu skim bagi mengesan dan melindungi sesuatu pemasangan daripada—

- (a) kemungkinan kerosakan yang disebabkan oleh gangguan elektrik yang terhasil dalam pemasangan itu; dan
- (b) kesilapan atau malfungsi lain yang terhasil daripada pengendalian atau bukan pengendalian skim perlindungan orang lain;



“tarikh pengendalian permulaan” berhubungan dengan pemegang kelulusan galakan, ertinya tarikh yang padanya pemasangan tenaga boleh baharunya mula-mula menghantar tenaga boleh baharu ke rangkaian pengagihan elektrik pemegang lesen pengagihan bagi maksud pengujian;

“tempat sambungan” ertinya tempat fizikal di mana talian bekalan sesuatu pemasangan tenaga boleh baharu dan rangkaian pengagihan elektrik disambungkan;

“ujian kebolehpercayaan” ertinya suatu ujian bagi mengukur kestabilan penjanaan sesuatu pemasangan tenaga boleh baharu untuk suatu tempoh masa;

“ujian penerimaan” ertinya suatu ujian bagi mengukur prestasi sesuatu pemasangan tenaga boleh baharu di output penjanaa mengikut reka bentuk;

“voltan tinggi” ertinya suatu voltan daripada dan termasuklah lima puluh ribu volt dan sehingga dan termasuk satu ratus dan tiga puluh dua ribu volt;

“voltan rendah” ertinya voltan yang melebihi lima puluh volt tetapi kurang daripada satu ribu volt;

“voltan sederhana” ertinya voltan daripada dan termasuklah satu ribu volt tetapi kurang daripada lima puluh ribu volt.

## BAHAGIAN II PERANCANGAN

### **Semakan pengesahan sambungan**

3. (1) Seseorang penjana yang layak yang bercadang untuk membina—

(a) suatu pemasangan FV yang mempunyai kWp berkadar yang melebihi 72kWp sehingga dan termasuk 180kWp; atau

- (b) suatu pemasangan bukan FV yang mempunyai kapasiti eksport bersih yang melebihi 72kW sehingga dan termasuk 180kW,

dan menyambungkan pemasangan itu ke suatu tempat sambungan hendaklah sebelum membuat suatu permohonan kepada Pihak Berkuasa bagi kelulusan galakan di bawah Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011 [P.U. (A) 385/2011], mengemukakan suatu permintaan bertulis kepada pemegang lesen pengagihan yang rangkaian pengagihan elektriknya dicadangkan untuk disambungkan ke pemasangan itu supaya pemegang lesen pengagihan itu menjalankan pemeriksaan pengesahan sambungan berkenaan dengan sambungan yang dicadangkan itu.

(2) Permintaan yang dikemukakan di bawah subkaedah (1) hendaklah disertai dengan kWp berkadar atau kapasiti eksport bersih bagi pemasangan yang dicadangkan itu.

(3) Apabila menerima permintaan di bawah subkaedah (1), pemegang lesen pengagihan hendaklah—

- (a) menjalankan suatu pemeriksaan pengesahan sambungan bagi mengesahkan sama ada sambungan yang dicadangkan itu boleh dilakukan secara teknikal; dan
- (b) menyediakan dan mengemukakan suatu laporan semakan pengesahan sambungan kepada penjana yang layak dalam bentuk yang ditentukan oleh Pihak Berkuasa,

dalam masa empat belas hari dari penerimaan permintaan itu.

(4) Jika pemegang lesen pengagihan mendapati bahawa sambungan itu tidak boleh dilakukan secara teknikal, pemegang lesen pengagihan hendaklah dengan jelas menyatakan sebab-sebabnya dalam laporan yang disediakan dan dikemukakan di bawah subkaedah (3).



(5) Penjana yang layak hendaklah membayar satu ribu ringgit kepada pemegang lesen pengagihan sebagai kos bagi menjalankan pemeriksaan pengesahan sambungan.

(6) Seseorang pemegang lesen pengagihan yang tidak mematuhi subkaedah (3) atau (4) melakukan suatu kesalahan di bawah Kaedah-Kaedah ini.

(7) Jika berlaku apa-apa pertikaian antara pemegang lesen pengagihan dengan penjana yang layak tentang apa-apa aspek pemeriksaan pengesahan sambungan, pemegang lesen pengagihan atau penjana yang layak itu boleh merayu kepada Pihak Berkuasa dalam masa tiga puluh hari dari tarikh penerimaan laporan semakan pengesahan sambungan yang disebut dalam perenggan (3)(b) dan penentuan Pihak Berkuasa itu adalah muktamad dan mengikat.

#### **Kajian sistem kuasa**

4. (1) Seseorang penjana yang layak yang bercadang untuk membina—

(a) suatu pemasangan FV yang mempunyai kWp berkadar yang melebihi 180kWp; atau

(b) suatu pemasangan bukan FV yang mempunyai kapasiti eksport bersih yang melebihi 180kW,

dan menyambungkan pemasangan itu ke suatu tempat sambungan hendaklah, sebelum membuat permohonan kepada Pihak Berkuasa bagi kelulusan galakan di bawah Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011, mengemukakan suatu permintaan bertulis kepada pemegang lesen pengagihan yang rangkaian pengagihan elektriknya dicadangkan untuk disambungkan ke pemasangan itu supaya pemegang lesen pengagihan itu menjalankan atau menyebabkan dijalankan suatu kajian sistem kuasa berkenaan dengan sambungan yang dicadangkan itu.

(2) Permintaan yang dikemukakan di bawah subkaedah (1) hendaklah disertai dengan apa-apa maklumat teknikal yang ditentukan oleh Pihak Berkuasa berkenaan dengan pemasangan yang dicadangkan yang dikehendaki oleh pemegang lesen pengagihan bagi menjalankan kajian sistem kuasa itu.

(3) Apabila permintaan di bawah subkaedah (1) dan maklumat di bawah subkaedah (2) diterima, pemegang lesen pengagihan hendaklah menjalankan atau menyebabkan dijalankan suatu kajian sistem kuasa mengikut Kaedah-Kaedah ini dan apa-apa kehendak lain yang ditentukan oleh Pihak Berkuasa.

(4) Pemegang lesen pengagihan hendaklah menyiapkan atau menyebabkan disiapkan kajian itu dalam tempoh yang dinyatakan dalam ruang kedua Jadual Pertama mengikut kapasiti eksport bersih atau kWp berkadar bagi pemasangan yang dicadangkan yang dinyatakan dalam ruang pertama Jadual Pertama.

(5) Penjana yang layak hendaklah membayar kepada pemegang lesen pengagihan kos bagi menjalankan kajian sistem kuasa dalam jumlah yang dinyatakan dalam ruang ketiga Jadual Pertama mengikut kapasiti eksport bersih atau kWp berkadar bagi pemasangan yang dicadangkan yang dinyatakan dalam ruang pertama Jadual Pertama.

(6) Apabila kajian sistem kuasa disiapkan dan pembayaran kos yang terpakai di bawah subkaedah (5), pemegang lesen pengagihan hendaklah menyediakan dan mengemukakan atau menyebabkan disediakan dan dikemukakan suatu laporan kepada penjana yang layak yang menyatakan—

(a) kebolehlaksanaan secara teknikal sesuatu sambungan antara pemasangan yang dicadangkan dengan sesuatu tempat sambungan;

(b) penentuan lokasi tempat sambungan mengikut kaedah 5;



- (c) apa-apa kerja pengukuhan rangkaian yang dikehendaki untuk diusahakan oleh pemegang lesen pengagihan dan rangka masa yang dijangkakan baginya;
- (d) apa-apa pengadaran kelengkapan atau spesifikasi peralatan bagi pemasangan yang dicadangkan yang dikehendaki oleh pemegang lesen pengagihan supaya dapat menyambungkannya dengan selamat kepada tempat sambungan; dan
- (e) apa-apa perkara lain yang ditentukan oleh Pihak Berkuasa.

(7) Jika berlaku apa-apa pertikaian antara pemegang lesen pengagihan dengan penjana yang layak tentang apa-apa aspek kajian sistem kuasa, pemegang lesen pengagihan atau penjana yang layak boleh membuat rayuan kepada Pihak Berkuasa dalam masa tiga puluh hari dari tarikh penerimaan laporan kajian sistem kuasa yang disebut dalam subkaedah (6) dan penentuan Pihak Berkuasa adalah muktamad dan mengikat.

(8) Jika terdapat apa-apa peningkatan dalam kapasiti eksport bersih atau kWp berkadar bagi pemasangan yang dicadangkan selepas kajian sistem kuasa disiapkan—

- (a) suatu kajian sistem kuasa yang baharu hendaklah dijalankan oleh pemegang lesen pengagihan; dan
- (b) peruntukan subkaedah (2), (3), (4), (5), (6) dan (7) adalah terpakai, *mutatis mutandis*, bagi kajian sistem kuasa yang baharu itu.

(9) Seseorang pemegang lesen pengagihan yang tidak mematuhi subkaedah (3), (4) atau (6) melakukan suatu kesalahan di bawah Kaedah-Kaedah ini.

#### **Penentuan lokasi tempat sambungan**

5. (1) Seorang pemegang lesen pengagihan hendaklah menentukan lokasi bagi tempat sambungan yang—

- (a) terletak paling hampir dengan pemasangan tenaga boleh baharu yang dicadangkan; atau
  - (b) terletak di mana-mana lokasi lain.
- (2) Seorang pemegang lesen pengagihan dalam menentukan lokasi bagi tempat sambungan di bawah subkaedah (1) hendaklah mengambil kira—
  - (a) jumlah kapasiti eksport bersih atau kWp berkadar bagi pemasangan termasuklah pemasangan tenaga boleh baharu yang dicadangkan sebagaimana yang dinyatakan dalam ruang kedua Jadual Kedua yang boleh disambungkan secara teknikal ke tempat sambungan pada tahap voltan nominalnya sebagaimana yang dinyatakan dalam ruang pertama Jadual Kedua;
  - (b) keselamatan awam dan keselamatan diri; dan
  - (c) kebolehsanaan teknikal bagi sesuatu sambungan di antara pemasangan yang dicadangkan dengan tempat sambungan berdasarkan keputusan kajian sistem kuasa yang dijalankan mengikut kaedah 4.
- (3) Kabel yang menyambungkan pemasangan tenaga boleh baharu dengan rangkaian pengagihan elektrik pemegang lesen pengagihan hendaklah berakhir di kemudahan pemegang lesen pengagihan yang sedia ada yang paling hampir dalam rangkaian itu di mana meter hasil itu juga ditempatkan.
- (4) Jika suatu stesen suis berasingan dikehendaki mengikut amalan utiliti berhemat dan pemegang lesen pengagihan menghendaki pemegang kelulusan galakan menyediakan stesen suis berasingan itu di luar premis pemegang lesen pengagihan yang sedia ada—
  - (a) stesen suis itu hendaklah ditempatkan sehampir yang munasabah dapat dilaksanakan dengan premis sedia ada pemegang lesen pengagihan



dengan mengambil kira adanya, kesesuaian dan nilai tanah yang hendaklah diperolehi oleh pemegang kelulusan galakan bagi stesen suis itu; dan

(b) tempat sambungan dan meter hasil hendaklah ditempatkan di lokasi stesen suis itu.

(5) Jika seseorang pemegang lesen pengagihan menentukan lokasi bagi tempat sambungan di bawah subperenggan (1)(b), peruntukan subkaedah 11(2) adalah terpakai.

(6) Jika berlaku apa-apa perbezaan pendapat antara pemegang lesen pengagihan dengan mana-mana penjana yang layak tentang sama ada lokasi yang ditentukan oleh lesen pengagihan di bawah perenggan 15(1)(a) adalah terletak paling hampir dengan pemasangan tenaga boleh baharu yang dicadangkan, mana-mana satu daripada mereka boleh membuat rayuan kepada Pihak Berkuasa dalam masa tiga puluh hari daripada tarikh penerimaan laporan kajian sitem kuasa yang disebut dalam subkaedah 4(6) dan penentuan Pihak Berkuasa adalah muktamad dan mengikat.

(7) Jika Pihak Berkuasa menentukan bahawa lokasi bagi tempat sambungan tidak terletak di tempat paling hampir dengan pemasangan tenaga boleh baharu yang dicadangkan, Pihak Berkuasa boleh—

(a) menentukan semula lokasi bagi tempat sambungan itu; atau

(b) membenarkan lokasi bagi tempat sambungan itu untuk kekal di tempat yang ditentukan oleh pemegang lesen pengagihan.

(8) Jika Pihak Berkuasa membuat penentuan di bawah perenggan (7)(b), peruntukan subkaedah 11(2) adalah terpakai.

(9) Lokasi bagi tempat sambungan yang ditentukan atau ditentukan semula, mengikut mana-mana yang berkenaan, di bawah kaedah ini hendaklah menjadi lokasi

yang dikenal pasti oleh penjana yang layak dalam membuat permohonan kepada Pihak Berkuasa bagi kelulusan galakan.

### BAHAGIAN III

#### SAMBUNGAN KEPADA RANGKAIAN PENGAGIHAN ELEKTRIK

##### Syarat bagi sambungan

6. (1) Tiada sambungan antara sesuatu pemasangan tenaga boleh baharu yang dimiliki oleh pemegang kelulusan galakan dengan tempat sambungan boleh dibuat oleh pemegang lesen pengagihan melainkan jika—

- (a) pemegang kelulusan galakan dan pemegang lesen pengagihan itu telah membuat perjanjian pembelian kuasa tenaga boleh baharu mengikut seksyen 12 Akta dan Kaedah-Kaedah Tenaga Boleh Baharu (Perjanjian Pembelian Kuasa Tenaga Boleh Baharu) 2011 [*P.U. (A) 386/2011*];
- (b) perjanjian pembelian kuasa tenaga boleh baharu yang disebut dalam subperenggan (a) telah didaftarkan oleh Pihak Berkuasa mengikut subseksyen 12(6) Akta;
- (c) pemegang kelulusan galakan telah mengemukakan suatu permohonan bertulis kepada pemegang lesen pengagihan bagi sambungan pemasangan tenaga boleh bahunya ke suatu tempat sambungan;
- (d) sambungan itu telah dibuat di lokasi yang disebutkan dalam subkaedah 5(9);
- (e) kaedah sambungan itu dibenarkan di bawah Bahagian ini;
- (f) kehendak kaedah 13 dan, jika terpakai, subperenggan 6(7) Jadual Ketiga telah dipenuhi; dan



- (g) sambungan itu dijalankan oleh pemegang lesen pengagihan atau orang berkelayakan yang diberi kuasa oleh pemegang lesen pengagihan mengikut amalan utiliti berhemat.
- (2) Tertakluk kepada subkaedah (1), seseorang pemegang lesen pengagihan hendaklah menyambungkan pemasangan tenaga boleh baharunya ke tempat sambungan yang terpakai—
- (a) dalam hal sesuatu permohonan bagi penyambungan yang dibuat oleh pemegang kelulusan galakan di bawah subseksyen 13(1) Akta yang berhubung dengan suatu pemasangan tenaga boleh baharu bervoltan rendah, dalam masa tiga puluh hari dari penerimaan permohonan itu; dan
- (b) dalam hal sesuatu permohonan bagi penyambungan yang dibuat oleh pemegang kelulusan galakan di bawah subseksyen 13(1) Akta yang berhubung dengan suatu pemasangan tenaga boleh baharu bervoltan sederhana, dalam masa enam puluh hari dari penerimaan permohonan itu.
- (3) Seseorang yang melanggar subkaedah (1) melakukan suatu kesalahan di bawah Kaedah-Kaedah ini.

#### **Sambungan langsung bervoltan rendah**

7. Seseorang pemegang lesen pengagihan boleh menyambungkan suatu pemasangan tenaga boleh baharu bervoltan rendah melalui sambungan langsung bervoltan rendah ke suatu tempat sambungan yang boleh dilaksanakan secara teknikal mengikut amalan utiliti berhemat.

#### **Sambungan tidak langsung bervoltan rendah**

8. Seseorang pemegang lesen pengagihan boleh menyambungkan suatu pemasangan tenaga boleh baharu bervoltan rendah ke suatu tempat sambungan melalui sambungan tidak langsung bervoltan rendah jika—

- (a) pemasangan itu menggunakan fotovolta suria sebagai sumber boleh baharunya dan pemasangan itu dipasangkan dalam premis pemegang kelulusan galakan itu;
- (b) talian bekalan pemegang lesen pengagihan di tempat sambungan membekalkan elektrik ke premis itu secara eksklusif bagi kegunaan pemegang kelulusan galakan yang memiliki pemasangan tenaga boleh baharu itu; dan
- (c) jumlah kapasiti eksport bersih atau kWp berkadar bagi pemasangan termasuklah pemasangan tenaga boleh baharu yang dicadangkan sebagaimana yang dinyatakan dalam ruang kedua Jadual Kedua tidak melebihi tahap voltan nominal bagi tempat sambungan sebagaimana yang dinyatakan dalam ruang pertama Jadual Kedua.

#### **Sambungan langsung bervoltan sederhana**

9. (1) Tertakluk kepada kaedah 10, seseorang pemegang lesen pengagihan –
  - (a) boleh menyambungkan suatu pemasangan tenaga boleh baharu bervoltan sederhana yang terletak di Semenanjung Malaysia dan yang mempunyai kapasiti eksport bersih sehingga dan termasuk 425 kW atau kWp berkadar sehingga dan termasuk 425kWp ke tempat sambungan melalui sambungan langsung bervoltan rendah;
  - (b) hendaklah menyambungkan sesuatu pemasangan tenaga boleh baharu bervoltan sederhana yang terletak di Semenanjung Malaysia dan yang mempunyai kapasiti eksport bersih melebihi 425 kW atau kWp berkadar melebihi 425kWp ke tempat sambungan melalui sambungan langsung bervoltan sederhana; dan
  - (c) hendaklah menyambungkan suatu pemasangan tenaga boleh baharu bervoltan sederhana yang terletak di Negeri Sabah atau Wilayah



Persekutuan Labuan ke tempat sambungan melalui sambungan langsung bervoltan sederhana,

dengan bahawa syarat sambungan itu didapati boleh dilaksanakan secara teknikal menurut kajian sistem kuasa yang dijalankan di bawah kaedah 4.

(2) Jika suatu sambungan langsung bervoltan sederhana dikehendaki untuk dijalankan di bawah perenggan (1)(b) dan (c), pemegang kelulusan galakan dan pemegang lesen pengagihan yang berkaitan hendaklah mematuhi peruntukan Jadual Ketiga.

#### **Sambungan langsung voltan tinggi**

10. (1) Seseorang pemegang lesen pengagihan boleh menyambungkan suatu pemasangan tenaga boleh baharu bervoltan sederhana ke tempat sambungan melalui suatu sambungan langsung bervoltan tinggi jika—

- (a) pemegang lesen pengagihan dan pemegang kelulusan galakan bersetuju dengan sambungan itu; dan
- (b) sambungan itu didapati boleh dilaksanakan secara teknikal menurut kajian sistem kuasa yang dijalankan di bawah kaedah 4.

(2) Jika suatu sambungan langsung bervoltan tinggi itu dipersetujui untuk dijalankan di bawah subkaedah (1), pemegang kelulusan galakan dan pemegang lesen pengagihan itu hendaklah mematuhi peruntukan Jadual Ketiga dan semua amalan utiliti berhemat lain yang terpakai.

### **BAHAGIAN IV TANGGUNGJAWAB DAN KOS**

#### **Tanggungjawab prapengendalian dan kos**

11. (1) Tertakluk kepada subkaedah (2)—

(a) seseorang pemegang kelulusan galakan hendaklah bertanggungjawab dengan kosnya sendiri bagi menjalankan—

(i) reka bentuk, pembinaan, pemasangan dan pengujian pemasangan tenaga boleh baharunya dan kemudahan antara sambungan yang terpakai hingga ke tempat sambungan; dan

(ii) apa-apa ubah suaian yang perlu kepada rangkaian pengagihan elektrik pemegang lesen pengagihan yang sedia ada yang dikehendaki untuk memudahkan penerimaan tenaga boleh baharu yang dijana oleh pemasangan tenaga boleh baharu,

mengikut amalan utiliti berhemat; dan

(b) seseorang pemegang lesen pengagihan hendaklah bertanggungjawab dengan kosnya sendiri untuk menjalankan apa-apa kerja pengukuhan rangkaian yang dikehendaki mengikut amalan utiliti berhemat untuk memudahkan pemindahan tenaga boleh baharu itu daripada tempat sambungan ke bahagian lain rangkaian pengagihan elektriknya, jika terpakai, dengan cara yang dinyatakan dalam laporan kajian sistem kuasa yang dijalankan di bawah kaedah 4, melainkan jika pemegang kelulusan galakan dan pemegang lesen pengagihan itu bersama-sama bersetuju selainnya.

(2) Jika lokasi sesuatu tempat sambungan itu ditentukan oleh pemegang lesen pengagihan mengikut perenggan 5(1)(b), pemegang lesen pengagihan itu hendaklah membayar balik pemegang kelulusan galakan perbezaan itu, jika ada, antara —

(a) kos bagi semua pemasangan, termasuklah apa-apa kemudahan antara sambungan yang terpakai, dan kerja yang dikehendaki bagi penyambungan pemasangan tenaga boleh baharu hingga ke lokasi bagi tempat sambungan sebagaimana yang ditentukan oleh pemegang lesen pengagihan; dan



- (b) kos bagi semua pemasangan termasuklah apa-apa kemudahan antara sambungan yang terpakai, dan kerja yang dikehendaki bagi penyambungan pemasangan tenaga boleh baharu hingga ke lokasi tempat sambungan yang terletak di tempat di rangkaian pengagihan elektrik pemegang lesen pengagihan yang paling hampir dengan pemasangan tenaga boleh baharu itu dengan mengambil kira perkara yang diperihalkan dalam subkaedah 5(2).

### **Tanggungjawab dan kos pengendalian**

12. (1) Tertakluk kepada subkaedah (2)—

- (a) seseorang pemegang kelulusan galakan hendaklah memiliki, dan bertanggungjawab dengan kosnya sendiri bagi pengendalian dan penyenggaraan semua pemasangan yang terletak dalam sempadan pemunyaannya; dan
- (b) seseorang pemegang lesen pengagihan hendaklah memiliki, dan bertanggungjawab dengan kosnya sendiri bagi pengendalian dan penyenggaraan semua pemasangan yang terletak di luar sempadan pemunyaan pemegang kelulusan galakan itu,

mengikut amalan utiliti berhemat.

(2) Seseorang pemegang kelulusan galakan hendaklah memindahkan hakmilik apa-apa aset kepada pemegang lesen pengagihan sebagaimana yang dikehendaki bagi mematuhi peruntukan subkaedah (1).

(3) Tanggungjawab yang dinyatakan dalam subkaedah (1) hendaklah tanpa menjejaskan mana-mana peruntukan dalam perjanjian pembelian kuasa tenaga boleh baharu yang dibuat antara pemegang kelulusan galakan dengan pemegang lesen pengagihan di bawah Kaedah-Kaedah Tenaga Boleh Baharu (Perjanjian Pembelian Kuasa Tenaga Boleh Baharu) 2011 yang memperkatakan hak dan liabiliti mereka

sekiranya salah seorang daripada mereka tidak dapat mengendalikan pemasangan atau mana-mana bahagian daripada pemasangan itu, oleh sebab kerosakan, malfungsi atau apa-apa kegagalan lain daripada mana-mana pemasangan, atau sebahagian daripada pemasangan itu, yang seorang lagi.

### **Skim perlindungan elektrik**

13. (1) Seseorang pemegang kelulusan galakan dan pemegang lesen pengagihan hendaklah mereka bentuk, memperoleh dan memasang, dan bertanggungjawab bagi kos, jenis, reka bentuk dan pemasangan, skim perlindungan elektriknya sendiri mengikut amalan utiliti berhemat.

(2) Pemegang lesen pengagihan hendaklah memastikan bahawa skim perlindungan elektrik itu diselaraskan dengan sewajarnya bagi pengendalian yang boleh dipercayai dan selamat bagi rangkaian pengagihan elektriknya.

(3) Pemegang kelulusan galakan hendaklah memasang suatu skim perlindungan elektrik bagi jenis dan reka bentuk yang akan memastikan bahawa kerosakan yang berlaku dalam pemasangan tenaga boleh baharu itu tidak akan menjejaskan mana-mana bahagian rangkaian pengagihan elektrik.

(4) Pemegang lesen pengagihan hendaklah memasang suatu skim perlindungan elektrik bagi jenis dan reka bentuk yang akan memastikan bahawa kerosakan yang berlaku dalam rangkaian pengagihan elektrik tidak akan menjejaskan mana-mana bahagian pemasangan tenaga boleh baharu.

(5) Seorang pemegang lesen pengagihan dan pemegang kelulusan galakan hendaklah memasang suatu skim perlindungan elektrik yang mengandungi peranti perlindungan yang, apabila suatu kerosakan atau malfungsi dikesan akan mengasingkan bahagian yang rosak bagi pemasangan itu untuk—

- (a) meminimumkan kerosakan kelengkapan dan bahaya keselamatan semasa kerosakan atau malfungsi itu; dan



- (b) mengekalkan keberterusan bekalan kuasa kepada bahagian pemasangan yang masih berfungsi.

## BAHAGIAN V PERMULAAN OPERASI

### **Ujian penerimaan**

14. (1) Seseorang pemegang kelulusan galakan hendaklah, apabila reka bentuk dan pembinaan pemasangan tenaga boleh baharunya disiapkan, menjalankan atau menyebabkan dijalankan suatu ujian penerimaan pada pemasangan itu mengikut apa-apa kehendak dan tatacara yang ditentukan oleh Pihak Berkuasa.

(2) Tertakluk kepada subkaedah (1), seorang pemegang kelulusan galakan hendaklah mengemukakan laporan ujian penerimaan bagi pemasangan itu yang disediakan oleh orang berkeelayakan kepada Pihak Berkuasa dalam masa tujuh hari dari tarikh ujian penerimaan itu disiapkan.

