

# Guide

For Cross-Border Electricity  
Power Sales

# **GUIDE FOR CROSS-BORDER ELECTRICITY POWER SALES**

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## **1. OBJECTIVES**

- 1.1. This Guide is developed by the Commission for the following objectives:
- (a) to provide a basic framework for cross-border electricity power sales between Peninsular Malaysia and a neighbouring country;
  - (b) to set out the conditions and requirements for cross-border electricity power sales between a PPD in Peninsular Malaysia and a Purchaser in a neighbouring country;
  - (c) to set out roles, functions and responsibilities of relevant parties; and
  - (d) to facilitate the cross-border electricity power sales.

## **2. SCOPE**

- 2.1. This Guide shall apply to:
- (a) the PPD participating in the scheme;
  - (b) the TNB;
  - (c) the SB; and
  - (d) the GSO.
- 2.2. This Guide is not intended in any way to circumvent the application of and obligations or requirements under any other written law or standards. Each PPD is expected to accept full responsibility for conducting an independent analysis of the feasibility of its proposal and for gathering and presenting all necessary information.

### 3. DEFINITIONS AND INTERPRETATION

3.1. In this Guide, the following terms shall bear the following meanings:

<b>“Act”</b>	means the Electricity Supply Act 1990 [Act 447], as amended, modified or supplemented from time to time;
<b>“ASEAN”</b>	means the Association of Southeast Asian Nations;
<b>“Billing Period”</b>	means such term as defined in the System Access Agreement;
<b>“CBES Scheme”</b>	means cross-border electricity power sales between a PPD in Malaysia and a Purchaser in the neighbouring country up to the Delivery Point;
<b>“Commission”</b>	means Suruhanjaya Tenaga;
<b>“Dedicated Interconnection”</b>	means a new physical interconnection to transfer electricity between Malaysia and any neighbouring country, and which shall be subject to the approval of the Commission;
<b>“Delivery Point”</b>	means such term as defined in the Supply Agreement, save for the Existing Interconnection where the Delivery Point shall be at PMU Plentong;

<b>“EGAT”</b>	means the Electricity Generating Authority of Thailand, and includes its successors or assigns;
<b>“Electricity Industry Fund”</b>	means the Electricity Industry Fund established under section 44C (1) of the Act;
<b>“Energy Laws”</b>	means the Act and all subsidiary legislations made thereunder, as amended, modified or supplemented from time to time;
<b>“Existing Interconnection”</b>	means the existing physical interconnection to transfer electricity between Malaysia and Singapore;
<b>“Government”</b>	means the Government of Malaysia;
<b>“Grid Code for Peninsular Malaysia”</b>	means such document as published by the Commission and as may be amended from time to time;
<b>“Grid System”</b>	means the system consisting (wholly or mainly) of high voltage electric lines (132kV and above) owned or operated by TNB and used for the transmission of electricity from one power station to a sub-station or to another power station or between substations or to or from any external interconnection, and includes any plant and apparatus and meters owned or operated by TNB in connection with the transmission of electricity;

<b>“GSO”</b>	means System Operator, and is any person or a unit, department or division forming part of a licensee who is authorized by the Minister under section 22A of the Act;
<b>“M1”</b>	means Meter 1, and is the energy meter installed at the site of the PPD to measure and record the energy sent out to the Grid System;
<b>“M2”</b>	means Meter 2, and is the energy meter installed by TNB at the Delivery Point to measure and record energy sent out to SPPG through the Existing Interconnection;
<b>“neighbouring country”</b>	means Thailand and Singapore;
<b>“Purchaser”</b>	means a person in a neighbouring country who has signed a Supply Agreement with the PPD to purchase electricity generated by the PPD;
<b>“PPD”</b>	means Power Plant Developer, and is a person who owns a power plant connected to the Grid System and has a Supply Agreement with a Purchaser in the neighbouring country;
<b>“Public Generation Licence”</b>	means a generation licence issued by the Commission under Section 9 of the Act for the purpose of generating electricity and supply to or for the use of any other person;
<b>“Receiving Point”</b>	means such terms as defined in the agreement between a PPD and a Purchaser;

<b>“SB”</b>	means Single Buyer, and is any person or a unit, department or division forming part of a licensee who is authorized by the Minister under section 22B of the Act;
<b>“Scheduled Energy”</b>	means the quantum of energy to be sent out by the PPD to the Grid System in each half hourly tranche in a daily dispatch schedule submitted by the PPD to the GSO and SB and in accordance with the export capacity as per schedule issued by the Purchaser to the PPD;
<b>“SPPG”</b>	means SP Power Grid Ltd. of Singapore, and includes its successors or assigns;
<b>“Supply Agreement”</b>	means an agreement between a PPD in Peninsular Malaysia and a Purchaser in any neighbouring country for the sale and purchase of electricity;
<b>“System Access Agreement”</b>	means an agreement entered between the PPD and TNB which consist of technical and commercial arrangement for connection, access and operation to the Grid System and the cross-border interconnection and for wheeling of electricity generated as submitted to the Commission.
<b>“TNB”</b>	means Tenaga Nasional Berhad, a limited liability company with the address at No. 129, Jalan Bangsar, 59200 Kuala Lumpur, Malaysia (Company Registration No. 200866-W); and



**“wheeling charges”** means such charges as specified in the System Access Agreement, subject to the approval of the Commission, and “wheeling” shall be construed accordingly.

