

Draft dated 30 April 2014

GUIDELINES AND
DETERMINATIONS
OF THE
SUSTAINABLE ENERGY
DEVELOPMENT AUTHORITY
MALAYSIA

Contents

Division 1:	Definitions/Glossary.....	1
Division 2:	Introduction.....	2
Division 3:	Guidelines pursuant to the Feed-In Rules 2011.....	3
3.1	Method of submission of feed-in approval application	3
3.2	Submission of feed-in approval application on behalf of eligible producer	4
3.3	Matters relating to application for feed-in approval relating to a PV installation	4
3.4	Information to be submitted with feed-in approval application	8
3.5	Manner of paying fees in respect of an application for a feed-in approval	8
3.6	Matters relating to bonus feed-in tariff rates	9
3.6.1	<i>Manner of certifying copies of documents</i>	9
3.6.2	<i>Matters relating to use as building material</i>	10
3.6.3	<i>Recognised testing bodies for PV installations</i>	10
3.7	Form of novation of renewable energy power purchase agreement	10
3.8	Paid-Up Capital Requirement	10
3.9	Matters relating to authorized representative or agent	10
3.9.1	<i>Registration with the Authority</i>	10
3.9.2	<i>Conditions to be fulfilled by authorized representative or agent appointed by the eligible producer in connection with an application for a feed-in approval relating to a PV installation</i>	11
Division 4:	Guidelines pursuant to the T&O Rules 2011	12
4.1	Connection confirmation check	12
4.1.1	<i>Introduction</i>	12
4.1.2	<i>Format of connection confirmation check report</i>	12
4.2	Power system study	12
4.2.1	<i>Introduction</i>	12
4.2.2	<i>Objectives</i>	13
4.2.3	<i>Renewable energy installations requiring mandatory power system studies</i>	13
4.2.4	<i>Information required by distribution licensee to carry out power system study</i>	14
4.2.5	<i>Scope of power system study</i>	15
4.2.6	<i>Methods and analysis</i>	15
4.2.7	<i>Findings of the power system study</i>	17
4.2.8	<i>Requirements for renewable energy installations connected at medium voltage direct connections in respect of steady state voltage, thermal rating, fault level rating, frequency and dynamic voltage fluctuation limits</i>	17
4.2.9	<i>Miscellaneous</i>	18
4.4	Acceptance tests	19

4.4.1	<i>Acceptance test requirements</i>	19
4.4.2	<i>Acceptance test certification and report</i>	19
4.5	Licences	20
4.6	Reliability runs	20
4.6.1	<i>Reliability run requirements</i>	20
4.6.2	<i>Reliability run certification and report</i>	20
4.7	Report on feed-in tariff commencement date	20
Annexure 3.7.1:	Form of novation of renewable energy power purchase agreement	
	22	
Annexure 4.1.2:	Form of connection confirmation report	25

Division 1: Definitions/Glossary

In these Guidelines, unless the context otherwise requires:

- 1.1 capitalised expressions shall have the meanings assigned to them as set out below; and
- 1.2 other expressions shall have the meanings ascribed to them in the Act and the relevant Subsidiary Legislation, unless otherwise defined below.

Act	means the Renewable Energy Act 2011 [<i>Act 725</i>];
Bond	means the bond prescribed in 3.3.3;
e-FiT with New Queue System	means the online portal (e-FiT) new queuing system referred to in 3.3.4;
Feed-in Rules	means the Renewable Energy (Feed-In Approval and Feed-in Tariff Rate) Rules 2011;
IEC	means International Electrotechnical Commission;
Listed Corporation	has the meaning assigned to it in the Capital Markets and Services Act 2007;
Procedure	means with respect to: <ol style="list-style-type: none"> (i) an eligible producer who proposes to construct a renewable energy installation utilising biogas as its renewable resource, the Procedure on Biogas Power Plant Acceptance Test and Performance Assessment for Feed-in Tariff Projects in Malaysia; or (ii) an eligible producer who proposes to construct a renewable energy installation utilising biomass as its renewable resource, the Procedure on Biomass Power Plant Acceptance Test and Performance Assessment for Feed-in Tariff Projects in Malaysia.

issued by the Authority and available at the Authority's website at www.seda.gov.my.

Subsidiary Legislation	<p>means the subsidiary legislation made under the Act, being:</p> <ul style="list-style-type: none"> (a) the Feed-in Rules; (b) the T&O Rules; (c) the Renewable Energy (Criteria for Renewable Resources) Regulations 2011; (d) the Renewable Energy (Renewable Energy Power Purchase Agreements) Rules 2011; (e) the Renewable Energy (Allocation from Electricity Tariffs) Order 2011; (f) the Renewable Energy (Recovery of Moneys by Distribution Licensees) Rules 2011; (g) the Renewable Energy (Administrative Fees) Order 2011; and (h) such other subsidiary legislation as may be made under the Act from time to time, <p>and references to any Subsidiary Legislation shall be construed as a reference to such legislation as amended, modified or supplemented and in effect from time to time and shall include a reference to any legislation which amends, modifies, or supplements it; and</p>
T&O Rules	<p>means the Renewable Energy (Technical and Operational Requirements) Rules 2011.</p>

Division 2: Introduction

- 2.1 These Guidelines are issued pursuant to the Subsidiary Legislation, and must be read together with the Act, Subsidiary Legislation, Procedure and other information as well as forms made available at the Authority's website at www.seda.gov.my.
- 2.2 Prospective applicants for feed-in approvals are strongly encouraged to familiarise themselves with the provisions and requirements of the Act, Subsidiary Legislation, (in particular, the Subsidiary Legislation listed in paragraphs (a) to (d) in its definition above) and Procedure.
- 2.3 Eligible producers intending to develop renewable energy installations having a rated kWp or net export capacity exceeding 12kWp or kW (as the case may be) are reminded of the requirements of Part II of the T&O Rules relating to connection confirmation checks and power system studies, which must be met *before* applying for a feed-in approval. Please refer to Division 4 below for additional information.