(3) Seseorang pemegang kelulusan galakan tidak boleh membuat atau membenarkan dibuat apa-apa ubah suaian yang material kepada reka bentuk atau bentuk fizikal pemasangan tenaga boleh baharu kecuali dengan keizinan bertulis terdahulu Pihak Berkuasa jika ubah suaian itu mengakibatkan apa-apa perubahan dalam apa-apa maklumat yang dikemukakan sebelumnya oleh atau bagi pihak pemegang kelulusan galakan kepada Pihak Berkuasa dalam permohonan bagi kelulusan galakan di bawah Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011.

### **Tarikh permulaan kuat kuasa tarif galakan**

15. (1) Melainkan jika dibenarkan selainnya di bawah terma perjanjian pembelian kuasa tenaga boleh baharu yang berkuat kuasa, tarikh permulaan kuat kuasa tarif galakan tidak boleh berlaku sehingga—

- (a) pemegang kelulusan galakan mengemukakan kepada pemegang lesen pengagihan dan Pihak Berkuasa—

- (i) berhubung dengan suatu pemasangan tenaga boleh baharu, perakuan daripada orang berkeelayakan yang menyatakan bahawa pemasangan tenaga boleh baharu itu dan kemudahan antara sambungan itu telah direka bentuk, dibina, dipasang dan diuji mengikut amalan utiliti berhemat; dan
  - (ii) berhubung dengan suatu pemasangan tenaga boleh baharu yang disambungkan ke suatu tempat sambungan melalui suatu sambungan langsung bervoltan sederhana atau tinggi, dokumen yang diperihalkan dalam perenggan 8 Jadual Ketiga;
- (b) jika terpakai, pemegang kelulusan galakan mengemukakan keterangan dokumen yang dinyatakan dalam ruang ketiga Jadual Pertama kepada Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011 kepada Pihak Berkuasa; dan
- (c) meter untuk mengukur tenaga boleh baharu yang dijana dan dihantar oleh pemasangan tenaga boleh baharu telah dipaterikan oleh pemegang lesen pengagihan sebagaimana yang telah diselaraskan dan disaksikan oleh pemegang kelulusan galakan dalam apa-apa tempoh yang ditentukan oleh Pihak Berkuasa.
- (2) Tertakluk kepada seksyen 17 Akta, tarikh permulaan kuat kuasa tarif galakan tidak boleh berlaku—
- (a) lebih awal dari enam bulan sebelum tarikh permulaan kuat kuasa tarif galakan yang dijadualkan yang dinyatakan dalam kelulusan galakan yang terpakai; atau
  - (b) lebih lewat dari hari ketiga puluh satu Disember bagi tahun kalendar bagi tarikh permulaan kuat kuasa tarif galakan yang dijadualkan yang dinyatakan dalam kelulusan galakan yang terpakai,



melainkan jika kebenaran bertulis daripada Pihak Berkuasa diperolehi terlebih dahulu.

(3) Seseorang pemegang kelulusan galakan hendaklah memberikan pemegang lesen pengagihan dan Pihak Berkuasa tidak kurang dari empat belas hari notis bertulis sebelum jangkaan berlakunya tarikh permulaan kuat kuasa tarif galakan.

(4) Seseorang pemegang kelulusan galakan hendaklah—

(a) dalam masa lima hari dari tarikh permulaan kuat kuasa tarif galakan, memberi pemegang lesen pengagihan dan Pihak Berkuasa pengesahan bertulis tentang berlakunya tarikh permulaan kuat kuasa tarif galakan; dan

(b) dalam masa empat belas hari dari tarikh permulaan kuat kuasa tarif galakan, mengemukakan suatu laporan tentang berlakunya tarikh permulaan kuat kuasa tarif galakan kepada Pihak Berkuasa dalam apa-apa bentuk dan mengandungi apa-apa butir yang ditentukan oleh Pihak Berkuasa.

## BAHAGIAN VI

### PENGENDALIAN PEPASANGAN TENAGA BOLEH BAHARU

#### **Pengendalian selaras dengan amalan utiliti berhemat**

16. (1) Seseorang pemegang kelulusan galakan hendaklah mengendalikan pemasangan tenaga boleh baharunya mengikut amalan utiliti berhemat.

(2) Tanpa menjejaskan keluasan subkadah (1)—

(a) seseorang pemegang kelulusan galakan yang memiliki pemasangan tenaga boleh baharu utama dan pemegang lesen pengagihan hendaklah mematuhi peruntukan Jadual Keempat; dan

- (b) seseorang pemegang kelulusan galakan yang memiliki pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih yang melebihi 2MW atau kWp berkadar yang melebihi 2,000kWp hendaklah, dengan kosnya sendiri, membeli, memasang dan mengendalikan apa-apa kemudahan antara sambungan sebagaimana yang dikehendaki bagi pengendalian pemasangannya dan penghantaran tenaga boleh baharu kepada pemegang lesen pengagihan mengikut amalan utiliti berhemat.
- (3) Seseorang yang tidak mematuhi subkaedah (1) melakukan suatu kesalahan di bawah Kaedah-Kaedah ini.

## BAHAGIAN VII PERMETERAN DAN PEMBAYARAN

### **Meter hasil**

17. (1) Seseorang pemegang kelulusan galakan hendaklah, dengan kosnya sendiri, menyebabkan diperoleh dan dipasang suatu meter hasil mengikut amalan utiliti berhemat.
- (2) Seseorang pemegang kelulusan galakan hendaklah memastikan spesifikasi, jenis dan lokasi meter hasil itu mematuhi amalan utiliti berhemat dan apa-apa kehendak yang ditentukan oleh Pihak Berkuasa.
- (3) Meter hasil hendaklah—
- (a) dipasang oleh pemegang lesen pengagihan atau orang berkeelayakan yang diberi kuasa oleh pemegang lesen pengagihan;
  - (b) dipateri oleh pemegang lesen pengagihan; dan
  - (c) dimiliki dan disenggarakan oleh pemegang lesen pengagihan atau pemegang kelulusan galakan mengikut kaedah 12.



(4) Tiada seorang pun boleh memecahkan pateri pada meter hasil kecuali menurut suatu pemeriksaan atau pengujian yang dijalankan di bawah kaedah 18.

(5) Seseorang pemegang kelulusan galakan hendaklah, dengan kosnya sendiri, menyebabkan diperolehi dan dipasang suatu meter hasil penyemak mengikut amalan utiliti berhemat.

#### **Pemeriksaan dan pengujian meter hasil**

18. (1) Seseorang pemegang lesen pengagihan atau pemegang kelulusan galakan boleh pada bila-bila masa mengemukakan suatu permintaan bertulis kepada Suruhanjaya untuk memeriksa atau menguji suatu meter hasil.

(2) Apabila permintaan bertulis di bawah subkaedah (1) diterima, Suruhanjaya hendaklah—

- (a) memeriksa atau menguji meter hasil itu tidak lewat dari empat belas hari dari penerimaan permintaan yang dikemukakan di bawah subkaedah (1) atau apa-apa tempoh lain yang dilanjutkan oleh Suruhanjaya;
- (b) memberi pemegang lesen pengagihan dan pemegang kelulusan galakan yang berkaitan tidak kurang dari dua puluh empat jam notis bertulis terlebih dahulu bagi pemeriksaan atau pengujian itu; dan
- (c) membenarkan pemegang lesen pengagihan, pemegang kelulusan galakan dan wakil mereka untuk menyaksikan pemeriksaan atau pengujian dan apa-apa pelarasan yang dibuat kepada meter hasil itu.

(3) Jika mana-mana meter hasil didapati cacat atau tidak tepat lebih daripada tahap yang dibenarkan di bawah amalan utiliti berhemat, meter hasil itu hendaklah diselaraskan, dibaiki, ditentukur semula atau diganti oleh pemegang lesen pengagihan dengan kosnya sendiri.

(4) Jika suatu meter hasil penyemak telah dipasang dan pemegang kelulusan galakan dan pemegang lesen pengagihan tidak dapat bersetuju tentang jumlah pelarasan yang perlu bagi membetulkan ukuran yang dibuat oleh meter hasil yang cacat atau tidak tepat yang dirujuk dalam subkaedah (3), meter hasil penyemak hendaklah digunakan bagi menentukan jumlah ketidaktepatan itu.

(5) Jika tiada meter hasil penyemak, atau jika meter hasil penyemak juga didapati cacat atau tidak tepat lebih daripada takat yang dibenarkan di bawah amalan utiliti berhemat, dan pemegang kelulusan galakan dan pemegang lesen pengagihan tidak dapat bersetuju tentang jumlah pelarasan yang perlu bagi membetulkan ukuran yang dibuat oleh meter hasil atau meter hasil penyemak yang cacat atau tidak tepat itu, pemegang lesen pengagihan hendaklah memasang suatu meter yang baharu dan yang ditentukur semula selari dengan meter hasil bagi menentukan ketidaktepatan meter hasil itu.

(6) Jika pemegang kelulusan galakan dan pemegang lesen pengagihan tidak dapat bersetuju tentang tempoh sebenar yang padanya ukuran yang tidak tepat itu dibuat, tempoh yang padanya ukuran itu hendaklah dilaraskan adalah seperti yang berikut:

(a) berkenaan dengan pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih yang melebihi 72kW atau kWp berkadar yang melebihi 72kWp, separuh daripada tempoh yang dikira dari ujian terdahulu yang terakhir bagi meter hasil itu hingga ke tarikh pengujian semasa yang mendapati meter hasil itu cacat atau tidak tepat; dan

(b) berkenaan dengan pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih sehingga dan termasuklah 72kW atau kWp berkadar sehingga dan termasuklah 72kWp, tiga bulan sebelum tarikh meter hasil itu didapati cacat atau tidak tepat.

(7) Jika tempoh yang dinyatakan di bawah subkaedah (6) meliputi suatu tempoh yang dalamnya tarif galakan telah dibayar oleh pemegang lesen pengagihan



kepada pemegang kelulusan galakan, pemegang lesen pengagihan hendaklah menggunakan ukuran yang dibetulkan sebagaimana yang ditentukan di bawah subkaedah (3), (4), (5) dan (6) bagi mengira semula jumlah tarif galakan yang kena dibayar bagi tempoh ketidaktepatan itu.

(8) Tarif galakan yang telah dibayar kepada pemegang kelulusan galakan hendaklah ditolak daripada jumlah tariff galakan yang dikira semula yang kena dibayar bagi tempoh ketidaktepatan itu.

(9) Baki penolakan yang dibuat di bawah subkaedah (8), jika ada, hendaklah dibayar—

(a) jika positif, oleh pemegang lesen pengagihan kepada pemegang kelulusan galakan;

(b) jika negatif, oleh pemegang kelulusan galakan kepada pemegang lesen pengagihan.

(10) Apa-apa baki yang dikehendaki supaya dibayar di bawah subkaedah (9) hendaklah dibuat dalam masa lima belas hari dari tarikh penerimaan oleh pemegang lesen pengagihan atau pemegang kelulusan galakan, mengikut mana-mana yang berkenaan, penyata daripada pemegang kelulusan galakan atau pemegang lesen pengagihan, mengikut mana-mana yang berkenaan, yang meminta baki itu.

(11) Apa-apa baki yang dikehendaki supaya dibayar di bawah perenggan 10(a) bolehlah ditolak selesai terhadap apa-apa bayaran yang kena dibayar oleh pemegang kelulusan galakan kepada pemegang lesen pengagihan.

### **Pembacaan meter**

19. (1) Tertakluk kepada subkaedah (2) dan (5), seseorang pemegang lesen pengagihan hendaklah—

(a) membaca semua meter hasil pada setiap bulan;

(b) tidak lewat dari tujuh hari selepas membaca setiap meter hasil, mengeluarkan pemberitahu bayaran kepada pemegang kelulusan galakan yang berkaitan yang menyatakan—

(i) jumlah tenaga boleh baharu yang dijana dan dihantar oleh pemasangan tenaga boleh baharu pemegang kelulusan galakan kepada pemegang lesen pengagihan; dan

(ii) jumlah tarif galakan yang kena dibayar oleh pemegang lesen pengagihan kepada pemegang kelulusan galakan bagi tenaga boleh baharu itu.

(2) Jika pemasangan tenaga boleh baharu bervoltan rendah disambungkan kepada tempat sambungan melalui suatu sambungan tidak langsung bervoltan rendah, pemegang kelulusan galakan yang memiliki pemasangan itu hendaklah membaca meter hasil dan meter penggunaan yang terpakai pada hari yang sama dan pada masa yang paling hampir yang mungkin secara bulanan dengan apa-apa cara yang dinyatakan oleh pemegang lesen pengagihan.

(3) Pemegang kelulusan galakan hendaklah mengemukakan pembacaan yang dibuat di bawah subkaedah (2) kepada pemegang lesen pengagihan, dalam apa-apa bentuk dan kaedah yang dinyatakan oleh pemegang lesen pengagihan, tidak lewat dari hari ketujuh bulan yang berikutnya selepas bulan yang padanya tenaga boleh baharu itu dijana dan dihantar oleh pemegang kelulusan galakan kepada pemegang lesen pengagihan.

(4) Pemegang lesen pengagihan hendaklah, tidak lewat dari tujuh hari selepas menerima pembacaan meter yang dikemukakan di bawah subkaedah (3), mengeluarkan suatu pemberitahu bayaran kepada pemegang kelulusan galakan yang menyatakan—

(a) jumlah tenaga boleh baharu yang dijana dan dihantar oleh pemegang kelulusan galakan kepada pemegang lesen pengagihan; dan



- (b) jumlah tarif galakan yang kena dibayar oleh pemegang lesen pengagihan kepada pemegang kelulusan galakan bagi tenaga boleh baharu itu.

(5) Seseorang pemegang lesen pengagihan boleh meminta pemegang kelulusan galakan untuk membacakan meter hasil berkenaan dengan pemasangan tenaga boleh baharu yang mempunyai kapasiti eksport bersih yang kurang daripada 72kW atau kWp berkadar yang kurang daripada 72kWp bagi pihak pemegang lesen pengagihan itu.

(6) Jika pemegang kelulusan galakan bersetuju untuk membaca meter hasil di bawah subkaedah (5), pemegang kelulusan galakan itu hendaklah mengemukakan pembacaan meter hasil itu kepada pemegang lesen pengagihan dalam apa-apa bentuk dan kaedah yang dinyatakan oleh pemegang lesen pengagihan.

(7) Pemegang lesen pengagihan hendaklah, tidak lewat dari tujuh hari selepas menerima pembacaan meter yang dikemukakan di bawah subkaedah (6), mengeluarkan suatu pemberitahu bayaran kepada pemegang kelulusan galakan yang menyatakan—

- (a) jumlah tenaga boleh baharu yang dijana dan dihantar oleh pemasangan tenaga boleh baharu pemegang kelulusan galakan kepada pemegang lesen pengagihan itu; dan
- (b) jumlah tarif galakan yang kena dibayar oleh pemegang lesen pengagihan itu kepada pemegang kelulusan galakan bagi tenaga boleh baharu itu.

(8) Tanpa menjejaskan subkaedah 18(3), 18(4), 18(5), 18(6), 18(7), 18(8), 18(9), 18(10) dan 18(11), pembacaan meter adalah keterangan *prima facie* bagi jumlah tenaga boleh baharu yang dibekalkan oleh pemegang kelulusan galakan kepada pemegang lesen pengagihan.

**Pembayaran tarif galakan**

20. (1) Seseorang pemegang lesen pengagihan hendaklah membayar tarif galakan yang terpakai kepada setiap pemegang kelulusan galakan tidak lewat dari tiga puluh hari selepas pengeluaran pemberitahu bayaran di bawah perenggan 19(1)(b), subkaedah 19(4) atau 19(7).

(2) Sekiranya seseorang pemegang lesen pengagihan tidak—

(a) membayar pemegang kelulusan galakan tarif galakan yang terpakai mengikut subkaedah (1); atau

(b) mengeluarkan suatu pemberitahu bayaran kepada pemegang kelulusan galakan di bawah perenggan 19(1)(b), subkaedah 19(4) atau 19(7),

tarif galakan yang sepatutnya diterima selainnya oleh pemegang kelulusan galakan itu jika bukan disebabkan kegagalan itu hendaklah menjadi hutang yang kena dibayar kepada pemegang kelulusan galakan oleh pemegang lesen pengagihan itu.

**Pertikaian**

21. Apa-apa tuntutan, perbezaan pendapat atau pertikaian antara pemegang kelulusan galakan dengan pemegang lesen pengagihan yang berbangkit daripada atau berkaitan dengan Bahagian ini hendaklah diadjudikasi dan diselesaikan mengikut peruntukan yang terpakai bagi perjanjian pembelian kuasa tenaga boleh baharu yang dibuat antara mereka.

**BAHAGIAN VIII**

**AM**

**Amalan utiliti berhemat**

22. Segala tindakan yang dikehendaki oleh Kaedah-Kaedah ini atau diambil oleh mana-mana orang menurut Kaedah-Kaedah ini hendaklah selaras dengan amalan utiliti berhemat.



**Orang berkelayakan**

23. (1) Seseorang yang menjalankan kerja-kerja sebagaimana yang dinyatakan dalam ruang pertama Jadual Kelima hendaklah memiliki kelayakan sebagaimana yang dinyatakan dalam ruang kedua Jadual itu.

(2) Seseorang yang tidak mematuhi subkaedah (1) melakukan suatu kesalahan di bawah Kaedah-Kaedah ini.

**Kelulusan lukisan, pelan dan dokumen lain**

24. Apa-apa kajian semula, komen atau kelulusan oleh Pihak Berkuasa atau pemegang lesen pengagihan tentang apa-apa lukisan, pelan atau dokumen lain yang dikemukakan oleh seseorang pemegang kelulusan galakan di bawah Kaedah-Kaedah ini atau apa-apa pemeriksaan atau pengujian yang dijalankan oleh Pihak Berkuasa atau pemegang lesen pengagihan ke atas apa-apa pemasangan tenaga boleh baharu tidak akan—

- (a) menjadi suatu pengendorsan bagi reka bentuk pemasangan tenaga boleh baharu itu;
- (b) menjadi suatu waranti atau jaminan lain oleh Pihak Berkuasa atau pemegang lesen pengagihan bagi keselamatan, ketahanan atau kebolehharian bagi pemasangan itu; atau
- (c) melepaskan pemegang kelulusan galakan daripada mana-mana kewajipannya, obligasinya atau liabilitinya yang dikenakan oleh atau diperuntukkan di bawah Kaedah-Kaedah ini atau di bawah peruntukan mana-mana perjanjian pembelian tenaga boleh baharu.

**Pelanjutan masa**

25. (1) Walau apa pun apa-apa jua yang terkandung dalam Kaedah-Kaedah ini, jika suatu tempoh masa dinyatakan di bawah Kaedah-Kaedah ini atau dalam mana-mana permintaan oleh Pihak Berkuasa bagi suatu perbuatan yang hendak dilakukan atau

syarat yang hendak dipenuhi, orang yang terjejas itu boleh meminta suatu pelanjutan masa secara bertulis kepada Pihak Berkuasa.

(2) Pihak Berkuasa boleh, apabila menerima suatu permintaan yang dibuat di bawah subkaedah (1), membenarkan apa-apa pelanjutan masa sebagaimana yang difikirkannya patut, dengan syarat bahawa orang itu telah memberikan keterangan yang mencukupi dengan memuaskan hati Pihak Berkuasa bahawa pelanjutan masa yang dicadangkan itu—

- (a) dikehendaki bukan disebabkan oleh perbuatan, peninggalan atau kecuaiian orang itu;
- (b) tidak dapat diramal dengan semunasabah pada masa permohonan bagi pemberian kelulusan galakan;
- (c) adalah adil dan munasabah; dan
- (d) adalah selaras dengan perkara yang dinyatakan dalam subseksyen 3(3) Akta.

### **Penalti am**

26. Mana-mana orang yang melakukan suatu kesalahan di bawah Kaedah-Kaedah ini boleh, apabila disabitkan, didenda tidak melebihi tiga ratus ribu ringgit atau dipenjarakan selama tempoh tidak melebihi tiga tahun atau kedua-duanya.

### **Peruntukan peralihan**

27. (1) Apabila kelulusan galakan kepada penjana yang layak yang disebut dalam subseksyen 64(2) Akta diberikan, Kaedah-Kaedah ini hendaklah terpakai *mutatis mutandis* bagi pemegang kelulusan galakan dan pemegang lesen pengagihan; kecuali—

- (a) jika pemasangan tenaga boleh baharu pemegang kelulusan galakan telah menjana elektrik bagi penjualan komersial sebelum pemberian kelulusan galakan, peruntukan Bahagian II, Bahagian III, kaedah 11,



subkaedah 14(1) dan (2), subkaedah 15(1) (kecuali perenggan 15(1)(b)), Jadual Pertama, Jadual Kedua dan Jadual Ketiga tidak terpakai bagi mana-mana pemegang kelulusan galakan dan pemegang lesen pengagihan itu; dan

- (b) jika pemasangan tenaga boleh baharu pemegang kelulusan galakan belum menjana elektrik bagi penjualan komersial sebelum pemberian kelulusan galakan—
  - (i) peruntukan Bahagian II, subkaedah 11(2) dan Jadual Pertama tidak terpakai bagi pemegang kelulusan galakan dan pemegang lesen pengagihan itu jika mereka telah bersetuju tentang lokasi bagi tempat sambungan sebelum pemberian kelulusan galakan itu;
  - (ii) peruntukan Bahagian II, Bahagian III, subkaedah 11(2), Jadual Pertama dan Jadual Kedua tidak terpakai bagi pemegang kelulusan galakan dan pemegang lesen pengagihan jika pemasangan tenaga boleh baharu itu telah disambung ke tempat sambungan sebelum pemberian kelulusan galakan itu;
  - (iii) peruntukan bagi subkaedah 12(1) tidak terpakai bagi mana-mana pemegang kelulusan galakan dan pemegang lesen pengagihan jika dan takat tanggungjawab dan kos yang disebut dalam subkaedah itu telah dipenuhi atau ditanggung sebelum pemberian kelulusan galakan itu;
  - (iv) peruntukan bagi subkaedah 14(1) dan (2) tidak terpakai bagi pemegang kelulusan galakan dan pemegang lesen pengagihan itu jika ujian penerimaan telah dijalankan berkenaan dengan pemasangan tenaga boleh baharu sebelum pemberian kelulusan galakan itu; dan

- (v) peruntukan Jadual Ketiga tidak terpakai bagi pemegang kelulusan galakan dan pemegang lesen pengagihan itu jika dan setakat kehendak syarat-syarat yang dinyatakan dalam Jadual itu dipenuhi sebelum pemberian kelulusan galakan itu.

**JADUAL PERTAMA**  
(Kaedah 4)

**TEMPOH DAN KOS PENYIAPAN BAGI KAJIAN SISTEM KUASA**

<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
<i>Kapasiti eksport bersih atau kWp berkadar bagi pemasangan tenaga boleh baharu</i>	<i>Tempoh untuk menyiapkan kajian sistem kuasa [bermula dari hari semua maklumat diberikan di bawah subkaedah 4(2)]</i>	<i>Kos kajian sistem kuasa (RM)</i>
1. Melebihi 180kW dan sehingga dan termasuklah 1MW atau 180kWp dan sehingga dan termasuklah 1,000kWp	30 hari	20,000.00
2. Melebihi 1MW dan sehingga dan termasuklah 10MW atau melebihi 1,000kWp sehingga dan termasuklah 10,000kWp	30 hari	40,000.00
3. Melebihi 10MW dan sehingga dan termasuklah 30MW atau 10,000kWp dan sehingga dan termasuklah 30,000kWp	42 hari	60,000.00

1. Suatu tempoh tambahan selama 10 hari hendaklah diberikan kepada pemegang lesen pengagihan jika suatu kajian penyelarasan penebatan disifatkan perlu dan dijalankan oleh pemegang lesen pengagihan sebagai sebahagian daripada kajian sistem kuasa.



## 2. Kos tambahan:

- (a) dua puluh ribu ringgit hendaklah dibayar kepada pemegang lesen pengagihan jika suatu kajian penyelarasan penebatan disifatkan perlu dan dijalankan oleh pemegang lesen pengagihan sebagai sebahagian daripada kajian sistem kuasa; dan
- (b) sepuluh ribu ringgit hendaklah dibayar kepada pemegang lesen pengagihan bagi pemasangan FV jika suatu kajian dinamik bagi menentukan turun naiknya voltan adalah perlu, dan data radiasi suria diberikan oleh pemegang kelulusan galakan itu.

**JADUAL KEDUA**  
(Kaedah 5 dan 8)

**JUMLAH KAPASITI EKSPORT BERSIH ATAU kWp BERKADAR BAGI PEPASANGAN YANG BOLEH DISAMBUNGAN SECARA TEKNIKAL KEPADA TEMPAT SAMBUNGAN PADA TAHAP VOLTAN MINIMALNYA**

(1)	(2)
<i>Tahap voltan nominal di tempat sambungan</i>	<i>Jumlah kapasiti eksport bersih atau kWp berkadar bagi pemasangan termasuklah pemasangan tenaga boleh baharu yang dicadangkan yang boleh disambung secara teknikal ke tempat sambungan</i>
1. 230 volt	Sehingga dan termasuklah 10kW atau 10kWp.
2. 400 volt	<p>Berkenaan dengan Semenanjung Malaysia: melebihi 10kW dan sehingga dan termasuklah hingga 425kW atau melebihi 10kWp dan sehingga dan termasuklah 425kWp.</p> <p>Berkenaan dengan Sabah dan Wilayah Persekutuan Labuan: melebihi 10kW dan sehingga dan termasuklah 72kW atau melebihi 10kWp dan sehingga dan termasuklah 72kWp.</p>
3. 11 kilovolt (pencawang elektrik)	Berkenaan dengan Semenanjung Malaysia: melebihi 180kW dan sehingga dan termasuklah 2MW atau melebihi 180kWp dan sehingga dan termasuklah 2,000kWp.

	Berkenaan dengan Sabah dan Wilayah Persekutuan Labuan: melebihi 72kW dan sehingga dan termasuklah 1 MW atau melebihi 72kWp dan sehingga dan termasuklah 1,000kWp.
4. 11 kilovolt (pencawang pembahagi utama, stesen suis utama, pencawang masuk utama)	Berkenaan dengan Semenanjung Malaysia: melebihi 1MW dan sehingga dan termasuklah 10MW atau melebihi 1,000kWp dan sehingga dan termasuklah 10,000kWp.  Berkenaan dengan Sabah dan Wilayah Persekutuan Labuan: melebihi 1MW dan sehingga dan termasuklah 3MW atau melebihi 1,000kWp dan sehingga dan termasuklah 3,000kWp.
5. 33 kilovolt	Melebihi 1MW dan sehingga dan termasuklah 30MW atau melebihi 1,000kWp dan sehingga dan termasuklah 30,000kWp.

**JADUAL KETIGA**  
(Kaedah 9 dan 10)

**PERUNTUKAN YANG TERPAKAI BAGI SAMBUNGAN LANGSUNG BERVOLTAN  
SEDERHANA DAN TINGGI**

**Pengemukaan dan kajian semula reka bentuk konsep dan kemudahan antara sambungan**

1. (1) Seseorang pemegang kelulusan galakan hendaklah, tidak lewat dari enam puluh hari sebelum bermulanya apa-apa pembinaan fizikal kemudahan antara sambungan itu, mengemukakan kepada pemegang lesen pengagihan—

- (a) reka bentuk konsep bagi kemudahan itu; dan
- (b) suatu perakuan daripada orang berkeelayakan yang memperakukan bahawa kemudahan antara sambungan apabila dibina mengikut reka bentuk konsep itu telah mematuhi amalan utiliti berhemat dan kehendak minimum spesifikasi dan ciri pengendalian yang terpakai bagi pemegang lesen pengagihan.



(2) Pemegang lesen pengagihan boleh dengan kosnya sendiri—

- (a) mengkaji semula reka bentuk konsep yang dikemukakan di bawah subperenggan (1); dan
- (b) mengesyorkan kepada pemegang kelulusan galakan ubah suaian, semakan semula dan penambahbaikan kepada kemudahan antara sambungan mengikut amalan utiliti berhemat, dengan syarat bahawa syor itu dibuat secara bertulis kepada pemegang kelulusan galakan tidak lewat dari tiga puluh hari selepas pengemukaan dibuat di bawah subperenggan (1).

(3) Pemegang kelulusan galakan hendaklah, dengan kosnya sendiri, mematuhi apa-apa syor yang dibuat oleh pemegang lesen pengagihan di bawah subsubperenggan (2)(b) jika ia berhubungan dengan pengendalian selamat dan terjamin kemudahan antara sambungan dengan rangkaian pengagihan elektrik pemegang lesen pengagihan.

### **Hak lalu-lalang**

2. (1) Seseorang pemegang kelulusan galakan hendaklah dengan kosnya sendiri, memperoleh segala isemen, lesen, hak lalu-lalang dan hak akses yang perlu yang dikehendaki untuk membina dan memasang kemudahan antara sambungan termasuklah peletakan apa-apa kabel dan pembinaan talian atas.

(2) Pemegang lesen pengagihan hendaklah, bila mana mungkin, membantu pemegang kelulusan galakan dengan pemerolehan itu.

(3) Pemegang kelulusan galakan hendaklah membayar balik pemegang lesen pengagihan bagi segala perbelanjaan munasabah yang dilakukan oleh pemegang lesen pengagihan dalam memberikan bantuan itu.



**Kajian penyelarasan perlindungan**

3. (1) Pemegang kelulusan galakan hendaklah mendapatkan dengan kosnya sendiri suatu kajian penyelarasan perlindungan untuk dijalankan oleh orang berkelayakan yang dilantik olehnya.

(2) Pemegang kelulusan galakan hendaklah mengemukakan kepada pemegang lesen pengagihan tidak kurang dari enam puluh hari sebelum tarikh pengendalian permulaan —

(a) keputusan kajian penyelarasan perlindungan; dan

(b) butir-butir skim perlindungan elektrik yang dicadangkan, termasuklah kaedah perlindungan elektrik, jenis geganti yang dicadangkan, penetapan geganti dan pengedaran pemutus, dengan pengiraan yang berkaitan bagi penjana, pengubah dan kabel saling bersambung.

(3) Dalam masa tiga puluh hari selepas menerima pengemukaan yang dibuat di bawah subperenggan (2), pemegang lesen pengagihan hendaklah memberitahu pemegang kelulusan galakan secara bertulis sama ada skim perlindungan elektrik yang dicadangkan itu termasuklah kaedah perlindungan elektrik, jenis geganti, penetapan geganti dan pengedaran pemutus boleh diterima oleh pemegang lesen pengagihan.

(4) Jika skim perlindungan elektrik yang dicadangkan, jenis geganti, penetapan geganti dan pengedaran pemutus tidak diterima oleh pemegang lesen pengagihan—

(a) pemegang lesen pengagihan itu hendaklah menyatakan secara bertulis kepada pemegang kelulusan galakan sebab-sebab bagi ketidakterimaan itu; dan

(b) pemegang kelulusan galakan itu hendaklah mematuhi dengan kosnya sendiri apa-apa permintaan yang munasabah daripada pemegang lesen pengagihan untuk memberikan suatu skim perlindungan elektrik, jenis geganti, penetapan geganti dan pengedaran pemutus yang boleh diterima.

**Pemantauan dan pemeriksaan pembinaan kemudahan antara sambungan**

4. (1) Pemegang lesen pengagihan boleh, dengan kosnya sendiri, memantau dan memeriksa pembinaan kemudahan antara sambungan, termasuklah menjalankan pemeriksaan di tapak kemudahan itu.

(2) Pemegang kelulusan galakan hendaklah, dengan kosnya sendiri, mematuhi apa-apa permintaan pemegang lesen pengagihan yang berhubungan dengan—

- (a) pematuhan reka bentuk konsep bagi kemudahan antara sambungan; dan
- (b) pengendalian selamat dan terjamin bagi kemudahan antara sambungan selari dengan rangkaian pengagihan elektrik.

**Tiada ubah suaian kepada kemudahan antara sambungan tanpa kebenaran**

5. Pemegang kelulusan galakan tidak boleh membuat atau dibenarkan untuk membuat apa-apa ubah suaian yang material kepada reka bentuk atau bentuk kemudahan antara sambungan kecuali dengan keizinan bertulis terdahulu daripada:

- (a) pemegang lesen pengagihan; dan
- (b) Pihak Berkuasa, jika ubah suaian itu menyebabkan apa-apa perubahan dalam apa-apa maklumat yang dikemukakan sebelumnya oleh pemegang kelulusan galakan kepada Pihak Berkuasa dalam permohonan kelulusan galakannya di bawah Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011.

**Kehendak bagi tarikh pengendalian permulaan**

6. (1) Apabila pembinaan kemudahan antara sambungan disiapkan, pemegang kelulusan galakan hendaklah mengemukakan suatu notis bertulis kepada pemegang lesen pengagihan yang memberitahu pemegang lesen pengagihan itu tentang penyiapan itu, disertai dengan—



- (a) tarikh pengendalian permulaan yang dicadangkan bagi pemegang kelulusan galakan yang hendaklah jatuh tidak kurang dari empat belas hari selepas tarikh notis itu;
  - (b) jadual bagi setiap jam yang dicadangkan oleh pemegang kelulusan galakan bagi tenaga boleh baharu yang hendak dijana dan dihantar oleh pemasangan tenaga boleh baharu bagi tempoh dari tarikh pengendalian permulaan yang dicadangkan sehingga tarikh permulaan kuat kuasa tarif galakan; dan
  - (c) suatu perakuan daripada orang yang berkecualan yang menyatakan bahawa kemudahan antara sambungan telah direka bentuk dan dibina mengikut amalan utiliti berhemat.
- (2) Pemegang lesen pengagihan hendaklah, dengan kosnya sendiri, tidak lewat dari empat belas hari selepas menerima notis dalam subperenggan (1), memeriksa kemudahan antara sambungan dengan kehadiran pemegang kelulusan galakan atau wakilnya.
- (3) Selepas menjalankan pemeriksaan di bawah subperenggan (2), pemegang lesen pengagihan hendaklah—
- (a) menerima tarikh pengendalian permulaan yang dicadangkan; atau
  - (b) menjadualkan semula tarikh pengendalian permulaan bagi pemasangan tenaga boleh baharu jika ia dengan semunasabahnya menentukan bahawa pengendalian selari kemudahan antara sambungan dengan rangkaian pengagihan elektriknya boleh menjejaskan keselamatan dan keutuhan rangkaian itu.
- (4) Sekiranya terdapat apa-apa penjadualan semula tarikh pengendalian permulaan di bawah subsubperenggan (3)(b), pemegang lesen pengagihan hendaklah, tidak lewat dari tiga hari selepas pemeriksaan di bawah subperenggan (2),

memberitahu pemegang kelulusan galakan secara bertulis apa-apa kecacatan atau kekurangan yang dikenal pasti semasa pemeriksaan itu.

(5) Pemegang kelulusan galakan hendaklah membetulkan kecacatan atau kekurangan itu.

(6) Apabila pembetulan di bawah subperenggan (5) disiapkan, peruntukan subperenggan (1), (2), (3) dan (4) adalah terpakai, *mutatis mutandis*, berkenaan dengan kemudahan antara sambungan yang dibetulkan itu.

(7) Tarikh pengendalian permulaan hendaklah hanya berlaku apabila syarat-syarat yang berikut dipenuhi—

- (a) tatacara yang dinyatakan dalam subperenggan (1) hingga (4) telah disiapkan;
- (b) kelulusan galakan masih berkuat kuasa dan mempunyai kesan;
- (c) tiada keingkaran penting oleh pemegang kelulusan galakan di bawah perjanjian pembelian kuasa tenaga boleh baharu telah berlaku dan masih berlaku;
- (d) segala permit, lesen, kelulusan atau kebenaran kerajaan lain yang dikehendaki di bawah undang-undang yang terpakai untuk membina, memiliki dan mengendalikan pemasangan tenaga boleh baharu telah diperoleh dan masih berkuat kuasa dan mempunyai kesan; dan
- (e) pemegang kelulusan galakan telah mengemukakan kepada pemegang lesen pengagihan suatu pengesahan bertulis bahawa syarat yang dinyatakan dalam subsubperenggan (a) hingga (d) telah dipenuhi.



(8) Pemegang kelulusan galakan hendaklah, dalam masa lima hari dari tarikh pengendalian permulaan, memberikan pemegang lesen pengagihan dan Pihak Berkuasa pengesahan bertulis tentang berlakunya tarikh pengendalian permulaan itu.

#### **Ujian kebolehpercayaan**

7. Selepas berlakunya tarikh pengendalian permulaan, pemegang kelulusan galakan hendaklah menjalankan suatu ujian kebolehpercayaan ke atas pemasangan tenaga boleh baharunya mengikut apa-apa kehendak dan tatacara, dan bagi apa-apa tempoh, sebagaimana yang ditentukan oleh Pihak Berkuasa.

#### **Kehendak bagi tarikh permulaan kuat kuasa tarif galakan**

8. Melainkan jika dibenarkan selainnya di bawah terma sesuatu perjanjian pembelian kuasa tenaga boleh baharu yang berkuat kuasa, tarikh permulaan kuat kuasa tarif galakan hanya boleh berlaku apabila syarat-syarat berikut dipenuhi:

- (a) pemegang kelulusan galakan telah mengemukakan kepada pemegang lesen pengagihan dan Pihak Berkuasa suatu perakuan daripada orang yang berkeelayakan yang menyatakan bahawa pemasangan tenaga boleh baharu telah berjaya menjalani ujian kebolehpercayaan mengikut perenggan 7;
- (b) kelulusan galakan masih berkuat kuasa dan mempunyai kesan;
- (c) tiada keingkaran penting oleh pemegang kelulusan galakan di bawah perjanjian pembelian kuasa tenaga boleh baharu telah berlaku dan terus berlaku;
- (d) segala permit, lesen, kelulusan atau kebenaran kerajaan lain yang dikehendaki di bawah undang-undang yang terpakai untuk memiliki dan mengendalikan pemasangan tenaga boleh baharu telah diperoleh dan masih berkuat kuasa dan mempunyai kesan; dan

- (e) pemegang kelulusan galakan telah mengemukakan kepada pemegang lesen pengagihan suatu pengesahan bertulis bahawa syarat yang dinyatakan dalam subsubperenggan (a) hingga (d) telah dipenuhi.

**Tiada perubahan pada tarikh pengendalian permulaan atau tarikh permulaan kuat kuasa tarif galakan tanpa kelulusan**

9. Tiada perubahan kepada tarikh pengendalian permulaan yang dijadualkan atau tarikh permulaan kuat kuasa tarif galakan bagi pemasangan tenaga boleh baharu daripada yang dinyatakan dalam kelulusan galakan yang terpakai bagi pemasangan itu, boleh dibuat oleh pemegang kelulusan galakan atau pemegang lesen pengagihan tanpa kelulusan bertulis daripada Pihak Berkuasa terdahulu.

**Pengemukakan lukisan dan manual kepada pemegang lesen pengagihan**

10. Seseorang pemegang kelulusan galakan hendaklah, tidak lewat dari empat belas hari sebelum tarikh pengendalian permulaan, mengemukakan kepada pemegang lesen pengagihan—

- (a) sesalinan lukisan terbina bagi pemasangan tenaga boleh baharu dan kemudahan antara sambungan; dan
- (b) sesalinan manual pengendalian dan penyenggaraan berkaitan dengan kemudahan antara sambungan.

**Pemindahan kemudahan antara sambungan**

11. (1) Apabila kemudahan antara sambungan disiapkan, pemegang kelulusan galakan hendaklah memindahkan hakmilik kemudahan antara sambungan yang diluar sempadan pemunyaannya kepada pemegang lesen pengagihan dan mengambil segala tindakan yang perlu bagi melaksanakan pemindahan hakmilik itu kepada pemegang lesen pengagihan bagi segala hak, hakmilik dan kepentingan bagi kemudahan antara sambungan itu supaya pemegang lesen pengagihan menjadi pemilik.

(2) Tanpa menjejaskan perenggan 12, pemegang lesen pengagihan hendaklah bertanggungjawab bagi pengendalian dan penyenggaraan kemudahan antara sambungan berikutan pemindahan hakmilik di bawah subperenggan (1).



**Kecacatan dalam kemudahan saling hubung**

12. (1) Tertakluk kepada subperenggan (2), jika pemegang lesen pengagihan mendapati bahawa kemudahan antara sambungan atau mana-mana bahagian daripada kemudahan antara sambungan itu yang telah dipindahkan hakmilik—

- (a) tidak direka bentuk, dibina, dipasang dan diuji mengikut amalan utiliti berhemat; atau
- (b) mengandungi apa-apa kecacatan dalam reka bentuknya, bahannya atau mutu kerjanya,

pemegang kelulusan galakan hendaklah, dengan kosnya sendiri, membuat segala pembaikan atau penggantian yang perlu supaya kemudahan antara sambungan itu mematuhi kehendak amalan utiliti berhemat dan bebas daripada apa-apa kecacatan sedemikian.

(2) Obligasi pemegang kelulusan galakan di bawah subperenggan (1) tidaklah terpakai berkenaan dengan apa-apa ketidakpatuhan atau kecacatan yang timbul—

- (a) daripada kegagalan pemegang lesen pengagihan untuk mengendalikan dan menyenggarakan kemudahan antara sambungan itu mengikut manual pengendalian dan penyenggaraan yang disebut dalam perenggan 10 dan amalan utiliti berhemat;
- (b) daripada kesan haus dan lusuh biasa atau kesan hakisan atau kakisan yang kemudahan itu bukan direka bentuk untuknya; atau
- (c) selepas tempoh permulaan dua belas bulan dari tarikh permulaan kuat kuasa tarif galakan, dan berkenaan dengan mana-mana bahagian daripada kemudahan itu yang telah dibaiki atau digantikan semasa tempoh permulaan itu, selepas tempoh dua belas bulan dari tarikh pembaikan atau penggantian itu disiapkan.



**JADUAL KEEMPAT**  
**(Kaedah 16)**

**PERUNTUKAN YANG TERPAKAI BAGI PEPASANGAN TENAGA BOLEH BAHARU UTAMA**

**Pemberitahuan kebolehsediaan harian tenaga boleh baharu**

1. Seseorang pemegang kelulusan galakan hendaklah, bermula dari hari sebaik sebelum tarikh permulaan kuat kuasa tarif galakannya dan berterusan bagi setiap hari sepanjang tempoh berkuat kuasa, memberitahu pusat kawalan ditentukan—

- (a) tahap pengendalian dan maksimum yang dijangkakan bagi tenaga boleh baharu yang pemasangan tenaga boleh baharu utamanya boleh menjadikan tersedia kepada pemegang lesen pengagihan; dan
- (b) apa-apa gangguan atau ketiadaan yang dijangkakan bagi tenaga boleh baharu daripada pemasangan itu dan tahap gangguan atau tahap ketiadaan tenaga boleh baharu,

bagi hari yang berikutnya.

**Pengendalian biasa**

2. Seseorang pemegang kelulusan galakan hendaklah, semasa keadaan pengendalian biasa, memberi pusat kawalan ditentukan apa-apa maklumat yang berterusan sebagaimana yang dapat dilaksanakan dengan munasabah di bawah hal keadaan semasa tentang keadaan pengendalian pemasangan tenaga boleh baharu utama itu, termasuklah kapasiti eksport kuasa aktif dan reaktifnya, voltannya, kekerapannya dan apa-apa syarat lainnya yang boleh memberi kesan kepada kestabilan rangkaian pengagihan elektrik pemegang lesen pengagihan.

**Keadaan kecemasan**

3. Semasa suatu keadaan kecemasan, pemegang kelulusan galakan hendaklah—

- (a) apabila diminta oleh pusat kawalan ditentukan, membuat segala usaha yang munasabah untuk menghantar tenaga boleh baharu dari pemasangan

tenaga boleh baharu utamanya ke dalam rangkaian pengagihan elektrik pemegang lesen pengagihan;

- (b) mematuhi arahan munasabah pusat kawalan ditentukan sehingga rangkaian pengagihan elektrik kembali seperti biasa;
- (c) bekerjasama dengan pusat kawalan ditentukan dalam mewujudkan rancangan kecemasan termasuklah suatu rancangan pemulihan daripada terputusnya bekalan elektrik atau pemotongan beban setempat atau secara meluas;
- (d) bekerjasama dengan pusat kawalan ditentukan dalam melaksanakan tatacara pemulihan yang memerlukan suatu rancangan yang teratur bagi pemulihan selamat dan pantas rangkaian pengagihan elektrik pemegang lesen pengagihan;
- (e) jika pemasangan tenaga boleh baharu utamanya telah diasingkan daripada rangkaian pengagihan elektrik pemegang lesen pengagihan atas sebab suatu keadaan kecemasan—
  - (i) dibenarkan untuk menyambung semula pemasangan itu hanya di bawah arahan pusat kawalan ditentukan; dan
  - (ii) bersedia bagi pemasangannya untuk mengambil beban secepat yang mungkin;
- (f) boleh dihubungi oleh pusat kawalan ditentukan pada bila-bila masa;
- (g) mengambil segala langkah yang munasabah untuk menjadualkan semula apa-apa gangguan penyenggaraan yang akan datang atau gangguan berjadual bagi pemasangan tenaga boleh bahrunya yang bertepatan dengan keadaan kecemasan, dan jika gangguan itu tidak boleh dijadualkan semula mengikut amalan utiliti berhemat, memberitahu



pusat kawalan ditentukan tentang jenis, permulaan dan tempoh gangguan itu; dan

- (h) menyenggarakan pengawal atur voltan automatik dalam pengendalian sehingga pusat kawalan ditentukan meminta supaya penyelarasan manual dibuat.

#### **Gangguan yang dirancang**

4. (1) Seseorang pemegang kelulusan galakan hendaklah, dalam masa tiga puluh hari selepas tarikh permulaan kuat kuasa tarif galakan dan selepas itu tidak kurang dari enam puluh hari sebelum hari pertama tiap-tiap tahun kalendar yang berikutnya, mengemukakan kepada pemegang lesen pengagihan suatu jadual yang dicadangkan bagi gangguan berjadual bagi tahun kalendar itu berkenaan dengan pemasangan tenaga boleh baharu utamanya.

(2) Jadual bagi gangguan yang berjadual yang dikemukakan di bawah subkaedah (1) hendaklah termasuk anggaran pemegang kelulusan galakan tentang—

- (a) masa pengendalian;
- (b) kuantiti tenaga boleh baharu yang hendak dijanakan;
- (c) bilangan gangguan berjadual dan pengurangan output yang lain dan sebab-sebab bagi gangguan dan pengurangan itu;
- (d) tarikh permulaan kuat kuasa yang paling awal dan paling akhir, masa dan tempoh gangguan berjadual itu, termasuklah perihalan skop kerja yang hendak dijalankan semasa gangguan itu,

berkenaan dengan pemasangan tenaga boleh baharu utamanya.

(3) Pemegang lesen pengagihan boleh, apabila memberikan tidak kurang dari tiga puluh hari notis bertulis terlebih dahulu kepada pemegang kelulusan galakan,

meminta pemegang kelulusan galakan supaya menyemak semula jadual yang dicadangkannya bagi masa dan tempoh apa-apa gangguan berjadual atau pengurangan output yang lain bagi pemasangan tenaga boleh baharu utama untuk disesuaikan dengan kehendak pemegang lesen pengagihan mengikut amalan utiliti berhemat.

(4) Pemegang kelulusan galakan hendaklah memberikan pusat kawalan ditentukan tidak kurang dari tujuh hari notis terlebih dahulu bagi setiap gangguan bagi pemasangan tenaga boleh baharu utamanya yang diselaraskan dan dipersetujui di bawah subperenggan (1) hingga (3).

(5) Pemegang kelulusan galakan hendaklah menyelaraskan gangguan penyenggaraan dengan pemegang lesen pengagihan mengikut amalan amalan utiliti berhemat dan kehendak rangkaian pengagihan elektrik, termasuklah memberikan pemegang lesen pengagihan sekurang-kurangnya empat puluh lapan jam notis bertulis terlebih dahulu bagi apa-apa gangguan penyenggaraan, yang notis itu hendaklah termasuk tarikh permulaan kuat kuasa gangguan yang dijadualkan, masa dan anggaran tempoh gangguan penyenggaraan itu.

#### **Gangguan yang tidak dirancang**

5. Seseorang pemegang kelulusan galakan boleh mengganggu penghantaran sesuatu tenaga boleh baharu kepada pemegang lesen pengagihan atas sebab gangguan yang tidak dirancang, dengan syarat bahawa pemegang kelulusan galakan itu—

- (a) memberitahu pemegang lesen pengagihan tentang gangguan itu secepat yang dapat dilaksanakan;
- (b) memberi pemegang lesen pengagihan suatu anggaran tempoh jangkaan bagi gangguan yang tidak dirancang itu; dan
- (c) memberi pemegang lesen pengagihan suatu penjelasan tentang gangguan yang tidak dirancang itu selepas ia berlaku.



**Jadual penyenggaraan pemegang lesen pengagihan**

6. Pemegang lesen pengagihan hendaklah, tidak lewat dari empat puluh lapan jam sebelum apa-apa penyenggaraan yang dirancang bagi talian bekalan, kemudahan atau meternya yang boleh memberi kesan kepada pengendalian sesuatu pemasangan tenaga boleh baharu utama, mengemukakan kepada pemegang kelulusan galakan jadual dan perihalan yang dicadangkan bagi penyenggaraan itu.

**Rekod tentang pengendalian**

7. (1) Seseorang pemegang kelulusan galakan hendaklah menyenggarakan suatu log pengendalian yang tepat dan terkini di pemasangan tenaga boleh baharu utamanya dengan rekod penjanaan tenaga boleh baharu yang aktif dan reaktif bagi setiap jam perubahan dalam status pengendalian, gangguan berjadual, gangguan penyenggaraan, gangguan yang tidak dirancang dan apa-apa keadaan luar biasa yang didapati semasa pengendalian atau pemeriksaan.

(2) Pihak Berkuasa dan pemegang lesen pengagihan hendaklah mempunyai hak apabila diberi notis bertulis yang munasabah kepada pemegang kelulusan galakan dan pada masa yang munasabah pada sesuatu hari untuk memeriksa log pengendalian sepanjang tempoh yang diperihalkan dalam subperenggan (3).

(3) Rekod dan data dalam log pengendalian hendaklah disenggarakan oleh pemegang kelulusan galakan bagi tempoh minimum lapan tahun selepas kewujudan rekod atau data itu dan bagi tempoh yang lebih lama sebagaimana yang dikehendaki di bawah mana-mana undang-undang yang terpakai.