Division 3: Guidelines pursuant to the Feed-In Rules 2011

3.1 Method of submission of feed-in approval application

3.1.1 An application for a feed-in approval must be made either:

- (a) electronically through an online portal (e-FiT) accessible at <https://efit.seda.gov.my>; or
- (b) through manual submission to the Authority's office; as may be prescribed by the Authority.

3.1.2 Documents for electronic submissions 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.

3.1.3 A manual application must be made by filling up the relevant application form. The form can be obtained either by downloading and printing it out from the Authority's web portal at www.seda.gov.my or by obtaining the hardcopy from the Authority's office. The maximum page size for attachments and supporting documents is A3.

3.1.4 Completed manual applications can only be submitted during working days (9.00 am to 5.00 pm Mondays to Fridays) to the Authority's offices below:

- (a) For submissions in relation to renewable energy installations in Peninsular Malaysia, Sabah and Labuan

Sustainable Energy Development Authority Malaysia

Galeria PjH

Aras 9, Jalan P4W

Persiaran Perdana

Presint 4

62100 Putrajaya

Tel: +603-8870 5800

Fax: +603-8870 5900

- (b) For submissions in relation to renewable energy installations in Sabah and Labuan only

Sustainable Energy Development Authority Malaysia

Lot 32, Level 1, Likas Square Commercial Center

No.1, Lorong Likas Square

Jalan Istiadat Likas

88400 Kota Kinabalu

Sabah

Tel: +6088-252101/+6088-251462

Fax: +6088-250337

3.2 Submission of feed-in approval application on behalf of eligible producer

3.2.1 Save as provided in 3.3.2 below, an application for a feed-in approval may be made either by:

- (a) the eligible producer itself; or
- (b) an authorized representative or agent appointed by the eligible producer.

3.2.2 An authorized representative or agent of the eligible producer is required to sign the declaration section at the end of the application form. This section will also require the endorsement of the eligible producer agreeing to such representation or agency.

3.2.3 For electronic submissions, the declaration section must be submitted electronically for application processing but the original physical hardcopy must be furnished to the Authority not later than 7 calendar days upon receipt by the eligible producer of a notification from the Authority that the application has been successful.

3.2.4 For manual submissions, the declaration section must be submitted together with the completed application form to ensure the completeness of the application before the application is processed.

3.3 Matters relating to application for feed-in approval relating to a PV installation

3.3.1 Applications relating to community centres

Community centres such as schools (including private non-profit schools), places of worship and care centres as may be approved by the Authority shall be entitled to submit an application for a feed-in approval relating to a PV installation having a rated kWp of up to 200 kWp.

3.3.2 Application by authorized representative or agent of the eligible producer

An application for a feed-in approval relating to a PV installation must be made by an authorized representative or agent of the eligible producer. Such authorized representative or agent of the eligible producer shall be a company as defined in the Companies Act 1965 [*Act 125*], firm, partnership or sole proprietorship registered under the Registration of Businesses Act 1956 [*Act 197*] or other applicable written laws.

3.3.3 Manual Submissions

- (a) An application on behalf of an eligible producer other than an individual for a feed-in approval relating to a PV installation having an installed capacity of more than 425 kWp and up to 1 MWp must be made by manual submission.
- (b) Each application must be supported by a Bond to the amount of Ringgit Malaysia one hundred (RM100.00) for each kWp of capacity of the proposed PV installation. The Bond shall be in the form of a bank

draft in the name of the Authority and valid for six months and shall be:

- (i) returned to the eligible producer less the applicable processing and application fees if the eligible producer's application for a feed-in approval is successful;
- (ii) returned to the eligible producer less the applicable processing fee, if the eligible producer's application for a feed-in approval is not successful; or
- (iii) forfeited if the eligible producer withdraws its application for a feed-in approval.

Without prejudice to subparagraph (i) above, in the event the eligible producer's application for a feed-in approval is successful, the eligible producer will be required to substitute the Bond with an instrument as may be prescribed by the Authority as security for the due achievement of feed-in tariff commencement date of the proposed PV installation.

3.3.4 Online Portal (e-FiT) with New Queue System

- (a) Prior to the submission of an application by an individual for a feed-in approval relating to a PV installation, an authorized representative or agent of the individual is required to complete the relevant form in the online portal (e-FiT) accessible at <https://efit.seda.gov.my> to register an entry into the e-FiT with New Queue System to apply for a feed-in approval. The individual shall also be required to pay the processing fee to the Authority.
- (b) Upon the Authority receiving the registration of an entry under the e-FiT with New Queue System, the authorized representative or agent will be required to confirm such registered entry on the online portal (e-FiT) on a date to be notified by the Authority. The confirmation by the authorized representative or agent of the registered entry shall be deemed as an application for a feed-in approval. A registered entry that is duly confirmed shall be acknowledged by the Authority and will be allocated a queue number by the online portal (e-FiT).
- (c) In the event an individual has been allocated a queue number but is not successful in its application for a feed-in approval, such individual will be entitled to make another application in the future without the need to register another entry into the e-FiT with New Queue System unless such failure was attributable to a default on the part of the said individual or an authorized representative or agent appointed by such individual.