JADUAL KELIMA  
(Kaedah 23)

KELAYAKAN BAGI ORANG BERKELAYAKAN

(1)	(2)
<i>Perihalannya kerja</i>	<i>Kelayakan</i>
1. Kerja-kerja pendawaian elektrik dan sistem reka bentuk elektrik sehingga 100 Amperes, dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja pendawaian elektrik dan sistem reka bentuk elektrik yang dikehendaki di bawah Kaedah-Kaedah ini atau Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	Perakuan Kekompetenan Pendawai Elektrik yang dikeluarkan oleh Suruhanjaya Tenaga
2. Apa-apa kerja reka bentuk apa-apa sistem Elektrik, dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja reka bentuk sistem elektrik yang dikehendaki di bawah Kaedah-Kaedah ini atau Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	Berdaftar dengan Lembaga Jurutera Malaysia sebagai Jurutera Profesional (Elektrik)
3. Kerja-kerja reka bentuk sistem fotovolt suria, dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja reka bentuk sistem fotovolt suria yang dikehendaki di bawah Kaedah-Kaedah ini atau Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	Sijil mereka bentuk sistem fotovolt suria dari Institute for Sustainable Power Quality (ISPQ) daripada mana-mana institusi yang diiktiraf oleh Pihak Berkuasa

Dibuat 29 November 2011  
[SEDA: SS 008; PN(PU2)693/II]

TAN SRI DR FONG CHAN ONN  
*Pengerusi*  
*Pihak Berkuasa Pembangunan Tenaga Lestari*  
*Malaysia*

Dipersetujui 29 November 2011

TAN SRI DATUK DR. AHMAD TAJUDDIN ALI  
*Pengerusi*  
*Suruhanjaya Tenaga*

RENEWABLE ENERGY ACT 2011

RENEWABLE ENERGY (TECHNICAL AND OPERATIONAL REQUIREMENTS) RULES 2011

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RENEWABLE ENERGY ACT 2011

RENEWABLE ENERGY (TECHNICAL AND OPERATIONAL REQUIREMENTS) RULES 2011

IN exercise of the powers conferred by section 15 and paragraph 61(c) of the Renewable Energy Act 2011 [Act 725], the Sustainable Energy Development Authority Malaysia, with the concurrence of the Energy Commission, makes the following rules:

PART I  
PRELIMINARY

**Citation and commencement**

1. (1) These rules may be cited as the **Renewable Energy (Technical and Operational Requirements) Rules 2011**.

(2) These Rules come into operation on 1 December 2011.

**Interpretation**

2. In these Rules, unless the context otherwise requires—

“prudent utility practices” means the practices, methods and standards generally followed by the electricity supply industry in Malaysia during the applicable period, with respect to the design, construction, installation, testing, operation and maintenance of electricity generating and distribution installations of the same or similar type used by the renewable energy installation, interconnection facilities, communication facilities or the electricity distribution network, as the case may be, and includes—

- (a) the requirements of all applicable laws including the Act, the Electricity Supply Act 1990 [Act 447] and their subsidiary legislation;
- (b) the requirements of all codes issued by the Commission;

- (c) such requirements as may be determined by the Authority in the guidelines issued from time to time;
- (d) applicable guidelines issued by distribution licensees that are consistent with the requirements of paragraphs (a) to (c);
- (e) the operation and maintenance standards recommended by the suppliers and manufacturers of such electricity generating and distribution equipment; and
- (f) the International Electrotechnical Commission standards.

“outage” means the occurrence of any loss of, interruption to or reduction in the ability of a renewable energy installation to generate renewable energy;

“maintenance outage” means a planned outage for the purpose of performing work on a major renewable energy installation, in which work could be postponed by at least seventy-two hours, but in the opinion of the feed-in approval holder should not be postponed until the next scheduled outage;

“scheduled outage” means a planned outage, other than a maintenance outage, that is required for—

- (a) the inspection, preventive maintenance or corrective maintenance, repair or improvement of a major renewable energy installation; or
- (b) a major overhaul of a major renewable energy installation in accordance with prudent utility practices,

which has been co-ordinated with the distribution licensee in accordance with subparagraphs 4(1) to (3) of the Fourth Schedule;



“insulation co-ordination study” means a study to determine the adequacy of insulation used in an electricity distribution network based on a proposed connection of a medium voltage renewable energy installation to a connection point;

“protection co-ordination study” means a study on the co-ordination between the electrical protection schemes of a renewable energy installation and the distribution licensee’s electricity distribution network, including the calculation of all relay settings in the renewable energy installation based on the short circuit levels at the connection point;

“power system study” means a study to determine the optimal technically feasible method for a proposed connection of a medium voltage renewable energy installation to a connection point, including the matters set out in paragraphs 4(6)(a) to (e);

“net export capacity”, in relation to a non-PV installation, means the maximum level of electrical power which such installation can deliver to an electricity distribution network at the connection point;

“emergency condition” means a situation that—

- (a) is described or regarded as such in any code issued by the Commission; or
- (b) in the distribution licensee’s reasonable judgment and based on prudent utility practices—
  - (i) presents an imminent physical threat of danger to life, health or property;
  - (ii) threatens the safety, reliability or security of its electricity distribution network;
  - (iii) could reasonably be expected to cause a significant disruption to its electricity distribution network; or



- (iv) could reasonably be expected to adversely affect the distribution licensee's ability to meet its obligations to provide safe, adequate and reliable electricity service to consumers, including other utilities with which the electricity distribution network is interconnected;

"interconnection facilities" means the facilities and equipment necessary, in accordance with prudent utility practices, to connect a renewable energy installation to a connection point and enable a distribution licensee to receive renewable energy from the renewable energy installation while maintaining the stability of the electricity distribution network, including protection devices, metering equipment and applicable communication facilities;

"communication facilities" means the facilities and equipment necessary, in accordance with prudent utility practices, to enable a designated control centre to communicate with a renewable energy installation connected to a connection point through a medium or high voltage direct connection;

"network reinforcement works" means works or actions to upgrade or reinforce a distribution licensee's electricity distribution network in order to distribute renewable energy generated by a renewable energy installation in accordance with prudent utility practices;

"kW" means kilowatt;

"kWp" 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;

"MW" means megawatt;

“revenue meter” means the metering equipment installed in accordance with rule 17 and utilized to measure the quantity of renewable energy generated by a renewable energy installation which is delivered through the interconnection cables up to a connection point;

“consumption meter”, in relation to a low voltage renewable energy installation connected to a connection point through a low voltage indirect connection, means the meter used to record the electricity consumption referred to in paragraph 8(b);

“qualified person” means a person possessing qualifications as set out in the Fifth Schedule;

“low voltage renewable energy installation” means—

- (a) in relation to Peninsular Malaysia, a renewable energy installation having a net export capacity of up to and including 180kW or rated kWp of up to and including 180kWp; and
- (b) in relation to the State of Sabah and the Federal Territory of Labuan, a renewable energy installation having a net export capacity of up to and including 72kW or rated kWp of up to and including 72kWp;

“major renewable energy installation” means—

- (a) in relation to Peninsular Malaysia, a renewable energy installation having a net export capacity exceeding 5MW or rated kWp exceeding 5,000kWp; and
- (b) in relation to the State of Sabah and the Federal Territory of Labuan, a renewable energy installation having a net export capacity exceeding 3MW or rated kWp exceeding 3,000kWp;

“medium voltage renewable energy installation” means—



- (a) in relation to Peninsular Malaysia, a renewable energy installation having a net export capacity exceeding 180kW or rated kWp exceeding 180kW; and
- (b) in relation to the State of Sabah and the Federal Territory of Labuan, a renewable energy installation having a net export capacity exceeding 72kW or rated kWp exceeding 72kWp;

“non-PV installation” means a renewable energy installation utilizing renewable resources other than solar photovoltaic;

“PV installation” means a renewable energy installation utilizing solar photovoltaic as its renewable resource;

“protection devices” means devices and equipment within an electrical protection scheme including relays, their associated circuit breakers and fuses;

“designated control centre”, in relation to a major renewable energy installation, means the control centre of the distribution licensee as designated in writing by the distribution licensee from time to time for the purposes of communicating with the major renewable energy installation;

“low voltage direct connection” means the connection of a renewable energy installation directly to a low voltage supply line;

“low voltage indirect connection” means the connection of a renewable energy installation to a low voltage supply line indirectly through the internal distribution board of the feed-in approval holder where the renewable energy installation is connected to an electrical point within the premises of the feed-in approval holder instead of the point of common connection;

“medium voltage direct connection” means the connection of a renewable energy installation directly to a medium voltage supply line;

“high voltage direct connection” means the connection of a renewable energy installation directly to a high voltage supply line;

“ownership boundary”, in relation to a renewable energy installation, means the connection point;

“electrical protection scheme” means a scheme for detecting and protecting an installation from—

- (a) possible damage caused by electrical disturbances arising within the installation; and
- (b) other faults or malfunctions arising from the operation or non-operation of another person’s electrical protection scheme;

“initial operation date”, in relation to a feed-in approval holder, means the date on which his or its renewable energy installation first delivers renewable energy to the distribution licensee’s electricity distribution network for testing purposes;

“connection point” means the physical point where the supply lines of a renewable energy installation and electricity distribution network of a distribution licensee are connected;

“reliability run” means a test to measure the generation stability of a renewable energy installation over a period of time;

“acceptance test” means a test to measure the performance of a renewable energy installation at a designed generation output;

“high voltage” means a voltage from and including fifty thousand volts and up to and including one hundred and thirty-two thousand volts;



“low voltage” means a voltage exceeding fifty volts but less than one thousand volts;

“medium voltage” means a voltage from and including one thousand volts but less than fifty thousand volts.

## PART II PLANNING

### Connection confirmation check

3. (1) An eligible producer who proposes to construct—
- (a) a PV installation having a rated kWp exceeding 72kWp up to and including 180kWp; or
  - (b) a non-PV installation having a net export capacity exceeding 72kW up to and including 180kW,

and connect the installation to a connection point shall, before making an application to the Authority for a feed-in approval under the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011 [*P.U. (A) 385/2011*], submit a written request to the distribution licensee whose electricity distribution network is proposed to be connected to the installation for such distribution licensee to carry out a connection confirmation check in respect of the proposed connection.

(2) The request submitted under subrule (1) shall be accompanied by the rated kWp or net export capacity of the proposed installation.

(3) Upon receipt of the request under subrule (1), the distribution licensee shall—

- (a) conduct a connection confirmation check to confirm whether the proposed connection is technically possible; and

- (b) prepare and submit a report of the connection confirmation check to the eligible producer in a form to be determined by the Authority,

within twenty-one days of receipt of such request.

(4) If the distribution licensee finds that the connection is not technically possible, the distribution licensee shall clearly specify the reasons in the report prepared and submitted under subrule (3).

(5) The eligible producer shall pay one thousand ringgit to the distribution licensee as the costs for carrying out the connection confirmation check.

(6) A distribution licensee who fails to comply with subrule (3) or (4) commits an offence under these Rules.

(7) In the event of any dispute between the distribution licensee and eligible producer on any aspect of the connection confirmation check, the distribution licensee or eligible producer may appeal to the Authority within thirty days from the date of receipt of the report of the connection confirmation check referred to in paragraph (3)(b) and the determination of the Authority shall be final and binding.

#### **Power system study**

4. (1) An eligible producer who proposes to construct—

- (a) a PV installation having a rated kWp exceeding 180kWp; or
- (b) a non-PV installation having a net export capacity exceeding 180kW,

and connect the installation to a connection point shall, before making an application to the Authority for a feed-in approval under the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011, submit a written request to the distribution licensee whose electricity distribution network is proposed to be connected to the installation,



for such distribution licensee to carry out or cause to be carried out a power system study in respect of the proposed connection.

(2) The request submitted under subrule (1) shall be accompanied by such technical information as may be determined by the Authority in respect of the proposed installation that is required by the distribution licensee in order to carry out the power system study.

(3) Upon receipt of the request under subrule (1) and the information under subrule (2), the distribution licensee shall carry out or cause to be carried out a power system study in accordance with these Rules and such other requirements as may be determined by the Authority.

(4) The distribution licensee shall complete or cause to be completed the study within the period as set out in the second column of the First Schedule according to the net export capacity or rated kWp of the proposed installation as set out in the first column of the First Schedule.

(5) The eligible producer shall pay to the distribution licensee the costs for carrying out the power system study in the amount as set out in the third column of the First Schedule in accordance with the net export capacity or rated kWp of the proposed installation as set out in the first column of the First Schedule.

(6) Upon the completion of a power system study and payment of the applicable costs under subrule (5), the distribution licensee shall prepare and submit or caused to be prepared or submitted a report to the eligible producer setting out—

- (a) the technical feasibility of a connection between the proposed installation and a connection point;
- (b) the determination of the location of the connection point in accordance with rule 5;

- (c) any network reinforcement works required to be undertaken by the distribution licensee and the estimated time frame for the works;
- (d) any equipment ratings or specifications of the proposed installation required by the distribution licensee in order to safely connect it to the connection point; and
- (e) such other matters as may be determined by the Authority.

(7) In the event of any dispute between the distribution licensee and eligible producer on any aspects of the power system study, the distribution licensee or the eligible producer may appeal to the Authority within thirty days from the date of receipt of the report of the power system study referred to in subrule (6) and the determination of the Authority shall be final and binding.

(8) In the event of any increase in the net export capacity or rated kWp of the proposed installation after the completion of a power system study—

- (a) a new power system study shall be carried out by the distribution licensee; and
- (b) the provisions of subrules (2), (3), (4), (5), (6) and (7) shall apply, *mutatis mutandis*, to the new power system study.

(9) A distribution licensee who fails to comply with subrule (3), (4) or (6) commits an offence under these Rules.

#### **Determination of location of connection point**

5. (1) A distribution licensee shall determine the location of the connection point which is—

- (a) nearest to a proposed renewable energy installation; or



(b) at any other location.

(2) The distribution licensee in determining the location of a connection point under subrule (1) shall have regard to—

(a) the total net export capacity or rated kWp of installations including the proposed renewable energy installations as specified in the second column of the Second Schedule that can be technically connected to the connection point at its nominal voltage level as specified in the first column of the Second Schedule;

(b) public safety and private safety; and

(c) the technical feasibility of a connection between the proposed installation and a connection point based on the results of the power system study carried out in accordance with rule 4.

(3) The cable connecting the renewable energy installation to the distribution licensee's electricity distribution network shall terminate at the distribution licensee's nearest existing facilities in such network where the revenue meter shall also be located.

(4) If a separate switching station is required in accordance with prudent utility practices and the distribution licensee requires the feed-in approval holder to provide such separate switching station outside the distribution licensee's existing premises—

(a) such switching station shall be located as close as reasonably practicable to the distribution licensee's existing premises, having regard to the availability, suitability and value of land to be acquired by the feed-in approval holder for the switching station; and

(b) the connection point and revenue meter shall be located at the location of such switching station.

(5) If a distribution licensee determines the location of a connection under paragraph (1)(b), the provision of subrule 11(2) shall apply.

(6) In the event of any difference of opinion between a distribution licensee and any eligible producer as to whether the location as determined by the distribution licensee under paragraph 5(1)(a) is the nearest point to the proposed renewable energy installation, either of them may appeal to the Authority within thirty days from the date of receipt of the report of the power system study referred to in subrule 4(6) and the determination of the Authority shall be final and binding.

(7) If the Authority determines that the location of the connection point is not at the nearest point to the proposed renewable energy installation, the Authority may—

(a) re-determine the location of the connection point; or

(b) allow the location of the connection point to remain at the point as determined by the distribution licensee.

(8) If the Authority makes the determination under paragraph 7(b), the provision of subrule 11(2) shall apply.

(9) The location of the connection point determined or re-determined, as the case may be, under this rule shall be the location identified by the eligible producer in making an application to the Authority for a feed-in approval.

PART III  
CONNECTION TO ELECTRICITY DISTRIBUTION NETWORK

**Conditions to connection**

6. (1) No connection between a renewable energy installation owned by a feed-in approval holder and a connection point shall be made by a distribution licensee unless—

- (a) the feed-in approval holder and distribution licensee have entered into a renewable energy power purchase agreement in accordance with section 12 of the Act and the Renewable Energy (Renewable Energy Power Purchase Agreement) Rules 2011 [P.U. (A) 386/2011];
- (b) the renewable energy power purchase agreement referred in paragraph (a) has been registered by the Authority in accordance with subsection 12(6) of the Act;
- (c) the feed-in approval holder has submitted a written application to the distribution licensee for connection of his or its renewable energy installation to a connection point;
- (d) the connection has been made at the location referred to in subrule 5(9);
- (e) the method of connection is as permitted under this Part;
- (f) the requirements of rule 13 and, wherever applicable, subparagraph 6(7) of the Third Schedule have been met; and
- (g) the connection is carried out by the distribution licensee or a qualified person authorized by the distribution licensee in accordance with prudent utility practices.



(2) Subject to subrule (1), a distribution licensee shall connect a renewable energy installation to the applicable connection point—

(a) in the case of an application for connection made by a feed-in approval holder under subsection 13(1) of the Act relating to a low voltage renewable energy installation, within thirty days of receipt of such application; and

(b) in the case of an application for connection made by a feed-in approval holder under subsection 13(1) of the Act relating to a medium voltage renewable energy installation, within sixty days of receipt of such application.

(3) A person who contravenes subrule (1) commits an offence under these Rules.

**Low voltage direct connection**

7. A distribution licensee may connect a low voltage renewable energy installation through a low voltage direct connection to a connection point that is technically feasible according to prudent utility practices.

**Low voltage indirect connection**

8. A distribution licensee may connect a low voltage renewable energy installation to a connection point through a low voltage indirect connection if—

(a) the installation utilizes solar photovoltaic as its renewable resource and the installation is installed in the premises of the feed-in approval holder;

(b) the distribution licensee's supply line at the connection point supplies electricity to such premises exclusively for the consumption of the feed-in approval holder who owns such renewable energy installation; and



- (c) the total net export capacity or rated kWp of installations including the proposed renewable energy installation as specified in the second column of the Second Schedule does not exceed the nominal voltage level of the connection point as specified in the first column of the Second Schedule.

**Medium voltage direct connection**

9. (1) Subject to rule 10, a distribution licensee—

- (a) may connect a medium voltage renewable energy installation located in Peninsular Malaysia and having a net export capacity up to and including 425kW or rated kWp up to and including 425kWp to a connection point through a low voltage direct connection;
- (b) shall connect a medium voltage renewable energy installation located in Peninsular Malaysia and having a net export capacity exceeding 425kW or rated kWp exceeding 425kWp to a connection point through a medium voltage direct connection; and
- (c) shall connect a medium voltage renewable energy installation located in the State of Sabah or the Federal Territory of Labuan to a connection point through a medium voltage direct connection,

provided that such connection is found to be technically feasible pursuant to a power system study carried out under rule 4.

(2) If a medium voltage direct connection is required to be carried out under paragraphs (1)(b) and (c), the relevant feed-in approval holder and distribution licensee shall comply with the provisions of the Third Schedule.

**High voltage direct connection**

10. (1) A distribution licensee may connect a medium voltage renewable energy installation to a connection point through a high voltage direct connection if—

- (a) the distribution licensee and feed-in approval holder agree to such connection; and
- (b) such connection is found to be technically feasible pursuant to a power system study carried out under rule 4.

(2) If a high voltage direct connection is agreed to be carried out under subrule (1), the feed-in approval holder and distribution licensee shall comply with the provisions of the Third Schedule and all other applicable prudent utility practices.

#### PART IV RESPONSIBILITIES AND COSTS

##### **Pre-operational responsibilities and costs**

11. (1) Subject to subrule (2)—

- (a) a feed-in approval holder shall be responsible at his or its own cost for carrying out—
  - (i) the design, construction, installation and testing of his or its renewable energy installation and applicable interconnection facilities up to the connection point; and
  - (ii) any necessary modification to the distribution licensee's existing electricity distribution network required to facilitate the acceptance of renewable energy generated by the renewable energy installation,

in accordance with prudent utility practices; and

- (c) a distribution licensee shall be responsible at its own cost for carrying out any required network reinforcement works in accordance with prudent utility practices to facilitate the transfer of renewable energy from the



connection point to other parts of its electricity distribution network, where applicable, in the manner set out in the report of a power system study carried out under rule 4, unless the feed-in approval holder and distribution licensee mutually agree otherwise.

(2) If the location of a connection point is determined by a distribution licensee under paragraph 5(1)(b), the distribution licensee shall reimburse the feed-in approval holder the difference, if any, between—

- (a) the costs of all installations, including any applicable interconnection facilities, and works required for the connection of the renewable energy installation up to the location of the connection point as determined by the distribution licensee; and
- (b) the costs of all installations, including any applicable interconnection facilities, and works required for the connection of the renewable energy installation up to the location of a connection point situated at the point of the distribution licensee's electricity distribution network that is nearest to the renewable energy installation, having regard to the matters described in subrule 5(2).

#### **Operational responsibilities and costs**

12. (1) Subject to subrule (2)—

- (a) a feed-in approval holder shall own, and shall be responsible at his or its own cost for operating and maintaining all installations located within his or its ownership boundary; and
- (b) a distribution licensee shall own, and shall be responsible at its own cost for operating and maintaining all installations located beyond the feed-in approval holder's ownership boundary,

in accordance with prudent utility practices.

(2) A feed-in approval holder shall transfer such assets to a distribution licensee as may be required to comply with the provision of subrule (1).

(3) The responsibilities specified in subrule (1) shall be without prejudice to any provisions in the renewable energy power purchase agreement entered into between a feed-in approval holder and distribution licensee under the Renewable Energy (Renewable Energy Power Purchase Agreement) Rules 2011 dealing with their rights and liabilities in the event that one of them is unable to operate his or its installation, or any part thereof, due to a fault, malfunction or other failure of any installation, or part thereof, of the other.

#### **Electrical protection schemes**

13. (1) A feed-in approval holder and distribution licensee shall design, procure and install, and be responsible for the cost, type, design and installation of, his or its own electrical protection scheme in accordance with prudent utility practices.

(2) The distribution licensee shall ensure that the electrical protection schemes are properly co-ordinated for the reliable and safe operation of its electricity distribution network.

(3) The feed-in approval holder shall install an electrical protection scheme of the type and design which ensures that a fault occurring within the renewable energy installation does not adversely affect any part of the electricity distribution network.

(4) The distribution licensee shall install an electrical protection scheme of the type and design which ensures that a fault occurring within the electricity distribution network does not adversely affect any part of the renewable energy installation.

(5) A distribution licensee and feed-in approval holder shall install an electrical protection scheme that contain protection devices which, on the detection of a fault or malfunction, isolate the faulty part of the installation to—



- (a) minimize equipment damage and safety hazards during such fault or malfunction; and
- (b) maintain the continuity of power supply to the functioning parts of the installation.

## PART V COMMENCEMENT OF OPERATION

### **Acceptance test**

14. (1) A feed-in approval holder shall, upon completion of the design and construction of his or its renewable energy installation, carry out or caused to be carried out an acceptance test on the installation in accordance with such requirements and procedures as may be determined by the Authority.

(2) Subject to subrule (1), a feed-in approval holder shall submit an acceptance test report for the installation prepared by a qualified person to the Authority within seven days from the date of completion of the acceptance test.

(3) A feed-in approval holder shall not make or permit to be made any material modification to the design or physical form of the renewable energy installation except with the prior written consent of the Authority if the modification results in any change in any information earlier submitted by or on behalf of the feed-in approval holder to the Authority in the application for a feed-in approval under the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011.

### **Feed-in tariff commencement date**

15. (1) Unless otherwise permitted under the terms of an effective renewable energy power purchase agreement, the feed-in tariff commencement date shall not occur until—

- (a) the feed-in approval holder submits to the distribution licensee and the Authority —

- (i) in relation to a renewable energy installation, a certificate from a qualified person stating that the renewable energy installation and interconnection facilities have been designed, constructed, installed and tested in accordance with prudent utility practices; and
    - (ii) in relation to a renewable energy installation connected to a connection point through a medium or high voltage direct connection, the documents described in paragraph 8 of the Third Schedule;
  - (b) where applicable, the feed-in approval holder submits to the Authority the documents specified in the third column of the First Schedule to the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011; and
  - (c) the meters to measure the renewable energy generated and delivered by the renewable energy installation have been sealed by the distribution licensee as coordinated with and witnessed by the feed-in approval holder within such period as may be determined by the Authority.
- (2) Subject to section 17 of the Act, a feed-in tariff commencement date shall not occur—
- (a) earlier than six months before the scheduled feed-in tariff commencement date specified in the applicable feed-in approval; or
  - (b) later than thirty first day of December of the calendar year of the scheduled feed-in tariff commencement date specified in the applicable feed-in approval,

unless the prior written approval of the Authority is obtained.



(3) A feed-in approval holder shall provide the distribution licensee and the Authority with not less than fourteen days written notice before the estimated occurrence of the feed-in tariff commencement date.

(4) A feed-in approval holder shall—

- (a) within five days from the feed-in tariff commencement date, provide the distribution licensee and the Authority with written confirmation of the commencement of the feed-in tariff commencement date; and
- (b) within fourteen days from the feed-in tariff commencement date, submit a report on the commencement of the feed-in tariff commencement date to the Authority in such form and containing such details as may be determined by the Authority.

## PART VI

### OPERATION OF RENEWABLE ENERGY INSTALLATION

#### **Operation consistent with prudent utility practices**

16. (1) A feed-in approval holder shall operate his or its renewable energy installation in accordance with prudent utility practices.

(2) Without prejudice to the generality of subrule (1)—

- (a) a feed-in approval holder who owns a major renewable energy installation and a distribution licensee shall comply with the provisions of the Fourth Schedule; and
- (b) a feed-in approval holder who owns a renewable energy installation having a net export capacity exceeding 2MW or rated kWp exceeding 2,000kWp shall, at his or its own cost, purchase, install and operate such communications facilities as may be required for the

operation of his or its installation and delivery of renewable energy to the distribution licensee in accordance with prudent utility practices.

(3) A person who fails to comply with subrule (1) commits an offence under these Rules.

## PART VII METERING AND PAYMENT

### **Revenue meter**

17. (1) A feed-in approval holder shall, at his or its own, cost cause to be procured and installed a revenue meter in accordance with prudent utility practices.

(2) A feed-in approval holder shall ensure that the specifications, type and location of the revenue meter comply with prudent utility practices and such requirements as may be determined by the Authority.

(3) The revenue meter shall be—

(a) installed by the distribution licensee or a qualified person authorized by the distribution licensee;

(b) sealed by the distribution licensee; and

(c) owned and maintained by the distribution licensee or feed-in approval holder in accordance with rule 12.

(4) No person may break the seal on a revenue meter except pursuant to an inspection or test carried out under rule 18.

(5) A feed-in approval holder shall, at his or its own cost, cause to be procured and installed a check revenue meter in accordance with prudent utility practices.



**Inspection and testing of revenue meter**

18. (1) A distribution licensee or feed-in approval holder may at any time submit a written request to the Commission to inspect or test a revenue meter.

(2) Upon receiving the written request under subrule (1), the Commission shall—

- (a) inspect or test the revenue meter not later than fourteen working days from receipt of the request submitted under subrule (1), or any other extended period as determined by the Commission;
- (b) provide the relevant distribution licensee and feed-in approval holder with not less than twenty-four hours' prior written notice of such inspection or test; and
- (c) permit the distribution licensee, feed-in approval holder and their representatives to witness such inspection or test and any adjustment made to the revenue meter.

(3) If any revenue meter is found to be defective or inaccurate by more than the extent allowable under prudent utility practices, the revenue meter shall be adjusted, repaired, recalibrated or replaced by the distribution licensee at its own cost.

(4) If a check revenue meter has been installed and the feed-in approval holder and the distribution licensee are unable to agree on the amount of adjustment necessary to correct the measurements made by the defective or inaccurate revenue meter referred to in subrule (4), the check revenue meter shall be used to determine the amount of such inaccuracy.

(5) If there is no check revenue meter, or if the check revenue meter is also found to be defective or inaccurate by more than the extent allowable under prudent utility practices, and the feed-in approval holder and distribution licensee are unable to agree on the amount of adjustment necessary to correct the measurements made by the

defective or inaccurate revenue meter or check revenue meter, the distribution licensee shall install a new and calibrated meter in parallel with the revenue meter to determine the inaccuracy of the revenue meter.

(6) If the feed-in approval holder and the distribution licensee are unable to agree on the actual period during which the inaccurate measurements were made, the period during which the measurements are to be adjusted shall be as follows:

- (a) in respect of a renewable energy installations having a net export capacity exceeding 72kW or rated kWp exceeding 72kWp, one half of the period calculated from the last previous test of the revenue meter to the date of the current test that found such revenue meter to be defective or inaccurate; and
- (b) in respect of renewable energy installations having a net export capacity up to and including 72kW or rated kWp up to and including 72kWp, three months prior to the date on which the revenue meter is found to be defective or inaccurate.

(7) If the period specified under subrule (6) covers a period for which feed-in tariffs have already been paid by the distribution licensee to the feed-in approval holder, the distribution licensee shall use the corrected measurement as determined under subrules (3), (4), (5) or (6) to recalculate the amount of feed-in tariffs due for the period of inaccuracy.

(8) The feed-in tariffs which have been paid to the feed-in approval holder shall be subtracted from the re-calculated amount of feed-in tariffs due for the period of inaccuracy.

(9) The balance of the subtraction made under subrule (8), if any, shall be paid—



- (a) if positive, by the distribution licensee to the feed-in approval holder;
- (b) if negative, by the feed-in approval holder to the distribution licensee.

(10) Any balance required to be paid under subrule (9) shall be made within fifteen calendar days from the date of receipt by the distribution licensee or feed-in approval holder, as the case may be, of a statement from the feed-in approval holder or distribution licensee, as the case may be, requesting such balance; and

(11) Any balance required to be paid under paragraph (9)(a) may be set off against any payment due from the feed-in approval holder to the distribution licensee.

#### **Meter readings**

19. (1) Subject to subrules (2) and (5), a distribution licensee shall—

- (a) read all revenue meters on a monthly basis; and
- (b) not later than seven days after reading each revenue meter, issue a payment advice to the relevant feed-in approval holder setting out—
  - (i) the amount of renewable energy generated and delivered by the feed-in approval holder's renewable energy installation to the distribution licensee; and
  - (ii) the amount of feed-in tariffs payable by the distribution licensee to the feed-in approval holder for such renewable energy.

(2) If a low voltage renewable energy installation is connected to a connection point through a low voltage indirect connection, the feed-in approval holder who owns such installation shall read the applicable revenue meter and consumption meter on the same day and at as proximate in time as possible on a monthly basis in such manner as may be specified by the distribution licensee.

(3) The feed-in approval holder shall submit the readings made under subrule (2) to the distribution licensee, in such form and method as may be specified by the distribution licensee, not later than the seventh day of the month following the month during which the renewable energy was generated and delivered by the feed-in approval holder to the distribution licensee.

(4) The distribution licensee shall, not later than seven days after receiving the meter readings submitted under subrule (3), issue a payment advice to the feed-in approval holder setting out—

- (a) the amount of renewable energy generated and delivered by the feed-in approval holder to the distribution licensee; and
- (b) the amount of feed-in tariffs payable by the distribution licensee to the feed-in approval holder for such renewable energy.

(5) A distribution licensee may request a feed in approval holder to read the revenue meter in respect of a renewable energy installation having a net export capacity of less than 72kW or rated kWp of less than 72kWp on the distribution licensee's behalf.

(6) If the feed-in approval holder agrees to read the revenue meter under subrule (5), the feed-in approval holder shall submit the revenue meter reading to the distribution licensee in such form and method as specified by the distribution licensee.

(7) The distribution licensee shall, not later than seven days after receiving the meter readings submitted under subrule (6), issue a payment advice to the feed-in approval holder setting out—

- (a) the amount of renewable energy generated and delivered by the feed-in approval holder's renewable energy installation to the distribution licensee; and



- (b) the amount of feed-in tariffs payable by the distribution licensee to the feed-in approval holder for such renewable energy.

(8) Without prejudice to subrules 18(3), 18(4), 18(5), 18(6), 18(7), 18(8), 18(9), 18(10) and 18(11), meter readings under this rule shall be *prima facie* evidence of the amount of renewable energy supplied by the feed-in approval holder to the distribution licensee.

### **Payment of feed-in tariffs**

20. (1) A distribution licensee shall pay the applicable feed-in tariffs to each feed-in approval holder not later than thirty days after the issuance of a payment advice under paragraph 19(1)(b), subrule 19(4) or 19(7).

- (2) If a distribution licensee fails to—

- (a) pay a feed-in approval holder the applicable feed-in tariffs in accordance with subrule (1); or

- (b) issue a payment advice to a feed-in approval holder under paragraph 19(1)(b), subrule 19(4) or 19(7),

the feed-in tariffs which the feed-in approval holder would have otherwise received if not for such failure shall be a debt due to the feed-in approval holder by the distribution licensee.

### **Disputes**

21. Any claim, difference of opinion or dispute between a feed-in approval holder and distribution licensee arising out of or in connection with this Part shall be adjudicated and resolved in accordance with any applicable provisions of the renewable energy power purchase agreement entered into between them.

PART VIII  
GENERAL

**Prudent utility practices**

22. All actions required by these Rules or taken pursuant to these Rules by any person shall be consistent with prudent utility practices.

**Qualified persons**

23. (1) A person who carries out the works as specified in column one of the Fifth Schedule shall possess the qualifications as specified in column two of the Schedule.

(2) A person who fails to comply with subrule (1) commits an offence under these Rules.

**Approval of drawings, plans and other documents**

24. Any review, comment or approval by the Authority or distribution licensee, of any drawings, plans or other documents submitted by a feed-in approval holder under these Rules or any inspection or test undertaken by the Authority or distribution licensee of any renewable energy installation shall not—

- (a) constitute an endorsement of the design of the renewable energy installation;
- (b) constitute a warranty or other assurance by the Authority or distribution licensee of the safety, durability or reliability of the installation; or
- (c) release the feed-in approval holder from any of his or its duties, obligations, or liabilities imposed by or provided for under these Rules or under the provisions of any renewable energy power purchase agreement.

**Extension of time**

25. (1) Notwithstanding anything contained in these Rules, where a time period is specified under these Rules or in any request by the Authority for an act to be done or a condition to be fulfilled, the person affected may request in writing to the Authority for an extension of time.

(2) The Authority may, upon receipt of the request made under subrule (1), allow such extension of time as it deems fit, provided that such person has furnished sufficient evidence to the Authority's satisfaction that the proposed extension of time—

- (a) is required not as a result of such person's act, omission or negligence;
- (b) could not have been reasonably foreseeable at the time of the application for the grant of the feed-in approval;
- (c) is just and reasonable; and
- (d) is not inconsistent with the matters set out in subsection 3(3) of the Act.

**General penalty**

26. Any person who commits an offence under these Rules shall, on conviction, be liable to a fine not exceeding three hundred thousand ringgit or to imprisonment for a term not exceeding three years or to both.

**Transitional provisions**

27. Upon the grant of a feed-in approval to an eligible producer referred to in subsection 64(2) of the Act, these Rules shall apply *mutatis mutandis* to the feed-in approval holder and distribution licensee except that—

- (a) where the feed-in approval holder's renewable energy installation had generated electricity for commercial sale prior to the grant of the feed-in approval, the provisions of Part II, Part III, rule 11, subrules 14(1) and (2),



subrule 15(1) (except for paragraph 15(1)(b)), the First Schedule, the Second Schedule and the Third Schedule shall not apply to such feed-in approval holder and distribution licensee; and

- (b) where the feed-in approval holder's renewable energy installation has not generated electricity for commercial sale prior to the grant of the feed-in approval—
  - (i) the provisions of Part II, subrule 11(2) and the First Schedule shall not apply to such feed-in approval holder and distribution licensee if they had agreed on the location of the connection point prior to the grant of the feed-in approval;
  - (ii) the provisions of Part II, Part III, subrule 11(2), the First Schedule and the Second Schedule shall not apply to such feed-in approval holder and distribution licensee if the renewable energy installation was connected to a connection point prior to the grant of the feed-in approval;
  - (iii) the provisions of subrule 12(1) shall not apply to such feed-in approval holder and distribution licensee if and to the extent that the responsibilities and costs referred to in that subrule were fulfilled or incurred prior to the grant of the feed-in approval;
  - (iv) the provisions of subrules 14(1) and (2) shall not apply to such feed-in approval holder and distribution licensee if an acceptance test was carried out in respect of the renewable energy installation prior to the grant of the feed-in approval; and
  - (v) the provisions of the Third Schedule shall not apply to such feed-in approval holder and distribution licensee if and to the extent that the requirements set out in that Schedule were met prior to the grant of the feed-in approval.



FIRST SCHEDULE  
(Rule 4)

COMPLETION PERIOD AND COSTS FOR POWER SYSTEM STUDY

(1)	(2)	(3)
<i>Net export capacity or rated kWp of renewable energy installation</i>	<i>Period to complete power system study [commencing from the day all the information is provided under subrule 4(2)]</i>	<i>Power system study costs (RM)</i>
1. Above 180 kW and up to and including 1MW or 180kWp and up to and including 1,000kWp	30 days	20,000.00
2. Above 1MW and up to and including 10MW or 1,000kWp and up to and including 10,000kWp	30 days	40,000.00
3. Above 10MW and up to and including 30MW or 10,000kWp and up to and including 30,000kWp	42 days	60,000.00

1. An additional period of 10 days shall be granted to the distribution licensee if an insulation co-ordination study is deemed necessary and carried out by the distribution licensee as part of the power system study.
2. Additional costs of—
  - (a) twenty thousand ringgit shall be paid to the distribution licensee if an insulation co-ordination study is deemed necessary and carried out by the distribution licensee as part of the power system study; and
  - (b) ten thousand ringgit shall be paid to the distribution licensee for PV installations where a dynamic study to determine voltage fluctuations is necessary and the solar radiation data is provided by the feed-in approval holder.

SECOND SCHEDULE  
(Rules 5 and 8)

TOTAL NET EXPORT CAPACITY OR RATED kWp OF INSTALLATIONS  
THAT CAN BE TECHNICALLY CONNECTED TO A CONNECTION POINT  
AT ITS NOMINAL VOLTAGE LEVEL

(1)	(2)
<i>Nominal voltage level at connection point</i>	<i>Total net export capacity or rated kWp of installations including the proposed renewable energy installation that can be technically connected to the connection point</i>
1. 230 volts	Up to and including 10kW or 10kWp.
2. 400 volts	<p>In respect of Peninsular Malaysia: exceeding 10kW and up to and including 425kW or exceeding 10kWp and up to and including 425kWp.</p> <p>In respect of the State of Sabah and the Federal Territory of Labuan: exceeding 10kW and up to and including 72kW or exceeding 10kWp and up to and including 72 kWp.</p>
3. 11 kilovolts (distribution substation)	<p>In respect of Peninsular Malaysia: exceeding 180kW and up to and including 2MW or exceeding 180kWp and up to and including 2,000kWp.</p> <p>In respect of the State of Sabah and the Federal Territory of Labuan: exceeding 72kW and up to and including 1MW or exceeding 72kWp and up to and including 1,000kWp.</p>
4. 11 kilovolts (main distribution substation, main switching station and main intake substation)	<p>In respect of Peninsular Malaysia: exceeding 1MW and up to and including 10MW or exceeding 1,000kWp and up to and including 10,000kWp.</p> <p>In respect of the State of Sabah and the Federal Territory of Labuan: exceeding 1MW up to and including 3MW or exceeding 1,000kWp up to and including 3,000kWp.</p>
5. 33 kilovolts	Exceeding 1MW and up to and including 30MW or exceeding 1,000kWp and up to and including 30,000kWp.



THIRD SCHEDULE  
(Rules 9 and 10)

PROVISIONS APPLICABLE TO MEDIUM AND HIGH VOLTAGE DIRECT CONNECTIONS

**Submission and review of conceptual design of interconnection facilities**

1. (1) A feed-in approval holder shall, not later than sixty days before commencing any physical construction of the interconnection facilities, submit to the distribution licensee—

(a) the conceptual design of such facilities; and

(b) a certificate from a qualified person certifying that the interconnection facilities when constructed in accordance with such conceptual design has conformed to prudent utility practices and the minimum requirements of the distribution licensee's applicable specifications and operational characteristics.

(2) The distribution licensee may at its own cost—

(a) review the conceptual design submitted under subparagraph (1); and

(b) recommend to the feed-in approval holder modifications, revisions and improvements to the interconnection facilities in accordance with prudent utility practices, provided that such recommendations are made in writing to the feed-in approval holder not later than thirty days after the submission made under subparagraph (1).

(3) The feed-in approval holder shall, at his or its own cost, comply with any recommendation made by the distribution licensee under subparagraph (2)(b) if it relates to the safe and secure operation of the interconnection facilities with the distribution licensee's electricity distribution network.

**Rights of way**

2. (1) A feed-in approval holder shall, at his or its own cost, acquire all necessary easements, licences, rights-of-way and access rights required to construct and install the interconnection facilities including the laying of any cables and erection of overhead lines.

(2) The distribution licensee shall, whenever possible, assist the feed-in approval holder with such acquisition.

(3) The feed-in approval holder shall reimburse the distribution licensee for all reasonable expenses incurred by the distribution licensee in providing such assistance.

**Protection co-ordination study**

3. (1) The feed-in approval holder shall procure at his or its own cost a protection co-ordination study to be carried out by a qualified person appointed by him.

(2) The feed-in approval holder shall submit to the distribution licensee not less than sixty days prior to the initial operation date—

(a) the results of the protection co-ordination study; and

(b) details of the proposed electrical protection scheme, including electrical protection methods, relay types, relay settings and breaker ratings together with the relevant calculations, for the generators, transformers, and interconnecting cables.

(3) Within thirty days of receiving the submission made under subparagraph (2), the distribution licensee shall inform the feed-in approval holder in writing as to whether such proposed electrical protection scheme including electrical protection methods, relay types, relay settings and breaker ratings are acceptable to the distribution licensee.



(4) If such proposed electrical protection scheme, relay types, relay settings and breaker ratings are not acceptable to the distribution licensee—

- (a) the distribution licensee shall specify in writing to the feed-in approval holder its reason for such non-acceptance; and
- (b) the feed-in approval holder shall comply at his or its own cost with any reasonable requests of the distribution licensee to provide an acceptable electrical protection scheme, relay types, relay settings and breaker ratings.

**Monitoring and inspection of construction of interconnection facilities**

4. (1) The distribution licensee may, at its own cost, monitor and inspect the construction of the interconnection facilities, including carrying out inspections at the site of such facilities.

(2) The feed-in approval holder shall, at his or its own cost, comply with any request of the distribution licensee relating to—

- (a) the compliance with the conceptual design of the interconnection facilities; and
- (b) the safe and secure operation of the interconnection facilities in parallel with the distribution licensee's electricity distribution network.

**No modification to interconnection facilities without consent**

5. The feed-in approval holder shall not make or permit to be made any material modification to the design or form of the interconnection facilities except with the prior written consent of—

- (a) the distribution licensee; and

- (b) the Authority, if the modification results in any change in any information earlier submitted by the feed-in approval holder to the Authority in the application for its feed-in approval under the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011.

**Requirements for initial operation date**

6. (1) Upon completion of the construction of the interconnection facilities, the feed-in approval holder shall submit a written notice to the distribution licensee informing the distribution licensee of such completion, accompanied by—

- (a) the feed-in approval holder's proposed initial operation date which shall fall not less than fourteen days after the date of such notice;
- (b) the feed-in approval holder's proposed hourly schedule of renewable energy to be generated and delivered by the renewable energy installation for the period from the proposed initial operation date until the feed-in tariff commencement date; and
- (c) a certificate from a qualified person stating that the interconnection facilities have been designed and constructed in accordance with prudent utility practices.

(2) The distribution licensee shall, at its own cost, not later than fourteen days after receiving the notice in subparagraph (1), inspect the interconnection facilities in the presence of the feed-in approval holder or his or its representatives.

(3) After carrying out the inspection under subparagraph (2), the distribution licensee shall—

- (a) accept the proposed initial operation date; or
- (b) reschedule the initial operation date of the renewable energy installation if it reasonably determines that the parallel operation of the



interconnection facilities with its electricity distribution network could adversely affect the safety and security of such network.

(4) In the event of any rescheduling of the initial operation date under subsubparagraph (3)(b), the distribution licensee shall, not later than three days after the inspection under subparagraph (2), inform the feed-in approval holder in writing of any defects or deficiencies identified during such inspection.

(5) The feed-in approval holder shall rectify the defects or deficiencies.

(6) Upon completion of the rectification under subparagraph (5), the provisions of subparagraphs (1), (2), (3) and (4) shall apply, *mutatis mutandis*, in respect of the rectified interconnection facilities.

(7) The initial operation date shall only occur upon the fulfilment of the following conditions:

- (a) the procedure as set out in subparagraphs (1) to (6) has been completed;
- (b) the feed-in approval remains in full force and effect;
- (c) no material default by the feed-in approval holder under the renewable energy power purchase agreement has occurred and continue to occur;
- (d) all permits, licences, approvals or other governmental authorizations required under applicable laws to construct, own and operate the renewable energy installation have been obtained and remain in full force and effect; and
- (e) the feed-in approval holder has submitted to the distribution licensee a written confirmation that the conditions set out in subsubparagraphs (a) to (d) have been fulfilled.

(8) The feed-in approval holder shall, within five days from the initial operation date, provide the distribution licensee and the Authority with written confirmation of the occurrence of the initial operation date.

**Reliability run**

7. Upon the occurrence of the initial operation date, the feed-in approval holder shall carry out a reliability run on his or its renewable energy installation in accordance with such requirements and procedures, and for such duration, as may be determined by the Authority.

**Requirements for feed-in tariff commencement date**

8. Unless otherwise permitted under the terms of an effective renewable energy power purchase agreement, the feed-in tariff commencement date shall only occur upon the fulfilment of the following conditions:

- (a) the feed-in approval holder has submitted to the distribution licensee and the Authority a certificate from a qualified person stating that the renewable energy installation has successfully completed a reliability run in accordance with paragraph 7;
- (b) the feed-in approval remains in full force and effect;
- (c) no material default by the feed-in approval holder under the renewable energy power purchase agreement has occurred and continue to occur;
- (d) all permits, licences, approvals or other governmental authorizations required under applicable laws to own and operate the renewable energy installation have been obtained and remain in full force and effect; and
- (e) the feed-in approval holder has submitted to the distribution licensee a written confirmation that the conditions set out in subsubparagraphs (b) to (d) have been fulfilled.



**No change to initial operation date or feed-in tariff commencement date without approval**

9. No change to the scheduled initial operation date or feed-in tariff commencement date of a renewable energy installation from that set out in the feed-in approval applicable to such installation shall be made by the feed-in approval holder or distribution licensee without the prior written approval of the Authority.

**Submission of drawings and manuals to the distribution licensee**

10. A feed-in approval holder shall, not later than fourteen days before the initial operation date, submit to the distribution licensee—

- (a) a copy of as-built drawings of the renewable energy installation and interconnection facilities; and
- (b) a copy of operation and maintenance manuals in connection with the interconnection facilities.

**Transfer of interconnection facilities**

11. (1) Upon the completion of the interconnection facilities, the feed-in approval holder shall transfer the interconnection facilities beyond his or its ownership boundary to the distribution licensee and take all actions necessary to effectuate the transfer to the distribution licensee of all rights, title and interest to the interconnection facilities so that the distribution licensee shall become the owner of such interconnection facilities.

(2) Without prejudice to paragraph 12, the distribution licensee shall be responsible for the operation and maintenance of the interconnection facilities following the transfer under subparagraph (1).

**Defects in interconnection facilities**

12. (1) Subject to subparagraph (2), if the distribution licensee discovers that the interconnection facilities or any part of the interconnection facilities that has been transferred to it—

- (a) was not designed, constructed, installed and tested in accordance with prudent utility practices; or
- (b) contains any defect in its design, materials or workmanship,

the feed-in approval holder shall, at his or its own cost, make all necessary repairs or replacements so that the interconnection facilities conform with the requirements of prudent utility practices and shall be free from any such defect.

(2) The obligation of the feed-in approval holder under subparagraph (1) shall not apply in respect of any non-conformance or defect arising—

- (a) from the distribution licensee's failure to operate and maintain the interconnection facilities in accordance with the operation and maintenance manuals referred to in paragraph 10 and prudent utility practices;
- (b) from the effects of ordinary wear and tear or erosion or corrosion which such facilities were not designed for; or
- (c) after an initial period of twelve months from the feed-in tariff commencement date, and in respect of any part of such facilities that was repaired or replaced during such initial period, after a period of twelve months from the date of completion of such repair or replacement.

#### FOURTH SCHEDULE (Rule 16)

##### PROVISIONS APPLICABLE TO MAJOR RENEWABLE ENERGY INSTALLATIONS

##### **Notification of daily availability of renewable energy**

1. A feed-in approval holder shall, commencing from the day immediately before his or its feed-in tariff commencement date and continuing for each day throughout the effective period, notify to the designated control centre—



- (a) the estimated operational and maximum levels of renewable energy which his or its major renewable energy installation can make available to the distribution licensee; and
- (b) any anticipated interruption to or unavailability of renewable energy from such installation and the level of the interruption or unavailability of the renewable energy,

for the subsequent day.

### **Normal operation**

2. A feed-in approval holder shall, during normal operating conditions, provide the designated control centre such continuous information as is reasonably practicable under prevailing circumstances on the operational conditions of the major renewable energy installation, including its active and reactive power export capacity, voltage, frequency and any other condition that may affect the stability of the distribution licensee's electricity distribution network.

### **Emergency condition**

3. During an emergency condition, the feed-in approval holder shall—
- (a) upon a request made by the designated control centre, make all reasonable efforts to deliver renewable energy from his or its major renewable energy installation into the distribution licensee's electricity distribution network;
  - (b) comply with reasonable instructions of the designated control centre until the electricity distribution network has returned to normal;
  - (c) co-operate with the designated control centre in establishing emergency plans including a recovery plan from a local or widespread electrical blackout or load curtailment;

- (d) co-operate with the designated control centre in executing restoration procedures requiring an orderly plan for the safe and rapid restoration of the distribution licensee's electricity distribution network;
- (e) if his or its major renewable energy installation has been isolated from the distribution licensee's electricity distribution network due to an emergency condition—
  - (i) be allowed to reconnect the installation only under the direction of the designated control centre; and
  - (ii) be ready for his or its installation to pick up load as soon as possible;
- (f) be contactable by the designated control centre at all times;
- (g) take all reasonable steps to reschedule any upcoming maintenance outage or scheduled outage of his or its renewable energy installation that coincide with the emergency condition, and if any such outage cannot be rescheduled in accordance with prudent utility practices, inform the designated control centre of the nature, commencement and duration of such outage; and
- (h) maintain automatic voltage regulators in operation until the designated control centre requests that manual adjustments be made.

#### **Planned outages**

4. (1) A feed-in approval holder shall, within thirty days after the feed-in tariff commencement date and thereafter not less than sixty days prior to the first day of each subsequent calendar year, submit to the distribution licensee a proposed schedule of scheduled outages for such calendar year in respect of his or its major renewable energy installation.



(2) The schedule of scheduled outages submitted under subrule (1) shall include the feed-in approval holder's estimate of—

- (a) the times of operation;
- (b) the quantities of renewable energy to be generated;
- (c) the number of scheduled outages and other reductions of output and the reasons for such outages and reductions;
- (d) the earliest and latest commencement dates, times and durations of such scheduled outages, including a description of the scope of work to be carried out during such outages,

in respect of his or its major renewable energy installation.

(3) The distribution licensee may, upon giving not less than thirty days prior written notice to the feed-in approval holder, request the feed-in approval holder to revise his or its proposed schedule for the timing and duration of any scheduled outage or other reduction of output of the major renewable energy installation to accommodate the requirements of the distribution licensee in accordance with prudent utility practices.

(4) The feed-in approval holder shall provide the designated control centre with not less than seven days prior notice of each scheduled outage of his or its major renewable energy installation co-ordinated and agreed under subparagraphs (1) to (3).

(5) The feed-in approval holder shall co-ordinate maintenance outages with the distribution licensee in accordance with prudent utility practices and the requirements of the electricity distribution network, including providing the distribution licensee with at least forty-eight hours prior written notice of any maintenance outage, which notice shall include the scheduled commencement date, time and estimated duration of such maintenance outage.