3.3.5 Maximum number of applications for feed-in approvals

- (a) No application for a feed-in approval relating to a PV installation may be made for or on behalf of the following persons:
 - (i) an individual who has at least:

- (A) 2 duly confirmed entries registered under the e-FiT with New Queue System and acknowledged by the Authority under 3.3.4(b);
 - (B) 2 feed-in approvals in respect of PV installations;
 - (C) 1 duly confirmed entry registered under the e-FiT with New Queue System and acknowledged by the Authority under 3.3.4(b) and 1 feed-in approval in respect of PV installations;
- except in respect of an application where the individual proposes to increase the rated kWp of the individual's existing PV installations.

- (ii) an individual who has already been issued with feed-in approvals in respect of PV installations having an aggregate rated kWp of 24 kWp.
- (iii) a person which is other than an individual who has already been issued with feed-in approvals in respect of one or more PV installations having an aggregate rated kWp of 30,000 kWp;
- (iv) an individual who is deemed to hold an ultimate ownership interest equivalent to 5,000 kWp or more in one or more PV installations through such individual's direct or indirect shareholding in one or more feed-in approval holders who own such installations, as determined in accordance with the illustration below;
- (v) a person which is other than an individual who is deemed to hold an ultimate ownership interest equivalent to 30,000 kWp or more in one or more PV installations through such person's direct or indirect shareholding in one or more feed-in approval holders who own such installations, as determined in accordance with the illustration below;
- (vi) a company in whom a person described in paragraph (iv) is a director;
- (vii) a company of which a person described in paragraphs (iii) or (v) is a subsidiary company or holding company; or
- (viii) a company whom is other than a Listed Corporation, in which a person described in paragraphs (iv) to (vii) holds a direct or indirect shareholding.

Illustration of Deemed Ultimate Ownership Interest

- (A) A holds 50% of the ordinary share capital of Company B, a feed-in approval holder who has been granted a feed-in

approval for a PV installation having a rated kWp of 10,000 kWp. A is deemed to hold an ultimate ownership interest in the PV installation equivalent to 5,000 kWp.

- (B) A holds 50% of the ordinary share capital of Company B, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 3,000 kWp. Company B holds 50% of the ordinary share capital of Company C, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 8,000 kWp. A is deemed to hold an ultimate ownership interest in the PV installations equivalent to 3,500 kWp.
 - (C) Company A holds 50% of the ordinary share capital of Company B, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 30,000 kWp. Company A also holds 50% of the ordinary share capital of Company C, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 30,000 kWp. Company A is deemed to hold an ultimate ownership interest in the PV installations equivalent to 30,000 kWp.
 - (D) Company A holds 100% of the ordinary share capital of Company B, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 20,000 kWp. Company A also holds 50% of the ordinary share capital of Company C, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 8,000 kWp. Company C holds 100% of the ordinary share capital of Company D, a feed-in approval holder who has been granted a feed-in approval for a PV installation having a rated kWp of 12,000 kWp. Company A is deemed to hold an ultimate ownership interest in the PV installations equivalent to 30,000 kWp.
- (b) Only 1 application for a feed-in approval relating to a PV installation may be made in each day by the following eligible producers:
 - (i) an eligible producer other than an individual;
 - (ii) an individual having a direct or indirect shareholding in an applicant company submitting its application for a feed-in approval relating to a PV installation on the same day; or
 - (iii) companies in the same group of companies.
 - (c) No application for a feed-in approval relating to a PV installation may be made by an individual for a proposed PV installation:
 - (i) having a rated kWp of more than 12 kWp ;

- (ii) at a location other than a residential area;
 - (iii) at a location not owned by the eligible producer or the eligible producer's immediate family member;
 - (iv) at the same location as a PV installation under an existing feed-in approval not granted to the said individual;
 - (v) at the same location as another PV installation under a duly confirmed registered entry in the e-FiT with New Queue System and acknowledged by the Authority under 3.3.4(b); or
 - (vi) at the same location as another PV installation under a feed-in approval to be granted by the Authority.
- (d) No application for a feed-in approval relating to a PV installation may be made by a company for a proposed PV installation if the rated kWp of the proposed PV installation would result in any direct or indirect shareholder of such company to have a deemed ultimate ownership interest equivalent to more than:
- (i) 5,000kWp in the case of individuals; or
 - (ii) 30,000kWp in all other cases
- in one or more PV installations.
- (e) No application for a feed-in approval relating to a PV installation may be made by an eligible producer other than an individual or an entity referred to in 3.3.1 for a proposed PV installation:
- (i) at the same location as another PV installation under a feed-in approval granted by the Authority to an entity referred to in 3.3.1, in the case of an eligible producer other than an individual; or
 - (ii) at the same location as another PV installation under a feed-in approval granted by the Authority to a feed-in approval holder other than an individual, in the case of entities referred to in 3.3.1.

3.4 Information to be submitted with feed-in approval application

- 3.4.1 In addition to the matters set out in subrule 10(1) of the Feed-in Rules, an application for a feed-in approval must be accompanied by the information described in the applicable feed-in approval application form.

3.5 Manner of paying fees in respect of an application for a feed-in approval

- 3.5.1 Application form fees payable for each physical hardcopy of a feed-in approval application form must be paid upon obtaining the form at the Authority's office.

Application form fees must be paid in cash only to an authorized employee of the Authority at the Authority's office.

- 3.5.2 Processing fees for a feed-in approval application submitted must be paid at the time of submission of the application. Processing fees for applications made pursuant to 3.3.4 must be paid by credit card through an online portal (e-FiT) accessible at <https://efit.seda.gov.my>. Processing fees for all other applications must be paid either by cheque, bank draft or telegraphic transfer. In cases of multiple applications, the payment of processing fees for each application must be paid separately.
- 3.5.3 Application fees must be paid and proof of such payment must be submitted to the Authority within 7 calendar days from the date of receipt of a notification from the Authority that the feed-in approval application has been received. Application fees for applications made pursuant to 3.3.4 must be paid upon receipt of a notification from the Authority that the feed-in approval application has been successful. Application fees must be paid either by Inter-Bank Giro or telegraphic transfer.
- 3.5.4 Payments by Inter-Bank Giro can be made to the Authority's following bank account:
- Account name: Sustainable Energy Development Authority Malaysia
 Account number: 16010000888108
 Bank: CIMB Bank Berhad
- 3.5.5 Payments by telegraphic transfer must also be paid to the above bank account.
- SWIFT Code: CIBBMYKL
 Bank address: 2M11-A, Kompleks Kementerian Kewangan 5, Pesiaran Perdana Presint 2, 62592 Putrajaya
- 3.5.6 Processing fees for applications for feed-in approvals are non-refundable. The Authority may refund application fees in the event of a withdrawal of an application provided that such withdrawal is done before the issuance of the relevant certificate of feed-in approval under section 12(2) of the Act. Refunds of application fees shall be remitted into the account stated in the applicant's application form.

3.6 Matters relating to bonus feed-in tariff rates

3.6.1 Manner of certifying copies of documents

All documents submitted to the Authority to establish that the applicable criteria for a particular bonus feed-in tariff rate has been or will be met shall be certified as a true copy by:

- (a) a magistrate;
- (b) a justice of the peace;
- (c) an Advocate and Solicitor of the High Court of Malaya;
- (d) a chartered accountant;
- (e) a notary public;
- (f) a Commissioner for Oaths; or
- (g) a civil servant falling within the category of "Pegawai Kerajaan Kumpulan Pengurusan dan Profesional".

3.6.2 Matters relating to use as building material

Examples of the use of solar photovoltaic modules as building material under the Feed-in Rules that are acceptable to the Authority can be viewed at the Authority's website at www.seda.gov.my.

3.6.3 Recognised testing bodies for PV installations

The certified testing bodies recognised by the Authority are:

- (a) Underwriters Laboratories (UL);
- (b) the TUV group; and
- (c) equivalent testing bodies which may be recognized by the Authority from time to time.

3.7 Form of novation of renewable energy power purchase agreement

- 3.7.1 For the purposes of subparagraph 19(5)(b)(ii) of the Feed-in Rules, the form of novation of a renewable energy power purchase agreement relating to a PV installation having an installed capacity of $\leq 72\text{kW}$ shall be as set out in Annexure 3.7.1 of these Guidelines.

3.8 Paid-Up Capital Requirement

- 3.8.1 Companies intending to develop renewable energy installations having a rated kWp or net export capacity of up to 72kWp or kW shall have a minimum paid-up capital equivalent to Ringgit Malaysia twenty thousand (RM20,000.00).
- 3.8.2 Companies intending to develop renewable energy installations having a rated kWp or net export capacity exceeding 72kWp or kW shall have a minimum paid-up capital equivalent to Ringgit Malaysia fifty thousand (RM50,000.00).

3.9 Matters relating to authorized representative or agent**3.9.1 Registration with the Authority**

- (a) The authorized representative or agent appointed by the eligible producer in connection with an application for a feed-in approval relating to a PV installation must be registered with the Authority in accordance with 3.9.1 herein.
- (b) An application for registration with the Authority under 3.9.1(a) above must be made through the online portal (e-FiT) accessible at www.seda.gov.my.
- (c) Upon receipt of an application for registration and upon payment of the prescribed fee, the Authority may register the authorized representative or agent for a period which commences on the day of the registration and expires on the thirty-first day of December of the year in which the registration is made. .
- (d) The prescribed fee for the registration of the authorized representative or agent shall be Ringgit Malaysia one thousand (RM1,000.00).

- (e) The registration of the authorized representative or agent may be renewed upon application and payment of the prescribed fee under paragraph (d) above, subject always to the approval of the Authority.
- (f) Notwithstanding the fact that the authorized representative or agent having fulfilled the requirements stipulated under 3.9 herein, the Authority may refuse registration at its sole discretion.

3.9.2 Conditions to be fulfilled by authorized representative or agent appointed by the eligible producer in connection with an application for a feed-in approval relating to a PV installation

Any authorized representative or agent appointed by the eligible producer in connection with an application for a feed-in approval relating to a PV installation shall:

- (a) continue to be registered with the Authority as long as it carries out any business connected with the application for a feed-in approval relating to a PV installation or the installation of a PV installation;
- (b) have at any time a minimum paid-up capital of Ringgit Malaysia one hundred thousand (RM100,000.00), in the case of a company;
- (c) have declared in a form and at a time to be prescribed by the Authority, that it is able to pay its debts as they become due in the normal course of business, in the case of a firm, partnership or sole proprietorship;
- (d) have at least 1 employee who is a qualified person with respect to solar photovoltaic system design as defined in the T&O Rules;
- (e) comply with any other conditions as may be prescribed by the Authority;

provided that the conditions under paragraphs (b) and (d) shall not apply to authorized representatives or agents already registered with the Authority as at the date of these Guidelines, prior to the expiry or earlier revocation of their registration with the Authority.

3.9.3 Failure to comply with conditions

- (a) Where the Authority believes that any authorized representative or agent registered with the Authority does not comply with conditions stipulated in 3.9.2 above, the Authority may send to the registered address or the place of business of the authorized representative or agent, a notice notifying the Authority's intention to revoke its registration and the Authority may provide such authorized representative or agent an opportunity to make written representation on the intended revocation within 30 days from the date of service of the notice.
- (b) After the expiry of the period of 30 days provided for in 3.9.3(a) above, the Authority shall, after considering any reply made by the authorized representative or agent, decide at its sole discretion,

whether or not to revoke the registration of such authorized representative or agent.