### **Unplanned outages**

5. A feed-in approval holder may interrupt the delivery of renewable energy to a distribution licensee due to an unplanned outage, provided that the feed-in approval holder—

- (a) notifies the distribution licensee of such interruption as soon as practicable;
- (b) provides the distribution licensee with an estimated duration of the unplanned outage; and
- (c) provides the distribution licensee with an explanation of such unplanned outage after its occurrence.

### **Distribution licensee's maintenance schedule**

6. The distribution licensee shall, not later than forty-eight hours prior to any planned maintenance of its supply lines, facilities or meters which may impact the operations of a major renewable energy installation, notify the feed-in approval holder the proposed schedule and description of such maintenance.

### **Records on operation**

7. (1) A feed-in approval holder shall maintain an accurate and up-to-date operating log at his or its major renewable energy installation with records of active and reactive renewable energy generation for each hour changes in operating status, scheduled outages, maintenance outages, unplanned outages and any unusual conditions found during operation or inspections.

(2) The Authority and distribution licensee shall have the right, upon reasonable written notice to the feed-in approval holder and at reasonable times of the day, to examine the operating log throughout the period described in subparagraph (3).



(3) The records and data in the operating log shall be maintained by the feed-in approval holder for a minimum period of eight years after the creation of such records or data and for such longer period as may be required under any applicable law.

FIFTH SCHEDULE  
(Rule 23)  
QUALIFICATIONS FOR QUALIFIED PERSONS

(1)	(2)
<i>Description of work</i>	<i>Qualifications</i>
1. Electrical wiring and electrical system design work up to 100 Amperes, and any certification or written confirmation relating thereto required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	Certificate of Competency as a Wireman issued by the Energy Commission
2. Any electrical system design work, and any certification or written confirmation relating thereto required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	Registered with the Board of Engineers Malaysia as a Professional Engineer (Electrical)
3. Solar photovoltaic system design, and any certification or written confirmation relating thereto required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	Institute for Sustainable Power Quality (ISPQ) certificate in solar photovoltaic system design from any institution that is recognized by the Authority

Made 29 November 2011  
[SEDA: SS 008; PN(PU2)693/II]

TAN SRI DR FONG CHAN ONN  
*Chairman*  
*Sustainable Energy Development Authority Malaysia*

Concurred 29 November 2011

TAN SRI DATUK DR. AHMAD TAJUDDIN ALI  
*Chairman*  
*Energy Commission*





30 April 2014  
30 April 2014  
P.U. (A) 120

# WARTA KERAJAAN PERSEKUTUAN

## *FEDERAL GOVERNMENT GAZETTE*

### KAEDAH-KAEDAH TENAGA BOLEH BAHARU (KEHENDAK TEKNIKAL DAN PENGENDALIAN) (PINDAAN) 2014

### *RENEWABLE ENERGY (TECHNICAL AND OPERATIONAL REQUIREMENTS) (AMENDMENT) RULES 2014*



DISIARKAN OLEH/  
PUBLISHED BY  
JABATAN PEGUAM NEGARA/  
ATTORNEY GENERAL'S CHAMBERS

AKTA TENAGA BOLEH BAHARU 2011

KAEDAH-KAEDAH TENAGA BOLEH BAHARU  
(KEHENDAK TEKNIKAL DAN PENGENDALIAN) (PINDAAN) 2014

PADA menjalankan kuasa yang diberikan oleh seksyen 15 dan perenggan 61(c) Akta Tenaga Boleh Baharu 2011 [*Akta 725*], Pihak Berkuasa Pembangunan Tenaga Lestari Malaysia, dengan persetujuan Suruhanjaya Tenaga, membuat kaedah-kaedah yang berikut:

**Nama dan permulaan kuat kuasa**

1. (1) Kaedah-kaedah ini bolehlah dinamakan **Kaedah-Kaedah Tenaga Boleh Baharu (Kehendak Teknikal dan Pengendalian) (Pindaan) 2014**.

(2) Kaedah-Kaedah ini mula berkuat kuasa pada 1 Mei 2014.

**Pindaan kaedah 2**

2. Kaedah-Kaedah Tenaga Boleh Baharu (Kehendak Teknikal dan Pengendalian) 2011 [*P.U. (A) 387/2011*], yang disebut “Kaedah-Kaedah ibu” dalam Kaedah-Kaedah ini, dipinda dalam kaedah 2—

(a) dalam takrif “amalan utiliti berhemat”—

(i) dalam perenggan (e), dengan memotong perkataan “dan” di hujung perenggan itu; dan

(ii) dalam perenggan (f)—

(A) dengan menggantikan noktah di hujung perenggan itu dengan perkataan “; dan”; dan

(B) dengan memasukkan selepas perenggan (f) perenggan yang berikut:

“(g) piawaian Institut Jurutera Elektrik dan Elektronik.”;

(b) dalam takrif “sambungan tidak langsung bervoltan rendah”, dengan memotong perkataan “voltan rendah” selepas perkataan “suatu talian bekalan”;

(c) dengan memotong takrif “voltan tinggi”;

(d) dengan menggantikan takrif “voltan rendah” dengan takrif yang berikut:

“‘voltan rendah” mempunyai erti yang diberikan kepadanya dalam peraturan 2 Peraturan-Peraturan Elektrik 1994 [P.U. (A) 38/1994];”;

(e) dengan menggantikan takrif “voltan sederhana” dengan takrif yang berikut:

“‘voltan sederhana” mempunyai erti yang diberikan kepadanya dalam peraturan 2 Peraturan-Peraturan Elektrik 1994;” dan

(f) dengan memasukkan selepas takrif “voltan sederhana” takrif yang berikut:

“‘voltan tinggi” mempunyai erti yang diberikan kepadanya dalam peraturan 2 Peraturan-Peraturan Elektrik 1994.’.

### **Pindaan kaedah 3**

3. Kaedah 3 Kaedah-Kaedah ibu dipinda —

(a) dalam subkaedah (1)—

(i) dengan menggantikan perkataan “Seseorang” dengan perkataan “Tertakluk kepada subkaedah (8), seseorang”;

(ii) dalam perenggan (a)—

(A) dengan menggantikan perkataan “72kWp” dengan perkataan “12kWp”; dan

(B) dengan menggantikan perkataan “180kWp” dengan perkataan “425kWp”; dan

(iii) dalam perenggan (b)—

(A) dengan menggantikan perkataan “72kW” dengan perkataan “12kW”; dan

(B) dengan menggantikan perkataan “180kW” dengan perkataan “425kW”;

(h) dalam subkaedah (3)—

(i) dalam teks bahasa kebangsaan, dengan menggantikan perkataan “empat belas hari” dengan perkataan “tiga puluh hari”; dan

(ii) dalam teks bahasa Inggeris, dengan menggantikan perkataan “twenty-one days” dengan perkataan “thirty days”;

(c) dengan menggantikan subkaedah (5) dengan subkaedah yang berikut:

“(5) Penjana yang layak hendaklah membayar—

(a) satu ribu ringgit kepada pemegang lesen pengagihan sebagai kos bagi menjalankan pemeriksaan pengesahan sambungan yang melebihi 12kW atau 12kWp sehingga dan termasuk 180kW atau 180kWp; atau



(b) lima ribu ringgit kepada pemegang lesen pengagihan sebagai kos bagi menjalankan pemeriksaan pengesahan sambungan yang melebihi 180kW atau 180kWp sehingga dan termasuk 425kW atau 425kWp.”; dan

(d) dengan memasukkan selepas subkaedah (7) subkaedah yang berikut:

“(8) Peruntukan subkaedah (1) tidak terpakai bagi seseorang penjana yang layak yang bercadang untuk membina—

(a) suatu pemasangan FV yang akan akhirnya disambungkan kepada satu pencawang elektrik yang kepadanya bersambung pemasangan FV sedia ada dan jumlah kWp berkadar pemasangan FV tersebut termasuk pemasangan FV yang dicadangkan melebihi 425kWp; atau

(b) satu pemasangan FV atau lebih yang dicadangkan dalam suatu kawasan pembangunan perumahan yang akan akhirnya disambungkan kepada satu pencawang elektrik dan jumlah kWp berkadar pemasangan FV itu melebihi 425kWp.

(9) Bagi maksud subkaedah (8), “kawasan pembangunan perumahan” ertinya suatu kawasan rumah unit tunggal atau unit berbilang, rumah kedai, rumah pangsa, kondominium dan pangsapuri yang dibina atau yang akan dibina oleh satu pemaju perumahan.”.

**Pindaan kaedah 4**

4. Kaedah 4 Kaedah-Kaedah ibu dipinda—

(a) dalam subkaedah (1)—

(i) dalam perenggan (a)—

(A) dengan menggantikan perkataan “180kWp” dengan perkataan “425kWp”; dan

(B) dengan memotong perkataan “atau” di hujung perenggan itu;

(ii) dalam perenggan (b) dengan menggantikan perkataan “180kW,” dengan perkataan “425kW; atau”; dan

(iii) dengan memasukkan selepas perenggan (b) perenggan yang berikut:

“(c) suatu pemasangan FV yang diperihalkan dalam perenggan 3(8)(a) atau 3(8)(b),” dan

(b) dengan menggantikan subkaedah (4) dan (5) dengan subkaedah yang berikut:

“(4) Dalam hal suatu permintaan yang dibuat oleh penjana yang layak yang bercadang untuk membina suatu pemasangan yang diperihalkan dalam perenggan 3(8)(a), 3(8)(b), 4(1)(a) atau 4(1)(b), pemegang lesen pengagihan hendaklah menyiapkan atau menyebabkan kajian itu disiapkan dalam tempoh yang dinyatakan dalam ruang kedua Jadual Pertama mengikut kapasiti eksport bersih atau kWp berkadar pemasangan yang dicadangkan yang dinyatakan dalam ruang pertama Jadual Pertama.

(5) Dalam hal suatu permintaan yang dibuat oleh penjana yang layak yang bercadang untuk membina suatu pemasangan yang diperihalkan dalam perenggan 3(8)(a), 3(8)(b), 4(1)(a) atau 4(1)(b), penjana yang layak hendaklah membayar kepada pemegang lesen pengagihan kos bagi menjalankan kajian sistem kuasa dalam jumlah yang dinyatakan dalam ruang ketiga Jadual Pertama mengikut kapasiti eksport bersih atau kWp berkadar bagi pemasangan yang dicadangkan yang dinyatakan dalam ruang pertama Jadual Pertama.”.

#### **Pindaan kaedah 8**

5. Kaedah 8 Kaedah-kaedah ibu dipinda —

(a) dengan menomborkan semula kaedah 8 sebagai subkaedah 8(1); dan

(b) dengan memasukkan selepas subkaedah (1) subkaedah yang berikut:

“(2) Walau apa pun subkaedah (1), sambungan tidak langsung bervoltan rendah tidak menjejaskan hak pemegang lesen pengagihan yang diperuntukkan di bawah Akta Bekalan Elektrik 1990.”.

#### **Pindaan kaedah 9**

6. Subkaedah 9(1) Kaedah-Kaedah ibu dipinda—

(a) dalam perenggan (a) —

(i) dengan menggantikan perkataan “boleh menyambungkan suatu pemasangan tenaga boleh baharu bervoltan sederhana” dengan perkataan “hendaklah menyambungkan suatu pemasangan tenaga boleh baharu bervoltan rendah”; dan



- (ii) dengan memasukkan selepas perkataan “melalui sambungan langsung bervoltan rendah” perkataan “atau bervoltan sederhana”;
- (b) dalam perenggan (b), dengan memasukkan selepas perkataan “hendaklah menyambungkan sesuatu pemasangan tenaga boleh baharu” perkataan “bervoltan rendah atau”; dan
- (c) dalam proviso, dengan memasukkan selepas perkataan “menurut” perkataan “semakan pengesahan sambungan yang dijalankan di bawah kaedah 3 atau”.

#### **Pindaan kaedah 12**

##### **7. Kaedah 12 Kaedah-Kaedah ibu dipinda—**

- (a) dalam subkaedah (1)—
  - (i) dalam perenggan (a), dengan memotong perkataan “dan” di hujung perenggan itu;
  - (ii) dalam perenggan (b), dengan menggantikan koma di hujung perenggan itu dengan perkataan “; dan”; dan
  - (iii) dengan memasukkan selepas perenggan (b) perenggan yang berikut:
    - “(c) bagi pemasangan berbilang yang bersambung kepada satu tempat sambungan kabel saling hubung yang berakhir di stesen suis yang berdekatan dengan pemasangan tenaga boleh baharu dengan satu kabel saling hubung antara stesen suis dan tempat sambungan pemegang lesen pengagihan, satu pemegang kelulusan galakan hendaklah memiliki kesemua pemasangan tenaga boleh baharu itu, dan—



- (i) unit yang hilang dalam sambungan saling hubung antara stesen suis dan tempat sambungan pemegang lesen pengagihan akan diagihkan kepada pemasangan tenaga boleh baharu itu secara pro rata; dan
- (ii) pemegang kelulusan galakan bertanggungjawab bagi pengendalian dan penyenggaraan stesen suis dan sambungan saling hubung sehingga tempat sambungan pemegang lesen pengagihan,”; dan

(b) dengan memasukkan selepas subkaedah (3) subkaedah yang berikut:

“(4) Pengagihan unit yang hilang dalam sambungan saling hubung dan tanggungjawab pemegang kelulusan galakan yang dinyatakan dalam subperenggan (1)(c)(ii) dan (1)(c)(iii) hendaklah dibuat dalam suatu perjanjian bertulis herasingan antara pemegang lesen pengagihan dengan pemegang kelulusan galakan bagi tujuan memenuhi pengagihan dan tanggungjawab itu.”.

#### **Pindaan kaedah 15**

8. Kaedah 15 Kaedah-Kaedah ibu dipinda—

- (a) dalam nota bahu, dalam teks bahasa kebangsaan, dengan menggantikan perkataan “kusa” dengan perkataan “kuasa”; dan
- (b) dengan menggantikan subkaedah (4) dengan subkaedah yang berikut:

“(4) Pihak Berkuasa hendaklah, jika ia berpuas hati bahawa kehendak di bawah subkaedah (1) telah dipenuhi, mengesahkan secara bertulis tarikh permulaan kuat kuasa tarif galakan.”.

**Penggantian Jadual Pertama**

9. Kaedah-Kaedah ibu dipinda dengan menggantikan Jadual Pertama dengan Jadual yang berikut:

**“JADUAL PERTAMA**

(Kaedah 4)

**TEMPOH DAN KOS PENYIAPAN BAGI KAJIAN SISTEM KUASA**

(1)	(2)	(3)
<i>Kapasiti eksport bersih atau kWp berkadar bagi pemasangan tenaga boleh baharu</i>	<i>Tempoh untuk menyiapkan kajian sistem kuasa [bermula dari hari semua maklumat diberikan di bawah subkaedah 4(2)]</i>	<i>Kos kajian sistem kuasa (RM)</i>
1. Melebihi 425kW dan sehingga dan termasuklah 1MW atau 425kWp dan sehingga dan termasuklah 1,000kWp	30 hari	20,000.00 bagi setiap pemasangan
2. Melebihi 1MW dan sehingga dan termasuklah 10MW atau melebihi 1,000kWp sehingga dan termasuklah 10,000kWp	40 hari	40,000.00 bagi setiap pemasangan
3. Melebihi 10MW dan sehingga dan termasuklah 30MW atau 10,000kWp dan sehingga dan termasuklah 30,000kWp	50 hari	60,000.00 bagi setiap pemasangan

4. Melebihi 425kW dan sehingga dan termasuklah 1MW atau melebihi 425kWp dan termasuklah 1,000kWp bagi pembangunan perumahan atau permohonan individu bagi pemasangan FV yang akan disambungkan kepada satu pencawang pembahagian	60 hari	500.00 bagi setiap pemasangan
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1. Suatu tempoh tambahan selama 10 hari hendaklah diberikan kepada pemegang lesen pengagihan jika suatu kajian penyelarasan penebatan disifatkan perlu dan dijalankan oleh pemegang lesen pengagihan sebagai sebahagian daripada kajian sistem kuasa.
2. Kos tambahan—
  - (a) dua puluh ribu ringgit hendaklah dibayar kepada pemegang lesen pengagihan jika suatu kajian penyelarasan penebatan disifatkan perlu dan dijalankan oleh pemegang lesen pengagihan sebagai sebahagian daripada kajian sistem kuasa; dan
  - (b) sepuluh ribu ringgit hendaklah dibayar kepada pemegang lesen pengagihan bagi pemasangan FV jika suatu kajian dinamik bagi menentukan turun naiknya voltan adalah perlu, dan data radiasi suria diberikan oleh pemegang kelulusan galakan itu.”.



**Penggantian Jadual Kedua**

10. Kaedah-Kaedah ibu dipinda dengan menggantikan Jadual Kedua dengan Jadual yang berikut:

**"JADUAL KEDUA**

(Kaedah 5 dan 8)

JUMLAH KAPASITI EKSPORT BERSIH ATAU kWp BERKADAR BAGI  
PEPASANGAN YANG BOLEH DISAMBUNGAN SECARA TEKNIKAL  
KEPADA TEMPAT SAMBUNGAN PADA TAHAP VOLTAN MINIMALNYA

(1)	(2)
<i>Tahap voltan nominal di tempat sambungan</i>	<i>Jumlah kapasiti eksport bersih atau kWp berkadar bagi pemasangan termasuklah pemasangan tenaga boleh baharu yang dicadangkan yang boleh disambung secara teknikal ke tempat sambungan</i>
1. 230 volt	Sehingga dan termasuklah 12kW atau 12kWp
2. 400 volt	Sehingga dan termasuklah 425kW atau sehingga dan termasuklah 425kWp
3. 11 kilovolt (pencawang pembahagian)	Sehingga dan termasuklah 2MW atau sehingga dan termasuklah 2,000kWp
4. 11 kilovolt (pencawang pembahagian utama, stesen suis utama dan pencawang masuk utama)	Sehingga dan termasuklah 10MW atau sehingga dan termasuklah 10,000kWp
5. 33 kilovolt	Sehingga dan termasuklah 30MW atau sehingga dan termasuklah 30,000kWp".



**Penggantian Jadual Kelima**

11. Kaedah-Kaedah ini dipinda dengan menggantikan Jadual Kelima dengan Jadual yang berikut:

**"JADUAL KELIMA**

(Kaedah 23)

**KELAYAKAN BAGI ORANG BERKELAYAKAN**

(1)	(2)
<i>Perihal kerja</i>	<i>Kelayakan Minimum</i>
1. Kerja-kerja pendawaian sistem reka bentuk elektrik sehingga 60 Amperes, pendawaian elektrik dan pemasangan sistem elektrik dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja pendawaian sistem reka bentuk elektrik, pendawaian elektrik dan pemasangan sistem elektrik yang berhubung selain daripada pemasangan FV yang dikehendaki di bawah Kaedah-Kaedah ini atau Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	Perakuan Kekompetenan Pendawai Elektrik yang dikeluarkan oleh Suruhanjaya Tenaga
2. Kerja-kerja pendawaian sistem reka bentuk elektrik sehingga 60 Amperes, pendawaian elektrik dan pemasangan sistem elektrik dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja pendawaian sistem reka bentuk elektrik, pendawaian elektrik dan pemasangan sistem elektrik yang berhubung dengan pemasangan FV yang dikehendaki di bawah Kaedah-Kaedah ini atau Kaedah-Kaedah Tenaga	(i) Perakuan Kekompetenan Pendawai Elektrik yang dikeluarkan oleh Suruhanjaya Tenaga; dan  (ii) Perakuan latihan berkenaan dengan sistem fotovolt suria bagi pendawai dan penjaga jentera yang dikeluarkan oleh Pihak Berkuasa

Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	
3. Kerja-kerja reka bentuk apa-apa sistem elektrik, dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja reka bentuk sistem elektrik yang dikehendaki di bawah Kaedah-Kaedah ini atau Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	Berdaftar dengan Lembaga Jurutera Malaysia sebagai Jurutera Profesional (Elektrik)
4. Kerja-kerja reka bentuk sistem fotovolta suria, dan apa-apa pemerakuan atau pengesahan bertulis ke atas kerja-kerja reka bentuk sistem fotovolta suria yang dikehendaki di bawah Kaedah-Kaedah Tenaga Boleh Baharu (Kelulusan Galakan dan Kadar Tarif Galakan) 2011	Sijil mereka bentuk sistem fotovolta suria daripada mana-mana institusi yang diiktiraf oleh Pihak Berkuasa”.

Dibuat 24 April 2014  
[KeTTHA BP(S) 9/14 Klt.6 (16); PN(PU2)693/V ]

DATUK DR. YEE MOH CHAI  
*Pengerusi*  
*Pihak Berkuasa Pembangunan Tenaga Lestari*  
*Malaysia*

Dipersetujui 25 April 2014

DATO' ABDUL RAZAK BIN ABDUL MAJID  
*Pengerusi*  
*Suruhanjaya Tenaga*

RENEWABLE ENERGY ACT 2011

RENEWABLE ENERGY (TECHNICAL AND OPERATIONAL REQUIREMENTS)  
(AMENDMENT) RULES 2014

IN exercise of the powers conferred by section 15 and paragraph 61(c) of the Renewable Energy Act 2011 [Act 725], the Sustainable Energy Development Authority Malaysia, with the concurrence of the Energy Commission, makes the following rules:

**Citation and commencement**

1. (1) These rules may be cited as the **Renewable Energy (Technical and Operational Requirements) (Amendment) Rules 2014**.

(2) These Rules come into operation on 1 May 2014.

**Amendment of rule 2**

2. The Renewable Energy (Technical and Operational Requirements) Rules 2011 [P.U. (A) 387/2011], which are referred to as the “principal Rules” in these Rules, are amended in rule 2—

(a) in the definition of “prudent utility practices”—

(i) in paragraph (e), by deleting the word “and” at the end of paragraph; and

(ii) in paragraph (f) —

(A) by substituting for the full stop at the end of paragraph the words “; and”; and

(B) by inserting after paragraph (f) the following paragraph:

“(g) the Institute of Electrical and Electronics Engineers standards.”;



(b) in the definition of “low voltage indirect connection”, by deleting the words “low voltage” after the words “installation to a”;

(c) by deleting the definition of “high voltage”;

(d) by substituting for the definition of “low voltage” the following definition:

‘ “low voltage” has the meaning assigned to it in regulation 2 of the Electricity Regulations 1994 [P.U. (A) 38/1994];’;

(e) by substituting for the definition of “medium voltage” the following definition:

‘ “medium voltage” has the meaning assigned to it in regulation 2 of the Electricity Regulations 1994;’; and

(f) by inserting after the definition of “medium voltage” the following definition:

‘ “high voltage” has the meaning assigned to it in regulation 2 of the Electricity Regulations 1994.’.

### **Amendment of rule 3**

3. Rule 3 of the principal Rules is amended—

(a) in subrule (1)—

(i) by substituting for the word “An” the words “Subject to subrule (8), an”;

(ii) in paragraph (a)—



(A) by substituting for the word “72kWp” the word “12kWp”;  
and

(B) by substituting for the word “180kWp” the word “425kWp”;  
and

(iii) in paragraph (b)—

(A) by substituting for the word “72kW” the word “12kW”; and

(B) by substituting for the word “180kW” the word “425kW”;

(b) in subrule (3)—

(i) in the national language text, by substituting for the words “empat belas hari” the words “tiga puluh hari”; and

(ii) in the English language text, by substituting for the words “twenty-one days” the words “thirty days”;

(c) by substituting for subrule (5) the following subrule:

“(5) The eligible producer shall pay—

(a) one thousand ringgit to the distribution licensee as the costs for carrying out the connection confirmation check exceeding 12kW or 12kWp up to and including 180kW or 180kWp; or

(b) five thousand ringgit to the distribution licensee as the costs for carrying out the connection confirmation check exceeding 180kW or 180kWp up to and including 425kW or 425kWp.”; and

(d) by inserting after subrule (7) the following subrules:

“(8) The provisions of subrule (1) shall not apply to an eligible producer who proposes to construct—

(a) a PV installation to be ultimately connected to one distribution substation to which other existing PV installations are connected and the total rated kWp of such PV installations including the proposed PV installation exceed 425kWp; or

(b) one or more PV installations proposed in a housing development area to be ultimately connected to one distribution substation and the total rated kWp of such PV installations exceed 425kWp.

(9) For the purpose of subrule (8), “housing development area” means an area of a single unit or multiple units of houses, shop houses, flats, condominiums and apartments developed or to be developed by one housing developer.”.

#### **Amendment of rule 4**

4. Rule 4 of the principal Rules is amended—

(a) in subrule (1)—

(i) in paragraph (a)—

(A) by substituting for the word “180kWp” the word “425kWp”;  
and

(B) by deleting the word “or” at the end of paragraph;

(ii) in paragraph (b) by substituting for the words “180kW,” the words “425kW; or”; and

(iii) by inserting after paragraph (b) the following paragraph:

“(c) a PV installation as described in paragraph 3(8)(a) or 3(8)(b),” ; and

(b) by substituting for subrules (4) and (5) the following subrules:

“(4) In the case of a request made by an eligible producer proposing to construct an installation as described in paragraph 3(8)(a), 3(8)(b), 4(1)(a) or 4(1)(b), the distribution licensee shall complete or cause the study to be completed within the period as set out in the second column of the First Schedule according to the net export capacity or rated kWp of the proposed installation as set out in the first column of the First Schedule.

(5) In the case of a request made by an eligible producer proposing to construct an installation as described in paragraph 3(8)(a), 3(8)(b), 4(1)(a) or 4(1)(b), the eligible producer shall pay to the distribution licensee the costs for carrying out the power system study the amount as set out in the third column of the First Schedule in accordance with the net export capacity or rated kWp of the proposed installation as set out in the first column of the First Schedule.”.

#### **Amendment of rule 8**

5. Rule 8 of the principal Rules is amended—

(a) by renumbering rule 8 as subrule 8(1); and

(b) by inserting after subrule (1) the following subrule:



“(2) Notwithstanding subrule (1), the low voltage indirect connection shall not affect the distributions licensee’s rights as provided under the Electricity Supply Act 1990.”.

**Amendment of rule 9**

6. Subrule 9(1) of the principal Rules is amended—

(a) in paragraph (a)—

(i) by substituting for the words “may connect a medium voltage” the words “shall connect a low voltage”; and

(ii) by inserting after the words “through a low voltage” the words “or medium voltage”;

(b) in paragraph (b), by inserting after the words “shall connect a” the words “low voltage or a”; and

(c) in the proviso, by inserting after the words “pursuant to a” the words “connection confirmation check carried out under rule 3 or a”.

**Amendment of rule 12**

7. Rule 12 of the principal Rules is amended—

(a) in subrule (1)—

(i) in paragraph (a), by deleting the word “and” at the end of paragraph;

(ii) in paragraph (b), by substituting for the comma at the end of paragraph the words “; and”; and



(iii) by inserting after paragraph (b) the following paragraph:

“(c) for multiple feed-ins to one connection point where the interconnection cables terminate at a switching station located in proximity to the renewable energy installations with one cable interconnection between this switching station and the connection point of the distribution licensee, one feed-in approval holder shall own all renewable energy installations, and—

(i) unit losses in the interconnection between the switching station and the distribution licensee connection point will be apportioned to the respective renewable energy installations on a pro-rated basis; and

(ii) the feed-in approval holder is responsible for the operation and maintenance of the switching station and the interconnection up to distribution licensee connection point,”; and

(b) by inserting after subrule (3) the following subrule:

“(4) The distribution of the unit losses in the interconnection and the responsibilities of a feed-in approval holder specified in subparagraphs (1)(c)(ii) and (1)(c)(iii) shall be made in a separate written agreement between the distribution licensee and the feed-in approval holder to cater for the distribution and responsibilities.”.

**Amendment of rule 15**

8. Rule 15 of the principal Rules is amended —

- (a) in shoulder note, in the national language text, by substituting for the word “kusa” the word “kuasa”; and
- (b) by substituting for subrule (4) the following subrule:

“(4) The Authority shall, whenever it is satisfied that the requirements under subrule (1) have been fulfilled, confirm in writing the feed-in tariff commencement date.”.

**Substitution of First Schedule**

9. The principal Rules are amended by substituting for the First Schedule the following Schedule:

**“FIRST SCHEDULE**

(Rule 4)

**COMPLETION PERIOD AND COSTS FOR POWER SYSTEM STUDY**

(1)	(2)	(3)
<i>Net export capacity or rated kWp of renewable energy installation</i>	<i>Period to complete power system study [commencing from the day all the information is provided under subrule 4(2)]</i>	<i>Power system study costs (RM)</i>
1. Above 425kW and up to and including 1MW or above 425kWp and up to and including 1,000kWp	30 days	20,000.00 per installation

2. Above 1MW and up to and including 10MW or above 1,000kWp up to and including 10,000kWp	40 days	40,000.00 per installation
3. Above 10MW and up to and including 30MW or 10,000kWp and up to and including 30,000kWp	50 days	60,000.00 per installation
4. Above 425kW and up to and including 1MW or above 425kWp and up to and including 1,000kWp for housing development or individual applications on the PV to be connected to one distribution substation	60 days	500.00 per installation

1. An additional period of 10 days shall be granted to the distribution licensee if an insulation co-ordination study is deemed necessary and carried out by the distribution licensee as part of the power system study.
2. Additional costs of—
  - (a) twenty thousand ringgit shall be paid to the distribution licensee if an insulation co-ordination study is deemed necessary and carried out by the distribution licensee as part of the power system study; and
  - (b) ten thousand ringgit shall be paid to the distribution licensee for PV installations where a dynamic study to determine voltage fluctuations is necessary, and the solar radiation data is provided by the feed-in approval holder.”.



**Substitution of Second Schedule**

10. The principal Rules are amended by substituting for the Second Schedule the following Schedule:

**"SECOND SCHEDULE**

(Rules 5 and 8)

**TOTAL NET EXPORT CAPACITY OR RATED kW<sub>p</sub> OF INSTALLATIONS  
THAT CAN BE TECHNICALLY CONNECTED TO A CONNECTION POINT AT  
ITS NOMINAL VOLTAGE LEVEL**

(1)	(2)
<i>Nominal voltage level at connection point</i>	<i>Total net export capacity or rated kW<sub>p</sub> of installations including the proposed renewable energy installation that can be technically connected to the connection point</i>
1. 230 volts	Up to and including 12kW or 12kW <sub>p</sub>
2. 400 volts	Up to and including 425kW or up to and including 425kW <sub>p</sub>
3. 11 kilovolts (distribution substation)	Up to and including 2MW or up to and including 2,000kW <sub>p</sub>
4. 11 kilovolts (main distribution substation, main switching station and main intake substation)	Up to and including 10MW or up to and including 10,000kW <sub>p</sub>
5. 33 kilovolts	Up to and including 30MW or up to and including 30,000kW <sub>p</sub> ".



**Substitution of Fifth Schedule**

11. The principle Rules are amended by substituting for the Fifth Schedule the following Schedule:

**"FIFTH SCHEDULE**

(Rule 23)

**QUALIFICATIONS FOR QUALIFIED PERSONS**

(1)	(2)
<i>Description of work</i>	<i>Minimum Qualifications</i>
1. Electrical system design work up to 60 Amperes, electrical wiring and installation of electrical systems and any certification or written confirmation relating thereto other than that in connection with PV installations required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	Certificate of Competency as a Wireman issued by the Energy Commission
2. Electrical system design work up to 60 Amperes, electrical wiring and installation of electrical systems and any certification or written confirmation relating thereto and in connection with PV installations required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	(i) Certificate of Competency as a Wireman issued by the Energy Commission; and  (ii) Certificate of training on solar photovoltaic systems for wiremen and chargemen issued by the Authority

3. Electrical system design work, and any certification or written confirmation relating thereto required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	Registered with the Board of Engineers Malaysia as a Professional Engineer (Electrical)
4. Solar photovoltaic system design, and any certification or written confirmation relating thereto required under these Rules or the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011	Certificate in solar photovoltaic system design from any institution that is recognized by the Authority".

Made 24 April 2014  
[KeTTHA BP(S) 9/14 Klt.6 (16); PN (PU2)693/V]

DATUK DR. YEE MOH CHAI  
*Chairman*  
*Sustainable Energy Development Authority Malaysia*

Concurred 25 April 2014

DATO' ABDUL RAZAK BIN ABDUL MAJID  
*Chairman*  
*Energy Commission*

## **SCHEDULE 4**

## **Technical Guideline for Connection of Indirect Solar PV Power Generation for Net Energy Metering**





# Technical Guideline for Connection of Indirect Solar PV Power Generation for Net Energy Metering



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## 1.0 Overview

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- 1.1 Introduction** : Connection of Solar PV generation system to the customers' internal system under the implementation of Net Energy Metering, requires a review of existing connection scheme and requirements.

The internal generation by the customers in aggregate would impact the Distribution system behaviour, especially when there is excess of generation from the customer. Due consideration of the impacts must be taken to mitigate the problem caused by the internal generation for example voltage rise, safety, power quality etc.

RE developers, service providers, operators and parties otherwise involved in the installation and commissioning of PV generation to the grid can utilise these guidelines for:

- a) Reference to issues related to grid connection of PV.
- b) Finding out the power quality requirements for PV interconnection with medium and low voltage distribution networks.
- c) Understanding the interconnecting requirements whether for small, intermediate or large PV systems.
- d) Finding out the methods available for interfacing of the PV generator to the grid system (connection schemes), including the compliance requirements for energy metering and SCADA.
- e) Understanding the practices to ensure the safety of the personnel and equipment involved in utility-connected PV operations.

- 1.2 Regulations** : Paralleling indirect Solar PV power generation system to the grid shall be subjected to compliance to the prevailing electricity supply rules & regulations to ensure adherence to the standard practices, quality of supply and personal & public safety.

Regulating authority is Suruhanjaya Tenaga Malaysia.

The following document shall be referred in determining the compliance to operational conditions terms:

- a) Electricity Supply Act & Regulations
- b) The Malaysian Distribution Code

For customers connected to Distributor licensee system, connecting indirect Solar PV power generation system internally requires compliance to requirements stated in this document. Power generated from indirect Solar PV power generation system is potentially able to disrupt the existing network quality, security & safety. Without proper consideration, connecting indirect Solar PV power generation system could result in:

- a) Voltage fluctuation
- b) Voltage rise
- c) Voltage unbalance
- d) Overloading of existing grid connecting feeder/cable
- e) Power Quality issues
- f) Islanding
- g) Coordination with other on-site generations such as backup generator, co-gen and energy storage system

**1.3      Boundary of ownership and responsibilities**

Boundary and responsibility limits of Distribution Licensee & NEM consumer must be clearly demarcated, agreed and documented.

Distribution Licensee responsibility is up to the metering point which is as the normal distributor customer boundary.

**1.4      Approvals & license to build & operate**

The consumer shall acquire the appropriate approval from relevant authorities and employ competent personnel to design the installation which include:

- Permit by local authority
- Permit by respective regulatory bodies
- Competent installer under regulation
- Competent operator
- Repair & maintenance



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## 2.0 Scope

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### 2.1 Scope

The main objective of this guideline is to provide guidance on the technical requirements for customers connected to the Distribution system who plan to install indirect Solar PV generation.

This guideline outlines technical requirements to ensure that connection of the indirect Solar PV power generation system would be standardised in terms of scheme, devices, operation & limits. The ultimate objective is to harmonise indirect Solar PV power generation system with the existing supply network, neighbouring customer and other Distributed Generators (DG) within the same distribution network. Connection of indirect Solar PV power generation system should not cause breach of power quality, reliability and security of the network and safety of the operators and public.

This guide covers requirements for connection of indirect Solar PV power generation system to the customer internal system. Power generation include:

- a) Indirect connection solar photovoltaic
- b) Battery Energy Storage System (BESS)

Limit of capacity for the indirect Solar PV power generation system under this guideline is up to 75% of maximum demand of consumer's current installation.

### 2.2 Commercial matters

Commercial matters are not part of this guideline.

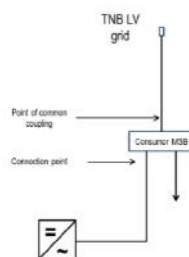
### 2.3 Application process

Customers that intend to install indirect Solar PV power generation system are required to register with the Distributor licensee. Registration to Distributor licensee is a statutory requirement as the consumer has altered the system registered during initial application.

The application process and procedures are described in the "Guidelines For Solar Photovoltaic Installation on Net Energy Metering Scheme".

## 3.0 Glossary

Demand	: The demand of MW or MVAR of electricity (i.e. both Active Power and Reactive Power respectively) unless otherwise stated.
Direct Connection	: Connection of Solar PV power generation system directly to the distribution system.
Indirect Connection	: Connection of Solar PV power generation system to the consumer owned internal network.
Distribution licensee	: The holder of a license to distribute issued by Energy Commission under Section 9 of the Electricity Supply Act 1990.
Distribution System	: The system of electric lines with voltage levels below 66 kV, within the Area of Supply owned or operated by the Distributor licensee/Embedded Distributor licensee, for distribution of electricity from Grid Supply Points or Generating Units or other entry points to the point of delivery to Customers or other Distributor licensees and includes any electrical plant and meters owned or operated by the Distributor licensee/ Embedded Distributor licensee in connection with the distribution of electricity .
Harmonic	: A sinusoidal component of a periodic wave or quantity having a frequency that is an integral multiple of the fundamental frequency.
Inverter	: A machine, device, or system that changes dc power to ac power.
Islanding	: A condition in which a portion of the utility system that contains both load and distributed resources remains energized while isolated from the remainder of the utility system.
Low Voltage	: A voltage less than 1,000 volts or 1 kV.
Medium Voltage	: A voltage exceeding 1 kV but not exceeding 50 kV.
Connection point	: The point where indirect Solar PV power generation system is connected to the network.
Point of common coupling/ Interconnection	: The point of connection between utility system and consumer.



Total Harmonic Distortion (THD)	: Harmonic distortion is the departure of a waveform from sinusoidal shape that is caused by the addition of one or more harmonics to the fundamental. Total Harmonic Distortion is the square root of the sum of the squares of all harmonics expressed as a percentage of the magnitude of the fundamental.
Type Test	: Test of one or more devices made to a certain design to demonstrate that the design meets certain specifications.
Power Factor	: Power factor (PF) is calculated by dividing the Real Power, P, in the W unit by the Apparent Power, S, in the VA unit.
Load profile	: 24-hour, 4 day profile (consisting of Friday to Monday) of customer electricity demand profile which include voltage, kW, kVar for 30-minute sampling
Net Energy Metering (NEM)	: Customers with own generation whose solar PV installed capacity is for self-consumption. In the event of excess of generation, the energy is allowed to be exported to the grid.
Self-Consumption (SC)	: Customers with own generation with installed capacity solely for self-consumption. In the event of excess of generation, the energy is not to be exported to the grid.
Peak Demand	: Highest demand recorded in the load profile submitted during application for SG
Trough load/ Base load	: Lowest demand recorded in the load profile submitted during application for SG
Battery Energy Storage System (BESS)	: An energy storage system that employs battery technology for delayed applications. BESS described in this guide is used at the customer side, for the main purpose of enhanced electricity supply and integration with renewables.
Customer With Own Generation (CWOOG)	: Term used in the MDC to categorise customers that have in-house power generation facilities that operate in parallel with the Distributor licensee distribution system. In relation to this guide, NEM consumer are those existing Distributor licensee registered customer with declared power generation facility.
Power limiting device	: A device that is used to curtail export of excess energy to Distributor licensee's distribution system. The device could be integrated within the inverter or external.
Declared Annual Availability (DAA)	: Annual quantity (in MWh) of renewable energy to be generated by the indirect Solar PV power generation system for each year. This information is to be furnished by NEM consumer to the Distributor licensee annually according to the agreed procedure.
Indirect Solar PV power generation	: Power generation that utilize the solar photovoltaic technology to provide for the consumer's own demand. The indirect Solar PV power generation system is connected within the system and operate in parallel with the Distribution Licensee distribution system. Battery energy storage system could be used as part of the system.

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## 4.0 Description of Indirect Solar PV Power Generation

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- 4.1 Description** : Consumers may decide to install indirect Solar PV power generation system to reduce their import from the Distribution Licensee. The indirect Solar PV power generation system is installed within its own system. The connection scheme is described in Chapter 5 of this guideline.
- 4.2 Battery Energy Storage System (BESS)** : Use of BESS could enhance the energy utilization. BESS converter operates in bidirectional – charging and discharging. The grid-connected inverter and BESS shall comply with connection requirements as stated in IEEE 1547.
- 4.3 Inverter requirements** : Inverters to be paralleled to the Distribution Licensee's distribution system shall comply to the following standards and references, in term of design, operation and maintenance:

	Standards/ Guide	Scope
a)	MS 1873	Connection scheme of grid connected inverter
b)	IEC 61727	Photovoltaic systems – characteristics of utility interface
c)	IEEE 1547	Standard for Interconnecting Distributed Resources with Electric Power Systems <ul style="list-style-type: none"><li>This standard describes the connection requirements of various Distributed Resources to the utility network.</li></ul>
d)	Suruhanjaya Tenaga	"Malaysian Distribution Code", 2017
e)	TNB	" <i>Tenaga Nasional Berhad – Technical Guidelines for Interconnection of Distributed Generator to Distribution System, 2018</i> "
f)	Suruhanjaya Tenaga	" <i>Guideline For Solar Photovoltaic Installation on Net Energy Metering Scheme</i> "
g)	TNB	" <i>Technical Guideline for Connection of Indirect Solar PV Power Generation for Net Energy Metering</i> "
h)	TNB	" <i>Electricity Supply Application Handbook</i> "

Only inverters that comply with the standards above are allowed to be operating in parallel with Distribution Licensee distribution system. Type test certifications could be used as prove of compliance.

- 4.4 Power limiting capability** : The demand from the Distribution system will reduce due to own generation by NEM consumer or export of excess energy to distribution network by NEM consumer. This could disrupt the distribution system, resulting in voltage rise and reverse power flow. During such event, the inverter shall reduce its generation upon receiving command from the detection device.



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## 5.0 Connection Scheme

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- 5.1 Introduction** : The connection scheme clauses takes into the following considerations:
- Safety
  - Connection with least alteration to existing network
  - Cost
  - Compliance to regulatory requirements
- 5.2 Connection types** : The types of connection for indirect Solar PV power generation system are as follows:
- Type A – for LV customers
  - Type B – for MV/HV customers

Assumption is made based on inverter output at low voltage level.

- 5.3 Feedings method** : The connection method of Solar PV power generation system can be categorised as:

- a) Direct Feed – Connection point at Distribution Licensee's grid

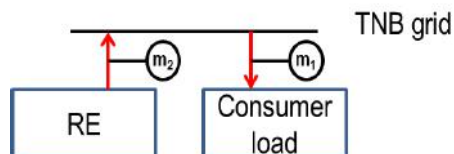


Fig. 5.1: Connection to Distributor licensee grid

Connection point is at the Distribution Licensee's system. This method is adopted for Feed-in Tariff connections. Power consumption and power generation are segregated and measured independently by meters  $m_1$  and  $m_2$  respectively.

- b) Indirect Feed - Connection point at consumer

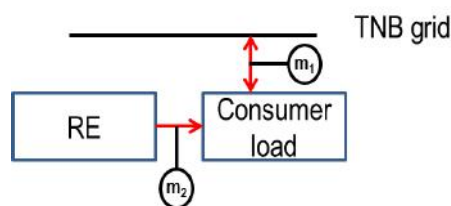


Fig. 5.1: Connection to TNB grid

Connection point is within the consumer's network without direct connection to the Distribution Licensee's system. This method is adopted for Net Energy Metering and Self Consumption schemes. Power consumption and export are measured by  $m_1$ , while power generation is measured by  $m_2$ . For net metering, meter  $m_1$  shall have bi-directional capability to register the import and export units. Meter  $m_2$  is a dedicated PV meter to record the generation from the indirect PV generation system and all costs relating to the PV meter shall be borne by the consumer.

**5.4 Type A:  
LV customer  
connections**

: Type A is applicable for Distribution Licensee's consumer with connection to LV network.  
PV connection point shall be done at the consumer's DB/MSB.

Use of a single phase inverter shall not cause unbalance conditions to Distribution Licensee's system. If such a condition is violated, requirement of a three phase inverter is automatically enforced.

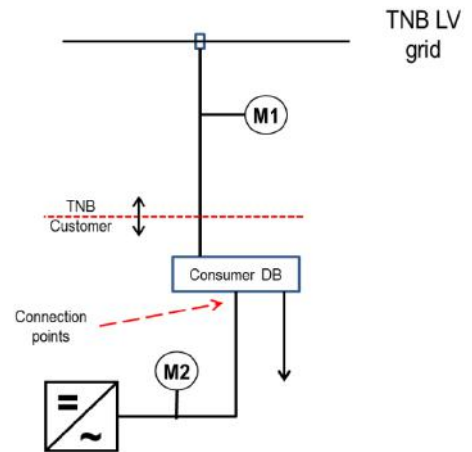


Fig. 5.3: Type A connection

Annual readings for M2 are to be furnished to Distribution Licensee.

**5.5 Type B:  
MV customer  
connections**

: Type B connection is applicable for Distribution Licensee's consumer with connection to MV network.  
PV connection point shall be done at the consumer MSB.

Use of a single phase inverter shall not cause unbalance conditions to Distribution Licensee's system. If such a condition is violated, requirement of a three phase inverter is automatically enforced.

Accumulated annual readings for M2 and M3 are to be furnished to Distribution Licensee.

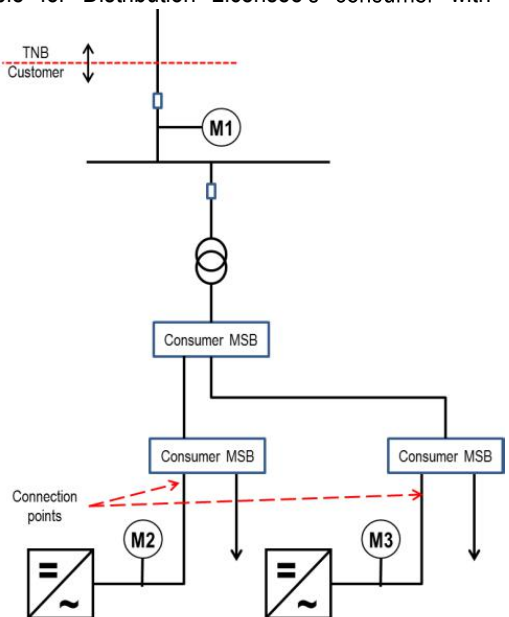


Fig. 5.4: Type B connection

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## 6.0 General Requirements

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6.1	<b>Introduction</b>	Connection of indirect Solar PV power generation system for NEM consumer shall be done internally which shall result in no requirement for upgrading of the existing utility supply infrastructure such as cable, fuse, switchgear, transformer and protection scheme.
6.2	<b>Connection Requirement</b>	<p>As a result of installation of indirect Solar PV power generation system, the quality of power at the point of connection shall not be made worse than the existing quality of supply. Quality of supply is measured as compliance to the standards on voltage, flicker, frequency, harmonics and power factor. To ensure that the addition of indirect Solar PV power generation system does not adversely impact the quality of supply, the following requirements shall be imposed and adhered by the NEM consumer.</p> <p>Deviation from these standards represents out-of-bounds condition and may require the PV system to sense the deviation and properly disconnect from Distribution Licensee system.</p> <p>Power quality parameters (harmonics and voltage) must be measured at the utility interface/point of common coupling unless stated otherwise. At PCC, the power quality requirements must comply with Malaysian Distribution Code and this Technical Guidebook.</p>
6.3	<b>Selection of connection point</b>	<p>Although the connection of indirect Solar PV power generation system is within the consumer's premise, the following guides shall be satisfied to ensure that the connection does not interfere with the existing power supplied by the Distribution Licensee. The following items are to be considered during design.</p> <ul style="list-style-type: none"><li>a) Customer load during peak and trough</li><li>b) Anti-islanding</li><li>c) Protection system</li><li>d) Step-up transformer (if applicable)</li><li>e) Interlocking</li><li>f) Back-up power supply (if applicable)</li><li>g) Energy storage system (if applicable)</li><li>h) Sensitive load</li></ul> <p>During periods of low consumption (trough) and high generation from indirect Solar PV power generation system, consumer may experience reverse power flow. The NEM consumer is to ascertain that the internal network is capable of utilising all the generated energy and its protection system is able to cater for bi-directional power flow.</p>
6.4	<b>Connected Voltage</b>	<p>As the connection is done internally, NEM consumer shall appoint a qualified consultant to design the interconnection between indirect Solar PV power generation system and his existing plant.</p> <p>The interconnection shall comply with the standards as described in this guideline and other regulations issued by the Suruhanjaya Tenaga.</p>

<b>6.5 Installed capacity</b>	<p>Installed capacity of the system to be connected must be declared correctly during application. Except for NEM, other indirect Solar PV power generation system connection shall not result in export of power to the distribution system. Restriction of export is to ensure that the system voltage does not fluctuate so much during high load, low generation and low load, high generation. The installed capacity is declared in term of summation of MWp.</p> <p>The installed capacity of the indirect Solar PV power generation system shall be capped as below:</p> <ol style="list-style-type: none"> <li>a. Domestic consumer : up to 72kWp (12kW for single phase and 72kW for 3 phase systems)</li> <li>b. Commercial and industrial consumer : 75% of maximum demand of the Consumer's current installation: <ol style="list-style-type: none"> <li>(i) based on the past 1 year average of the recorded maximum demand of the consumer's installation; or</li> <li>(ii) the declared maximum demand for consumers with less than 1 year.</li> </ol> </li> </ol> <p>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.</p> <p>The capacity described above is total capacity for each site.</p>
<b>6.6 Export limiting</b>	<p>The export of excess energy from NEM consumer during its low demand and peak power generation could cause disruption to Distribution Licensee's network. Therefore, the amount of export is to be determined by the Distribution Licensee during the application process. For the capacity below 72kW, where there will be no analysis by the DL, the consumer shall ensure that the exported power shall be less than the existing capacity of the DL and consumer's equipment. Appropriate functionality within the inverter or use of external device to be provided to mitigate such a condition.</p> <p>Except for NEM consumer, no export is allowed. Appropriate functionality within the inverter, use of external device or energy storage must be provided. Feature and location of the function or device shall be specified in the application form &amp; relevant drawings.</p>
<b>6.7 Boundary of ownership &amp; operation</b>	<p>Boundary and operational limits of Distribution Licensee &amp; NEM consumer must be clearly demarcated, agreed and documented. The Interconnection Operation Manual (IOM) shall be prepared and endorsed by both parties prior to the operation of the indirect Solar PV power generation system. Distribution Licensee's responsibility is up to the metering point which is as the ordinary Distribution Licensee's consumer boundary.</p>
<b>6.8 Equipment specifications</b>	<p>Major components of the indirect Solar PV power generation system shall comply to the following standard :</p> <ol style="list-style-type: none"> <li>a. MS 1837</li> <li>b. IEC 61727</li> <li>c. IEEE 1547</li> </ol>



- 6.9 Normal Voltage Operating Range** : The PV system injects current into utility and does not regulate voltage.

LV indirect Solar PV power generation system shall be capable of operating within the voltage range in Table 6.1.

**Table 6.1: Normal operating condition at PCC (LV)**

Nominal Voltage (V)	Steady state voltage limits
400	+10% and -6%
230	+10% and -6%

MV indirect Solar PV power generation system shall be capable of operating within the limits as in Table 6.2 below;

**Table 6.2: Normal operating condition at PCC (MV)**

Nominal Voltage (kV)	Steady state voltage limits
6.6	±5%
11	±5%
22	±5%
33	±5%

Table 6.1 and Table 6.2 are adopted from the “Malaysian Distribution Code”

- 6.10 Voltage fluctuation** : Power generation from indirect Solar PV power generation system constantly varies due to the changing solar irradiation throughout the day. The varying power generation injected into the Distribution Licensee’s network is bound to create voltage fluctuations at the interconnection point and other buses within the grid.