- (c) In the event the registration of the authorized representative or agent is terminated in accordance with this 3.9.3, such authorized representative or agent must not be registered with the Authority for 1 year thereafter or such longer period, at the sole determination of the Authority.

Division 4: Guidelines pursuant to the T&O Rules 2011

4.1 Connection confirmation check

4.1.1 Introduction

- (a) A connection confirmation check is required in respect of a renewable energy installation having a rated kWp or net export capacity of > 12 but ≤ 425 kWp or kW (as the case may be) to confirm whether the proposed connection is technically possible, and, if so, whether any necessary modification to the distribution licensee's existing electricity distribution network is required to facilitate the acceptance of renewable energy generated by the renewable energy installation.
- (b) A modification described in paragraph (a) above will fall within the feed-in approval holder's responsibility under rule 12(1) of the T&O Rules. However, it is the distribution licensee's responsibility to carry out network reinforcement works to upgrade or reinforce its electricity distribution network in order to distribute or facilitate the transfer of renewable energy generated from the renewable energy installation from the connection point to other parts of its electricity distribution network.

4.1.2 Format of connection confirmation check report

For the purposes of subrule 3(3) of the T&O Rules, the format of the report on a connection confirmation check shall be as set out in Annexure 4.1.2 of these Guidelines.

4.2 Power system study

4.2.1 Introduction

- (a) The power system study will determine the technical feasibility of connecting a proposed renewable energy installation to the distribution licensee's electricity distribution network and establish technical and safety requirements that may be necessary for the interconnection and operation of the renewable energy installation.
- (b) The power system study is a pre-requisite for an application for feed-in approval and will thus be performed prior to the signing of the renewable energy power purchase agreement with the distribution

licensee. At this stage the eligible producer has not yet committed to the physical construction of the renewable energy installation. The findings of the power system study will assist the eligible producer to decide on the feasibility of the project in terms of cost and assist the distribution licensee to prepare the technical requirements needed for interconnection.

- (c) Each power system study will be valid for 1 year commencing from the date of the Distribution Licensee's approval of the power system study. The validity of the power system study can be extended by another 1 year with the approval of the Authority and upon payment of fees amounting to Ringgit Malaysia one thousand only (RM1,000.00) to the Distribution Licensee. The Distribution Licensee shall immediately notify the Authority of any application to extend a power system study and such application shall be considered by the Authority's technical committee on grid interconnection.
- (d) A power system study can be transferred to another eligible producer with the approval of the Distribution Licensee and upon payment of fees amounting to Ringgit Malaysia one thousand only (RM1,000.00) to the Distribution Licensee.

4.2.2 Objectives

The objectives of a power system study are to:

- (a) determine the technical feasibility of connecting the proposed renewable energy installation to the electricity distribution network;
- (b) determine the connection point;
- (c) estimate the cost for connecting the proposed renewable energy installation to the electricity distribution network; and
- (d) assist the distribution licensee to identify remedial actions to be taken on its electricity distribution network to facilitate interconnection with the proposed renewable energy installation.

4.2.3 Renewable energy installations requiring mandatory power system studies

The requirement for a mandatory power system study is generally based on the rated kWp or net export capacity (as the case may be) of the proposed renewable energy installation as shown in Table 4.2.3 below.

Table 4.2.3: Requirement for mandatory power system study

Rated kWp (in kWp) or net export capacity (in kW) of renewable energy installation	Connection point	Mandatory power system study
Up to 12	Connection at low voltage single phase	Not required

Rated kWp (in kWp) or net export capacity (in kW) of renewable energy installation	Connection point	Mandatory power system study
> 12 and ≤ 425	Connection at either low voltage or medium voltage	To be determined by connection confirmation check that will ascertain whether connection is to be at low voltage or medium voltage
> 425 onwards	Connection at medium voltage only	Required

4.2.4 Information required by distribution licensee to carry out power system study

- (a) For the purposes of subrule 4(2) of the T&O Rules, the technical information in respect of the proposed renewable energy installation that is required by the distribution licensee in order to carry out the power system study are as follows:
- (i) name, address and contact details of the eligible producer;
 - (ii) the location plan of the proposed renewable energy installation;
 - (iii) the following details of the proposed renewable energy installation:
 - (A) the type of renewable resource to be utilised by the proposed renewable energy installation (i.e. solar photovoltaic technology, biomass, biogas or small hydropower);
 - (B) the following details of the installation generator:
 - (1) in respect of a proposed PV installation:
 - (aa) the type of module (monocrystalline, polycrystalline, thin film, etc), preferably with the module data sheet if the eligible producer has identified the particular module to be used;
 - (bb) inverter specifications, preferably with the inverter data sheet if the eligible producer has identified the inverter model to be used;
 - (cc) the plant configuration;
 - (dd) the rated kWp;
 - (2) in respect of a proposed non-PV installation:

- (aa) the type of generator (synchronous or induction machine);
 - (bb) the net export capacity of the plant;
 - (cc) the generator output voltage;
 - (C) the following details of the step-up transformer (if applicable):
 - (1) transformer capacity;
 - (2) transformer voltage ratio;
 - (iv) other data:
 - (A) in respect of a PV installation, the eligible producer will need to provide the solar radiation data collected at the proposed site of the installation for a typical sunny day between 9 am to 5 pm, at a maximum interval of 3 minutes.
- (b) Other than the information specified above, a distribution licensee is not permitted to request for other information which may be required by the particular software the distribution licensee is using for the power system study. It shall be the distribution licensee's responsibility to source for such information.
- (c) At the power system study stage (prior to an application for feed-in approval), an eligible producer may not be able to provide detailed information such as machine reactance or module data sheet. It shall be the distribution licensee's responsibility to use typical Institute of Electrical and Electronics Engineers or other international standard values.