The maximum voltage fluctuation range allowed for LV and MV due to varying solar radiation is 6%. Beyond this, there is a danger of utility and consumer equipment getting heated up.

An appropriate voltage control is to be undertaken to mitigate the voltage fluctuation when necessary.

## 6.11 Harmonic

The harmonic of a wave is a component frequency of a wave that is an integer multiple of the fundamental frequency. In the presence of non-linear loads such as computer power supplies and other appliances, alternating current (AC) can be distorted by introduction of various harmonic frequencies. Harmonics can be measured by percentage of the fundamental frequency or by calculating total harmonic distortion (THD). When present at high levels; these harmonics are detrimental to the electrical system and its loads.

The PV system output should have low current-distortion levels to ensure that no adverse effects are caused to other equipment connected to the utility system.

Total harmonic current distortion shall be less than 5 % at rated inverter output at cable connected to PCC. Each individual harmonic shall be limited to the percentages listed in Table 6.3.

Even harmonics in these ranges shall be less than 25 % of the lower odd harmonic limits listed.

**Table 6.3 – Current distortion limits (IEC 61727-2003 Table 1)**

Odd harmonics	Distortion limit (%)
3 – 9	< 4.0
11 – 15	< 2.0
17 – 21	< 1.5
23 – 33	< 0.6

Even harmonics	Distortion limit (%)
2 – 8	< 1.0
10 – 32	< 0.5

**Note:**

- *The harmonic current injection should be exclusive of any harmonic currents due to harmonic voltage distortion present in the utility grid without the PV system connected.*
- *Type tested inverters meeting the above requirements should be deemed to comply without further testing.*

## 6.12 Inverter Power Factor

The power factor is defined as the ratio between the applied active power and the apparent power.

PV systems shall have a leading or lagging power factor greater than 0.9 and 0.85 respectively when the output is greater than 20 % of the rated inverter output power. The smart inverters used shall automatically make necessary adjustments to ensure that the power factor does not cause voltage rise beyond the permissible limit.

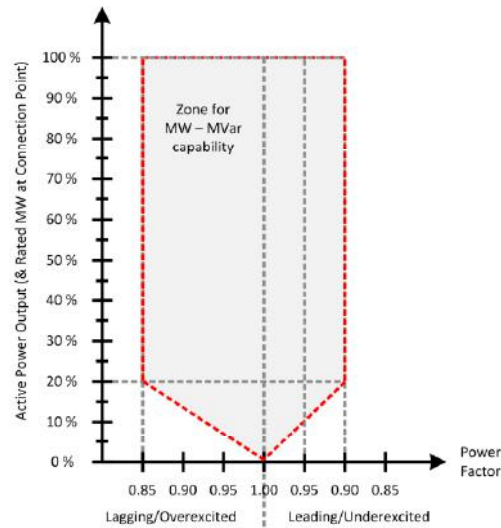


Fig. 6.1: Reactive power requirement at connection point

## 6.13 Reactive Power Compensation

Consumer should be aware that if the installed indirect Solar PV power generation system is set to operate at unity power factor, reactive power for their load will be totally imported from Distribution Licensee and real power will be mixed of own generation and import from Distribution Licensee.

This will result in low power factor reading at Distribution Licensee tariff meter as the ratio of reactive power to active power is higher with own generation.

Therefore, customer is advised to consult their service provider to provide internal compensation to avoid from being penalised.

## 6.14 DC Injection

The PV system shall not inject DC current greater than 1 % of the rated inverter output current into the utility interface under any operating condition.

## 6.15 Flicker

Flicker is due to rapidly changing loads that cause fluctuate in the customer's voltage. Even a small change in voltage can cause noticeable. Flicker is an irritation issue.

The operation of the PV system should not cause voltage flicker in excess of values stated in Table 6.4;

Table 6.4– Reference: TNB LV Planning Guidelines

Distribution system voltage level which the fluctuating load is connected	Absolute short term flicker severity (P <sub>st</sub> )	Absolute long term flicker severity (P <sub>lt</sub> )
LV Systems	1.0	0.8
11kV – 33kV	0.9	0.7
Above 33kV	0.8	0.6

**6.16 Voltage unbalance**

Voltage unbalance is defined as the ratio of the negative sequence voltage component to the positive sequence voltage component.

Negative Phase Sequence Voltage (%): 2% for 1 minute duration when multiple single-phase PV units are installed and it should be distributed evenly among the three phases of the power system.

Infrequent short duration peaks with a maximum value of 2% are permitted for Voltage Unbalance.

The unbalance voltage shall not exceed 1% for 5 occasions within any 30 minute time period at the terminals of a user's installation.

**6.17 Short circuit level**

By regulation, Distribution Licensee is required to ensure that short circuit level of the network is within the equipment ratings. The regulation specifies that network maximum sub-transient 3-phase symmetrical short circuit shall be within 90% of the equipment designed short-time make & break capacity. Table 6.5 highlights the typical equipment ratings in Distribution Licensee's distribution network.

**Table 6.5— Typical Equipment ratings in TNB Distribution Network**

Nominal Voltage [kV]	Rated Voltage [kV]	Fault Current [kA]
33	36	25
22	24	20
11	12	20
0.4	1.0	31.5



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## 7.0 Penetration Limit

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### 7.1 Introduction

NEM consumers are allowed to export any excess energy to TNB, provided that the exported power are within the capacity of the existing equipment (TNB and consumer) and the voltage levels are within the limit.

Generation power limiter is necessary to ensure that during periods of low load and high solar generation, the local voltage level would not rise beyond the limit and the exported power are still within the capacity of the existing equipment (TNB and consumer)

### 7.2 Individual penetration

#### a) Net Energy Metering (NEM)

Applicable for Distribution Licensee registered consumer only. Consumer should decide on the installed capacity with consideration of their own daytime peak demand. Maximum installed capacity as shown in Table 7.1.

**Table 7.1– Maximum installed capacity allowed for NEM customer**

Category	Maximum capacity installed	
Domestic	Single phase	12kWp
	Three phase	72kWp
Commercial and Industry	MV Consumer	Exported power to TNB shall be less than the existing capacity of TNB and consumer's equipment
	LV Consumer	
Commercial and Industry	MV Consumer	75% of consumer's maximum demand
	LV Consumer	

However, periodically, during low household power consumption period and high solar PV generation, the excess power is to flow into the grid.

#### b) Self-Consumption

Self-consumption means that the generated power is fully consumed within the customer premise. No export is allowed, therefore self-consumption consumer shall install a device that will prevent the export. The export curtailment is to prevent any voltage rise at the point where the indirect Solar PV power generation system is connected to the consumer MSB.

Limit for installed capacity is similar to that of NEM which refer to table 7.1 above.

#### c) BESS

Installed capacity of BESS should not cause any export to Distribution Licensee's grid. Appropriate limiting device must be emplaced.

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## 8.0 Protection Guidelines

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- 8.1 Introduction** : Protection system for indirect Solar PV power generation system is to be designed to isolate the faulty from the healthy sections of the system.

DG protection scheme is under NEM consumer responsibility and NEM consumer is to declare the protection scheme and settings to Distribution Licensee. NEM consumer shall design a protection system that fits his target degree of system security. Nonetheless, NEM consumer shall comply to Distribution Licensee's protection requirements to ensure that the fault would not spread beyond the plant.

NEM consumer is to perform protection coordination study to determine the suitable settings to protect the system during fault. Results of such study are to be furnished to Distribution Licensee for reference. Distribution Licensee shall advise NEM consumer on the appropriate settings at the point of common coupling.

For NEM consumer interconnection feeder protection scheme shall inhibit unsafe synchronization.

- 8.2 Smart inverter** : Connection of power generation to distribution network could cause voltage rise during low load, high generation condition. Also, sudden loss of generation from DG\ could cause instability of the network, especially for system with high DG penetration.

Advanced inverters or known as smart inverters are capable of providing additional features in addition to the power conversion. Smart inverters are PV inverters that stay connected and provide additional functions to help actively support the grid - mainly voltage and frequency. Traditional inverters simply disconnected when the grid voltage or frequency went out of range. Broadly, smart inverters provide some additional benefit to the grid beyond simply converting direct-current (DC) electricity to alternating current (AC) from PV systems. The smart inverter functions is outlined in the Attachment A.

- 8.3 Frequency** : Distribution Licensee shall maintain the system frequency and the PV system shall operate in synchronism with Distribution Licensee's frequency. Distribution Licensee shall operate with nominal 50 Hz system with  $\pm 1\%$  range band.

- 8.4 Synchronisation** : Synchronisation is an act of matching, within allowable limits, the required DG parameters with the Distribution Licensee's utility supply parameters as in Table 8.1.

**Table 8.1– Parameters required for synchronisation**

Parameters	Required range
a. Frequency difference	<0.2 Hz
b. Voltage magnitude difference	< 10%
c. Voltage angle difference	< 10 deg
d. Interlocking logic are satisfied	-

Synchronisation is to be done at the inverter. Re-synchronising is only to proceed once Distribution Licensee's system is normalized and stabilized as in Table 8.2.

**Table 8.2– Time taken for re-synchronising**

Voltage	Time
LV	2 minute
MV	5 minute

- 8.5 Anti-islanding inverter** : Non islanding inverters are unable to supply the load without the presence of the Distribution Licensee's system. For personnel safety reasons, PV plant is not allowed to be energized during outage of Distribution Licensee grid (loss of mains). The NEM consumer shall disconnect from the Distribution Licensee's system for loss of main within 2 second.

Inverters used by NEM consumer shall provide the following anti-islanding detection techniques:

- Under Voltage
- Over Voltage
- Under Frequency
- Over Frequency
- 1 additional anti-islanding technique

NEM consumer is to prove the anti-islanding capability of the plant during commissioning tests.

- 8.6 Inverter Fault Detection** : PV system with inverter shall use abnormal voltage or frequency sensing for fault detection.
- 8.7 Inverter fault current contribution** : The fault current contribution by the inverter will be limited usually by inverter control. Based on IEEE 1547, the typical range of short circuit current is between 100% and 200% of the rated inverter current. NEM consumer shall ensure that inverters used comply to the IEEE1547 requirement.

- 8.8 Protection schemes** : The basic requirements for the design of the protection schemes shall be as follows:
- For any internal fault in the indirect Solar PV power generation system, the indirect Solar PV power generation system must not cause problems to the Distributor licensee system and its customers.
  - For any distribution network fault outside the indirect Solar PV power generation system plant, the PV system must be protected from any damaging effect.

NEM consumer shall be required to provide other protection devices to complement existing special features.

- 8.9 Failure of indirect Solar PV power generation system protection or control equipment** : Indirect Solar PV power generation plant must be disconnected from the distribution system during any of the system failure. Failure condition of indirect Solar PV power generation system equipment shall include:
- Failure of protection equipment
  - Failure of control equipment
  - Loss of control power

- 8.10 Voltage disturbance** : The inverter should sense abnormal voltage and respond according to the conditions in Table 8.3. Consideration shall be given to monitoring voltage in this clause in order to avoid problems due to voltage drop in various transformer, wiring or feeder circuit. When the inverter sense the voltage lies outside its operating limits, the recommended action shall be as in Table below.

**Table 8.3– Voltage Disturbance**

Voltage (at PCC)	Maximum trip time (s)
$V < 50\%$	0.10
$50\% \leq V < 90\%$	2.00
$90\% \leq V \leq 110\%$	Continuous operation
$110\% < V < 135\%$	2.00

Inverters are expected to continuously operate during distribution network voltage fluctuation  $\pm 10\%$  of its nominal.

During the time of voltage disturbances which could be the result of transmission network switching and distribution switching on nearby feeder, the voltage would be affected. Therefore, inverters must be able to ride thru the voltage disturbance bands of 50% to 90% and 110% to 135%. This is to help stabilise the Distribution Licensee's system.

Loss-of-mains is indicated by voltage drop less than 50%.

Over voltage and under voltage detection shall be provided for all 3 phases.



- 8.11 Frequency disturbance** : The under frequency and over frequency levels and the corresponding inverter trip time shall be as follows:
- a) When the utility frequency is outside the nominal 50 Hz value by  $\pm 1\%$ .
  - b) Trip time shall be within 0.20 s.
  - c) Applicable for both LV and MV interconnection.

- 8.12 Utility interface disconnect switch** : Indirect Solar PV power generation system interconnection must incorporate utility interface disconnect switch to allow disconnection of indirect Solar PV power generation system output from the interconnecting with Distribution Licensee for safe utility line works. The requirement of such switch could be referred to MS 1837. The switch shall be manual, lockable, load break disconnect switch that:
- a) Provide clear indication of switch position
  - b) Visible and accessible to maintenance and operational personnel
  - c) Provide visual verification of the switch contact position when the switch is in open position

- 8.13 SCADA** : The provision of SCADA together with RTU cubicle, associated cards and SCADA ready switchgear is mandatory for all DG plant interconnection of 1MW and above. SCADA equipment to be used is subject to the approval by Distribution Licensee.

The following parameters are to be made available for monitoring by the Distribution Licensee Control Centre:

- a) Frequency (Hz)
- b) Voltage (V)
- c) Current (A)
- d) Real Power Energy Flow (kW or MW)
- e) Reactive Power Energy Flow (kVAR or MVar)
- f) Circuit Breaker Status
- g) Relay indications

All interfacing wiring to be prepared by DG developer with Distribution Licensee supervision.

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## 9.0 Metering

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### 9.1 Introduction

Existing single phase and three phase whole current meter needs to be replaced to a bi-directional supply meter. The meter for large power consumer shall be replaced only if bi-directional register is required.

The existing meter board and its wiring (if required) to be re-located or to be replace by the registered wireman appointed by the consumer. The location of the meter shall be assessable to TNB personnel, facing the main entrance and comply with the latest Electricity Supply Application Handbook.

The consumer shall bear all costs associated with the connection of indirect Solar PV power generation system including costs of meter replacement, supply upgrading, and system connection/modification (if applicable).

### 9.2 Energy meters

Energy meters are required to measure:

- The monthly Distribution Licensee-NEM consumer import & export (M1) for the purpose of net energy calculation. The M1 meter will be installed by TNB.
- The generation output energy from the indirect Solar PV power generation system (M2, M3). The M2/M3 meters will be installed by the consumer.

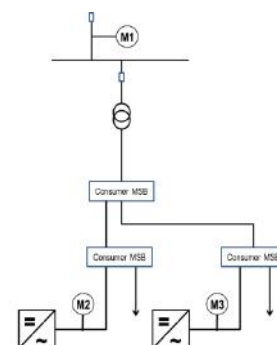


Fig. 9.1: Location of Energy Meters

### 9.3 Communication signal

Distribution Licensee uses wireless mode of communication between energy meter and HQ. Location of the meter room shall have adequate reception of the wireless signal to enable data transmission. NEM consumer shall provide a signal booster device whenever the communication signal is weak.

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## 10.0 Safety Requirements

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### 10.1 Introduction

The installation of grid-connected indirect Solar PV power generation systems shall comply with the requirements of MS IEC 60364 or MS IEC 60364-7-712. The provisions of this section are aimed at ensuring that these requirements are met, taking into account a range of system topologies and earthing arrangements.

### 10.2 Operation

It is important that for the safety of operating staff and public, both the Distribution Licensee and the NEM consumer operator must coordinate, establish and maintain the necessary isolation and earthing when work and/or tests are to be carried out at the interface/connection point.

The safety coordination applies to when work and/or tests that are to be carried out involving the interface between the distribution network and the indirect Solar PV power generation system plant and it is the responsibility of the Distributor licensee and NEM consumer operator to comply with the requirements of statutory acts, regulations, sub – regulations, individual license conditions, Standardized Distributor licensee's Safety Rules and the Malaysian Grid Code.

### 10.3 Interconnection Operation Manual

Interconnection Operation Manual (IOM) is to be prepared by the NEM consumer for indirect Solar PV power generation system >425kW.

### 10.4 Labelling

Labels shall be clearly placed to remind the operator that the device should be access cautiously as there could be an energised part that comes from the indirect Solar PV power generation system.

Test before touch must be practiced.



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## 11.0 Application Process

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### 11.1 Introduction

All indirect Solar PV power generations system with generation capacity of above 72kWp shall perform technical assessment with Distribution Licensee prior to NEM application to Implementing Agency.

The purposes of the assessment are for the following benefits:

- assist NEM applicant to decide on the feasibility of the project in terms of cost
- determine technical requirements needed for interconnection
- safety

NEM consumer is required to submit an application to Distribution Licensee office at:

Level 16, Wisma TNB Jalan Timur,  
46200 Petaling Jaya,  
Selangor



## 11.2 Technical information

The following technical information is required to make assessment of the proposal.

<sup>1</sup> SLD shall be endorsed by the Professional Engineer and qualified system designer

<sup>2</sup> Required if BESS is made part of the system

<sup>3</sup>Exception could be considered if this feature is incorporated within battery management system

	NEM >72kW	BESS
<b>Project information</b>		
Applicant identity	✓	✓
Information of project	✓	✓
<b>Design</b>		
SLD <sup>1</sup>	✓	✓
Installed capacity	✓	✓
Declared Annual Availability	✓	✓
Expected commissioning	✓	✓
<b>Equipment datasheet</b>		
Inverter/converter datasheet	✓	✓
Battery datasheet	✓ <sup>2</sup>	✓
Wind turbine datasheet	✗	✗
Prove of anti-islanding compliance	✓	✓
Power limiting device datasheet	✓	✓ <sup>3</sup>
<b>Penetration assessment</b>		
Customer 4-day load profile consisting of Friday to Monday	✓	✓
Profile of Distributor licensee import-indirect Solar PV power generation system demand mix	✓	✓
Confirmation of zero export / limit (if required)	✓	✓
<b>Other approvals</b>		
Local authority	✓	✓
Structure	✗	✗

## 11.3 NEM Assessment Study (NEMAS) – for capacity above 72kW

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) network study from Consumer side to the Point of Common Coupling;
- (iii) analysis on voltage and power factor impact to Distribution Licensee network;
- (iv) for capacity above 425kW, fault analysis will be conducted; and
- (v) any other analysis required by the Distribution Licensee for the purpose of safety and security of the distribution network and other electricity consumer.

**11.3 NEM Self-Assessment Study (for capacity below 72kW)**

During application, self-assessment is required to determine the suitable capacity and connection requirements. Self-assessment study is to be done by the qualified personnel.

Contents of the study include:

- Adequacy – to ensure no export above the limit of equipment capacity
- Voltage rise
- Recommendation

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## 12.0 Testing & commissioning

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- 12.1 Introduction** : There are 2 types of testing required:
- a) Inverter compliance tests
  - b) Interconnection compliance tests

Inverter compliance test

NEM consumer is responsible to ensure that the inverter unit(s) are in compliance to the requirements of this guideline.

Certified results of tests must be submitted for verification.

Interconnection compliance tests

Prior to commissioning, the interconnection must be tested to ensure that the performance is up to the required standard, installations are according to the approved scheme, settings are done as approved, etc.

Connection of indirect Solar PV power generation system plant should not have detrimental impact to the operation of Distribution Licensee's grid.

Tests to prove the following items shall be carried out in the commissioning process:

- a) Anti-islanding on loss of mains,
- b) Interlocking scheme (if any)
- c) Equipment functional tests
- d) Power Quality measurement

- 12.2 Commissioning tests** Commissioning tests of the installation shall be carried out by the competent person appointed by NEM consumer.

All tests must be carried out by qualified testers.

Test equipment must have valid calibration certificate.

- 12.3 Commissioning of LV connection** For connections that are situated on a long feeder, special attention to the voltage level during peak and low load is to be made. Such a condition could result in excessive voltage rise during low load period.

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## 13.0 Operation and Maintenance

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13.1	<b>Introduction</b>	NEM solar PV installation is owned and maintained by the Consumer.
13.2	<b>Boundary</b>	<p>Any failure of supply from TNB grid including the bidirectional meter shall be rectified and normalized by TNB.</p> <p>Any failure of the consumer's electrical installation (after TNB meter) and solar PV system shall be rectified and normalized by the Consumer.</p> <p>In the event of TNB supply failure, the Consumer has to ensure that there shall not be any reverse power/back feed from any internal source of generation (example solar PV, battery, generator) to TNB grid.</p> <p>The Consumer is solely responsible for any accident/incident to human beings and equipment that may occur due to reverse power/back feed from any internal source of generation when the TNB grid supply is off.</p> <p>TNB reserves the right to disconnect TNB supply to Consumer at any time in the event of default as specified in the NEM contract, damage to its grid, meter, etc, or to prevent accident or damage.</p>



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## 14.0 Other Requirements

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**14.1 Introduction** : In addition to the technical requirements described in the previous sections, the following administrative requirements must be fulfilled.

Local authorities

- a. *Kebenaran Merancang* from the local authorities for overall plant.
- b. Building plan approval
- c. Site suitability

Regulator

- a. Generating license for capacity greater than 72kW from Suruhanjaya Tenaga
- b. Registration with authority for less than 72kW.

Land owner

- a. For tenants, written approval by the land owner shall be obtained.

The above list is not exhaustive.

## ATTACHMENT A : Smart Inverter Functions

- Continued growth of PV generation puts more challenges on grid infrastructure designed for distribution from centralized energy sources. Advanced or smart inverter functions can help address the grid stability problems posed by high levels of variable distributed generation
- Smart inverters are PV inverters that stay connected and provide additional functions to help actively support the grid - mainly voltage and frequency. Smart Inverters able to receive commands from grid operators and report information. Traditional inverters simply disconnected when the grid voltage or frequency went out of range.
- Broadly, smart inverters provide some additional benefit to the grid beyond simply converting direct-current (DC) electricity to alternating current (AC) from PV systems. They typically support overall grid reliability by offering the following functions:

No.	Functions	Description	Setting	Reference
1	Anti-islanding Protection	Automatically disconnect during grid failure within certain duration. The duration is adjustable.  Anti-islanding protection is to ensure inverter doesn't back-feed a disabled grid	LV : • Disconnect 2sec • Reconnect 2min MV: • Disconnect 2sec • Reconnect 5min	• Distribution Code: 7.8.3.5 - Protection and Control Requirements
2	Voltage and Frequency Ride-through Capability	Inverter must meet the mandatory and permissive operation requirements as well as the must trip limits when the AC grid voltage and frequency high or low limits are exceeded.  Inverters support the grid during brief voltage or frequency excursions. This function will help the grid to self-heal from a disturbance.  During periods of (sometimes extreme) deviations in grid voltage and/or frequency, smart inverters are designed to remain connected to the grid and adjust their output to act as a counterbalance to frequency or voltage changes	LVRT/HVRT: Refer graph  LFRT/HFRT: uninterrupted range 47Hz to 50.5Hz	• Distribution Code: 6.5.5.1 - Low Voltage Ride Through & 6.5.5.2 - Frequency disturbance
3	Ramp Rate Control	The rate of power increase when first ramping (start ramp) and subsequent increases in offsetting or selling (normal ramp)  To help smooth transitions from one output level to the next. Supports grid by ramping up slowly giving the grid time to adjust to the PV energy coming back online.	Does not exceed 15% of rated capacity per minute.  Applicable for capacity of 5MW and above	• Grid Code: CC6.4.12

4.	Reactive Power Control Functions	<p>Inverter is able to supply or absorb reactive power to/from the grid to maintain stable grid voltage when fluctuations are prevalent.</p> <p>Variable Power Factor provides active voltage stabilization:</p> <ul style="list-style-type: none"> <li>• Grid voltage nominal, purely active power</li> <li>• Grid voltage high, add 'inductive' reactive power</li> <li>• Grid voltage low, add 'capacitive' reactive power</li> </ul> <p>Adjusting VARs keeps grid voltage from oscillating; acts like a shock absorber</p> <p>The reactive power control can be achieved using 3 main controls:</p> <p>(a) Dynamic Volt/VAr Mode (voltage control)</p> <p>(b) Fixed power factor (pf control)</p> <p>(c) Fixed reactive power (eg: using switched reactor or capacitor)</p>	<p>Voltage range:</p> <p>(MV-11kV&amp;33kV) ± 5%</p> <p>(LV- 230V &amp; 400V) -6% +10%</p> <p>Power Factor range: 0.85 lagging to 0.9 leading</p>	<ul style="list-style-type: none"> <li>• Distribution Code: 5.4.4.1 - Voltage range, 6.5.5.5 - Reactive power, 7.8.3.8 - Power factor</li> </ul>
5.	Active Power Control Functions  Frequency-Watt (Droop Curve) and Volt-Watt	<p>Support grid frequency and voltage by changing inverter wattage output:</p> <p>Help to stable the grid during an under/over frequency and voltage event by controlling the real output of the solar system.</p> <ul style="list-style-type: none"> <li>• Grid frequency/voltage nominal, inverter at max output</li> <li>• Grid frequency/voltage high, inverter curtails power</li> <li>• Grid frequency/voltage low, inverter increases power</li> </ul>	<p>Frequency range: 47Hz to 50.5Hz</p> <p>Voltage range: (MV-11kV&amp;33kV) ± 5%</p> <p>(LV- 230V &amp; 400V) -6% +10%</p>	<ul style="list-style-type: none"> <li>• Distribution Code: 6.5.5.4 - Droop curve, 5.4.41 - Voltage range &amp; 6.5.5.3 - Power output management</li> </ul>
6.	Data log/Memory card for event logs	<p>Capture profile of networks parameters – Voltage, Current, Frequency, Power (active &amp; reactive), power factors and events log.</p> <p>The data log can be used for troubleshooting and monitoring purposes.</p>	N/A	Distribution Code: 6.8.1.3 - Distribution System Control Structure
7.	Remote monitoring and configurability	Able to control remotely using SCADA system (for capacity 1MW and above)	N/A	Distribution Code: 6.8.1.3 - Distribution System Control Structure



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