4.2.5 Scope of power system study

The scope of a power system study includes the following:

- (a) load flow analysis;
- (b) short circuit analysis;
- (c) mitigation and control measures;
- (d) dynamic analysis (for PV installations only), if required; and
- (e) insulation co-ordination analysis, if required.

4.2.6 Methods and analysis

(a) Load flow analysis

A load flow analysis analyses the power system in a normal steady state operation. The feeder proposed to be connected to the renewable energy installation must be modelled based on the distribution licensee's electricity distribution network and simulation performed using commercial software. The Load Flow Analysis evaluates the following:

- (i) any voltage rise beyond the maximum +5% allowed under prudent utility practice;
- (ii) power flow direction to determine whether there is any reverse flow of power into voltage levels higher than the voltage level at the connection point;
- (iii) loading of the feeders to determine feeder adequacy; and
- (iv) impact on system losses. However, an increase in network losses will not be an excuse for the distribution licensee to refuse connection to the feed-in approval holder's renewable energy installation.

The simulation analysis must be performed based on current peak and trough loading of the feeder, or the projected loading in the estimated year of connection.

(b) Short circuit analysis

Short circuit analysis of the electricity distribution network with the renewable energy installation connected must be done to determine the increase in fault level. This is to ensure that the increased fault current is within the breaker capacity limits. Short circuit analysis is done with the bus section at the relevant main intake substation or main distribution substation in 'OPEN' as well as 'CLOSE' positions.

(c) Mitigation and control measures

The power system study will also identify, if necessary, the measures and controls necessary to limit the impact of the renewable energy installation's connection to the grid, including the rise in fault levels, voltage violations, increase in losses, etc. Such impact will not be an excuse for the distribution licensee to refuse interconnection, and any mitigation measures required on the electricity distribution network to facilitate interconnection will be under the responsibility and at the expense of the feed-in approval holder, while any measures to facilitate the transfer of energy from the point of connection to other parts of the network will be under the responsibility and at the expense of the distribution licensee. Please refer to 4.1.1 (b) above.

(d) Dynamic analysis

This analysis is required only for PV installations. Since the solar radiation is constantly varying throughout the day, this results in a varying power output. This varying power output causes voltage fluctuations at the connection point as well as other buses. The aim of the dynamic study is to ensure that voltage fluctuations remain within the internationally accepted limits of $\pm 3\%$.

(e) Insulation co-ordination analysis

This analysis is required only for renewable energy installations connected through bare overhead lines. The purpose of this analysis is to examine possible lightning over-voltages and lightning arrester requirements at the point of interface.

4.2.7 Findings of the power system study

The results and findings of the power system study must be documented in a report format and a copy made available to the eligible producer. As a general guide, the load flow, short circuit, and dynamic (for PV installations) simulation results obtained from the power system study should be within the limits stipulated as below.

4.2.8 Requirements for renewable energy installations connected at medium voltage direct connections in respect of steady state voltage, thermal rating, fault level rating, frequency and dynamic voltage fluctuation limits

(a) Steady state voltage limits

- (i) Steady state voltages at eligible producer interconnection/interface during normal operating conditions shall be within the following limits:
 - (A) $\pm 5\%$ at 33 kV
 - (B) $\pm 5\%$ at 22 kV
 - (C) $\pm 5\%$ at 11 kV
- (ii) Under contingency operating conditions the steady state voltages are to be within the following limits:
 - (A) $\pm 10\%$ at 33 kV
 - (B) $\pm 10\%$ at 22 kV
 - (C) $\pm 10\%$ at 11 kV
- (iii) The power system study will identify any voltage violations that may occur as a result of the renewable energy installation's interconnection and propose mitigation measures to manage the voltage violations. The cost of mitigation measures to be carried out within the eligible producer's ownership boundary will be borne by the eligible producer.

(b) Thermal ratings limits

- (i) Thermal ratings of any network components must not be exceeded under normal or contingency conditions. Those limits are as follows:
 - (A) Transformers: As specified by the distribution licensee or manufacturer name plate rating
 - (B) Switchgears: As specified by the distribution licensee or manufacturer name plate rating
 - (C) Overhead lines: Rating as specified by the distribution licensee

- (D) Underground Cables: Rating in accordance with the IEC 60502-02 standards
 - (E) Overhead Cables: Rating in accordance with the IEC 60502-02 standards or as specified by the distribution licensee
- (ii) If the thermal rating of any equipment is exceeded, the feed-in approval holder shall pay for the cost of upgrading the equipment.
- (c) Fault Level Ratings Limits
- (i) For safety reasons, the fault rating of any equipment must not be less than the fault level in the electricity distribution network at any time and for any normal network configuration. For system planning study purposes, the fault level calculated shall not exceed 90% of the fault level rating of the existing equipment installed in the network.
 - (ii) The maximum fault levels permitted for electricity distribution networks are currently as follows:
 - (A) 11 kV - 20 kA
 - (B) 22 kV - 20 kA
 - (C) 33 kV - 25 kA
 - (iii) If the power system study shows that the fault level prior to interconnection of the renewable energy installation has exceeded 90% of these limits, the distribution licensee shall take necessary steps to reduce the fault level at its own expense.
- (d) Frequency Limits
- Under normal conditions, the transmission and distribution network frequency shall be maintained at 50 Hz \pm 1%.
- (e) Dynamic Voltage Fluctuations Limit
- For PV installations, the maximum voltage fluctuation at the point of connection should not exceed \pm 3 %.

4.2.9 Miscellaneous

- (a) If a distribution licensee is unable to carry out the power system study on its own, it may employ reputable consulting engineers to carry out the power system study on its behalf.
- (b) If, following the completion of a power system study, the eligible producer is unsuccessful in obtaining a feed-in approval (eg. due to insufficient quota for the period applied for), there will not be any refund for the power system study costs incurred. However, the same power system study may be used for a subsequent feed-in approval application for connection at the same connection point provided that

such application is made no later than 1 year after the date of the Distribution Licensee's approval of the power system study

4.4 Acceptance tests

4.4.1 Acceptance test requirements

Acceptance tests must be carried out in respect of all renewable energy installations in accordance with prudent utility practices and must meet the following requirements (whichever applicable):

Biogas and Biomass

The requirements as set forth in the applicable Procedure.

Small hydropower

An acceptance test must be carried out in respect of a renewable energy installation utilising small hydropower technology as its renewable resource according to the IEC 62006 (Hydraulic machines - Acceptance tests of small hydroelectric installations) standards.

PV Installations

An acceptance test must be carried out in accordance with the procedure for testing and commissioning of grid-connected photovoltaic systems in Malaysia as shall be issued by the Authority and made available at the Authority's website at www.seda.gov.my.

4.4.2 Acceptance test certification and report

- (a) Subparagraph 15(1)(a)(i) of the T&O Rules requires the submission by the feed-in approval holder to the distribution licensee and the Authority of 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. The certificate must also:
- (i) encompass the requirements (whichever applicable) set out in 4.4.1 above;
 - (ii) be accompanied by a report containing the system design of the renewable energy installation, its designed generation and the performance of the system;
 - (iii) be accompanied by a report or written confirmation by the distribution licensee that the revenue meter has been installed; and
 - (iv) if the feed-in approval holder has been granted bonus feed-in tariffs, contain the relevant written confirmation(s) by the qualified person required as the documents to be submitted prior to the feed-in tariff commencement date under the First Schedule to the Feed-in Rules.

- (b) In the case of a PV installation, the acceptance test report must also be supported by photographs of the installation if the feed-in approval holder has been granted bonus feed-in tariffs for use as installation in buildings and/or use as building material.

4.5 Licences

For the purposes of subsubparagraph 7(d) of the Third Schedule of the T&O Rules, the feed-in approval holder shall apply for a permanent licence from the Energy Commission no later than three 3 months before the scheduled initial operation date.

4.6 Reliability runs

4.6.1 Reliability run requirements

Reliability runs must be carried out in respect of all renewable energy installations having an installed capacity of more than 1 MW and connected to a connection point through a medium or high voltage direct connection in accordance with prudent utility practices and must meet the following requirements (whichever applicable):

Biogas and Biomass

The requirements as set forth in the applicable Procedure.

Small hydropower

A reliability run must be carried out in respect of a renewable energy installation utilising small hydropower technology as its renewable resource over 7 continuous days where the installation experiences no more than 3 forced outages.

PV Installations

A reliability run must be carried out in accordance with the procedure for testing and commissioning of grid-connected photovoltaic systems in Malaysia as shall be issued by the Authority and made available at the Authority's website at www.seda.gov.my.

4.6.2 Reliability run certification and report

Subsubparagraph 8(a) of Third Schedule to the T&O Rules requires the submission by the feed-in approval holder to the distribution licensee and the Authority of a certificate from a qualified person stating that the renewable energy installation has successfully completed a reliability run. The certificate must encompass the requirements (whichever applicable) set out in 4.6.1 above, and be accompanied by a report specifying the generation capacity achieved, and the occasions and period during which it was achieved.

4.7 Report on feed-in tariff commencement date

No later than 14 days after the feed-in tariff commencement date, a feed-in approval holder shall submit a report on the occurrence of the feed-in tariff commencement date to the Authority specifying the date and time of its feed-in tariff commencement date.

Annexure 3.7.1: Form of novation of renewable energy power purchase agreement

This Novation Agreement made and entered on _____¹ between:.

1. _____²
(hereinafter referred to as the “**Transferor**”);
 2. _____³
(hereinafter referred to as the “**Transferee**”); and
 3. _____⁴
(hereinafter referred to as the “**Distribution Licensee**”),
- collectively referred to as the “**Parties**”.

Whereas:

- A. The Transferor has been granted a feed-in approval dated _____⁵ bearing number _____⁶ (hereinafter referred to as the “**Feed-In Approval**”) by the Sustainable Energy Development Authority Malaysia (hereinafter referred to as the “**Authority**”) pursuant to the Renewable Energy Act 2011 (hereinafter referred to as the “**Act**”).
- B. Following the grant of the Feed-in Approval, the Transferor and Distribution Licensee entered into a renewable energy power purchase agreement dated _____⁷ and registered pursuant to the Act (hereinafter referred to as the “**REPPA**”) in respect of the purchase by the Distribution Licensee of renewable energy generated by the Transferor’s renewable energy installation utilising solar photovoltaic technology (hereinafter referred to as the “**Renewable Energy Installation**”).
- C. Clause 12.1(c) of the REPPA provides that in the event the Transferor sells the building to which the Renewable Energy Installation relates, the Transferor and Distribution Licensee will enter into a novation agreement to effect the novation of the REPPA to the new owner of the Renewable Energy Installation, being the Transferee.

¹ Insert date of agreement.

² Insert name and address of the existing feed-in approval holder.

³ Insert name and address of the proposed transferee of the feed-in approval.

⁴ Insert name and address of the relevant distribution licensee.

⁵ Insert date of applicable feed-in approval.

⁶ Insert reference number of applicable feed-in approval.

⁷ Insert date of applicable renewable energy power purchase agreement.

In consideration of the mutual agreements and undertakings set out below, it is hereby agreed:

1. Condition Precedent

- 1.1 This Novation Agreement is conditional upon the Transferor procuring the approval of the Authority in respect of both the transfer of the Renewable Energy Installation and the transfer or assignment of the Feed-In Approval to the Transferee (hereinafter referred to as the “**Condition Precedent**”) within 30 calendar days from the date of this Novation Agreement (hereinafter referred to as the “**Conditional Period**”).
- 1.2 This Novation Agreement shall become unconditional on the date (hereinafter referred to as the “**Effective Date**”) the Condition Precedent is fulfilled within the Conditional Period. The Transferor shall submit a copy of the Authority’s approval referred to in clause 1.1 to both the Distribution Licensee and Transferee as soon as possible and in any event within 7 calendar days after the Transferor’s receipt thereof.
- 1.3 In the event the Condition Precedent is not fulfilled within the Conditional Period, this Novation Agreement shall automatically lapse and be null and void and of no further force or effect.
2. The Parties agree that with effect from the Effective Date, all rights, titles, interests, benefits, obligations and liabilities of the Transferor under or in connection with the REPPA shall be assigned and transferred to, and vested in, the Transferee.
3. The Transferee undertakes to the Distribution Licensee and Transferor that with effect from the Effective Date it will be bound by the terms and conditions of the REPPA and will assume and discharge all the liabilities and perform all the obligations of the Transferor thereunder in every way as if the Transferee was the original party thereto.
4. The Distribution Licensee agrees to release and discharge the Transferor of claims and/or demands under or in connection with the REPPA arising after the Effective Date and accepts the sole obligations and liabilities of the Transferee under the REPPA in lieu of that of the Transferor from the Effective Date, and the Distribution Licensee further agrees to be bound by the terms of the REPPA in every way as if the Transferee was the original party in place of the Transferor.
5. Each of the Parties hereby severally agrees, covenants and undertakes with each other to execute and do all such deeds, issuances, acts and things as may be required, necessary or expedient so that the full effect may be given to the terms and conditions of this Novation Agreement.
7. The Transferee shall be responsible for the payment of any and all stamp duty payable on or in respect of this Novation Agreement.
8. This Novation Agreement shall be governed by and construed in accordance with the laws of Malaysia.
9. This Novation Agreement shall be binding upon the respective successor-in-title and permitted assigns of the Parties.

Executed as an Agreement the day and year first stated above.

SIGNED for and on behalf of)	
The Transferor)	
in the presence of:)	
)	
)	
_____ 8		_____ 9

SIGNED for and on behalf of)	
The Transferee)	
in the presence of:)	
)	
)	
_____ 10		_____ 11

SIGNED for and on behalf of)	
The Distribution Licensee)	
in the presence of:)	
)	
)	
_____ 12		_____ 13

- 8 Insert name, NRIC number and designation of witness for signatory/signatories for the existing feed-in approval holder.
- 9 Insert name(s), NRIC number(s) and designation(s) of signatory/signatories for the existing feed-in approval holder.
- 10 Insert name, NRIC number and designation of witness for signatory/signatories for the proposed transferee of the feed-in approval.
- 11 Insert name(s), NRIC number(s) and designation(s) of signatory/signatories for the proposed transferee of the feed-in approval.
- 12 Insert name, NRIC number and designation of witness for signatory/signatories for the distribution licensee.
- 13 Insert name(s), NRIC number(s) and designation(s) of signatory/signatories for the distribution licensee.

Annexure 4.1.2: Form of connection confirmation report

Applicant: _____¹⁴

Renewable resource: Solar photovoltaic/Small Hydropower/Biomass/Biogas¹⁵

Rated kWp or net export capacity of renewable energy installation: _____ kW/kWp¹⁶

Location of renewable energy installation: _____¹⁷

A. Technical possibility of proposed connection

Is the proposed connection to the electricity distribution network technically possible?¹⁸

Yes	The proposed connection is shown in the single line diagram below
No	The reason(s) are given in Section B below

Single line diagram showing the proposed connection:¹⁹

¹⁴ Insert the name of the eligible producer applying for the connection confirmation check.

¹⁵ Circle the applicable renewable resource to be utilized by the renewable energy installation.

¹⁶ Insert the rated kWp or net export capacity (as the case may be) of the proposed renewable energy installation.

¹⁷ Insert the location of the proposed renewable energy installation.

¹⁸ Circle either "Yes" or "No".

¹⁹ If "Yes" has been underlined or circled in Section A, insert the single line diagram showing the proposed connection of the renewable energy installation to the connection point.

B. Connection not technically possible

The reason(s) why the proposed connection is not technically possible is/are as follows:²⁰

C. Applicant’s responsibility for network modification

Is any modification necessary to the distribution licensee’s existing electricity distribution network required to facilitate the acceptance of renewable energy generated by the proposed renewable energy installation in accordance with prudent utility practices? ²¹

Yes	The required modification is described below
No	No modification is required

Description of modification:²²

Estimated cost of modification: RM _____ ²³

Signature of authorized representative of the distribution licensee: _____

Name and designation: _____ ²⁴

Date: _____ ²⁵

²⁰ If “No” has been underlined or circled in Section A, insert the reason(s) why the proposed connection is not technically possible.

²¹ Circle either “Yes” or “No”.

²² If “Yes” has been underlined or circled in Section C, insert the description of the modification (including the single line diagram).

²³ If “Yes” has been underlined or circled in Section C, insert the estimated cost of the modification.

²⁴ Insert the name and designation of the distribution licensee’s authorized representative.

²⁵ Insert the date of the connection confirmation check report.