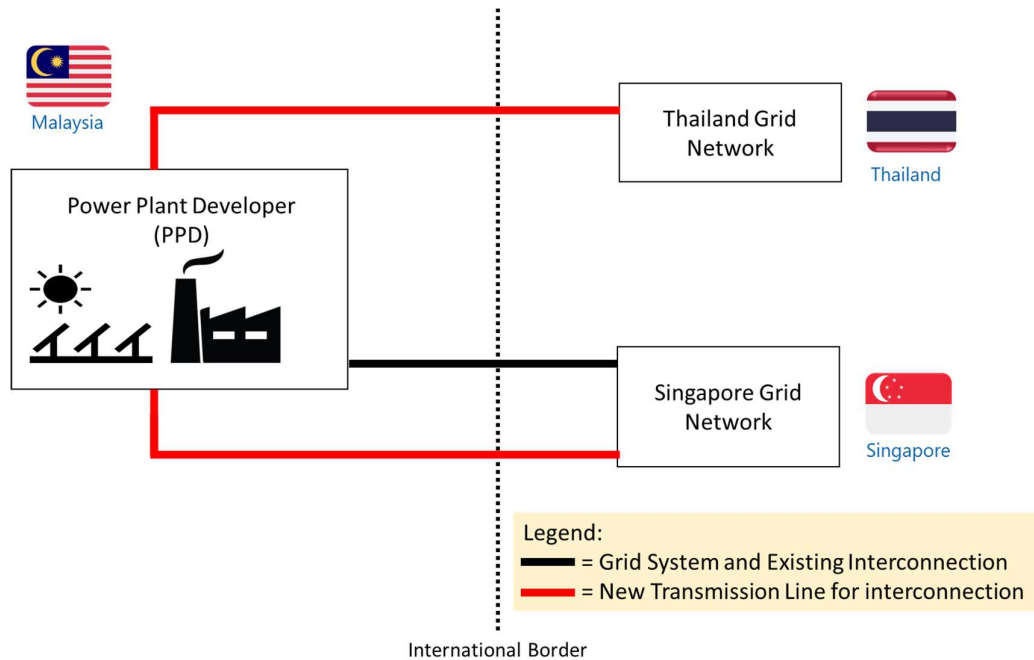
- 3.2. Subject to paragraph 3.1 and unless expressly indicated to the contrary or unless the context otherwise requires, terms adopted and used in this Guide shall bear the same meaning as they are defined in the Energy Laws.
- 3.3. If there are any conflict between the provisions of this Guide and of those contained in the Energy Laws, the provisions in the Energy Laws shall prevail.

#### **4. INTRODUCTION**

- 4.1. Malaysia's electricity supply system has been integrated with neighbouring countries' supply systems since the 1980s to meet the security, stability and reliability requirements of both countries, in line with the aspiration of the Government under the ASEAN auspices. This includes interconnection between the TNB grid to the SPPG grid and the TNB grid to the EGAT grid which is based on energy exchange and energy transfer between the two countries' utilities and does not involve third parties.
- 4.2. In March 2020, the Government has approved the CBES Scheme. Under this CBES Scheme, electricity that is generated by a PPD can only be sold to Singapore or Thailand and shall not be assigned for local consumption.

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- 4.3. The CBES Scheme of electricity power sales from Malaysia to the neighbouring countries is illustrated in **Figure 1**:



**Figure 1: CBES Scheme**

## 5. TERMS AND CONDITIONS FOR PARTICIPATION

- 5.1. The Existing Interconnection may be used subject to the total sale capacity not exceeding 100 MW for Singapore.
- 5.2. For other than the Existing Interconnection, the PPD is required to develop and build a Dedicated Interconnection.
- 5.3. The electricity generated under this CBES Scheme shall only be used for sale to the neighbouring country. In the event that the Supply Agreement expires earlier than the lifetime of any assets built or used to participate in the CBES Scheme, there is no obligation for the SB to procure the energy produced by the PPD.

- 5.4. PPD with generating facility using natural gas or coal for generation, shall procure its fuel supply from the open market. The fuel supply condition is not subjected to the sources and prices regulated or subsidized by the government used for generating facilities for local consumers.
- 5.5. The PPD must comply with the provisions of the Act, any codes or guidelines issued by the Commission, the terms and conditions of licences determined by the Commission, any relevant Malaysian laws (land, environment, etc.) and this guide.
- 5.6. The issuance of a licence by the Commission shall not in any way attach any liability to the Government or the Commission with regards to the viability of any projects developed by the PPD. No claims should be instituted against the Government nor the Commission on any expenses, losses and whatsoever incurred by the PPD in participating in the CBES Scheme.
- 5.7. The PPD shall bear all taxes, duties, contribution to the Electricity Industry Fund as required under the Act, other charges, levies etc. which may be imposed under the Act and any other laws.
- 5.8. The PPD with intermittent energy sources such as solar energy shall install energy storage system or by any other means to ensure firm energy supply in accordance to the Supply Agreement.

## **6. LICENSING REQUIREMENT**

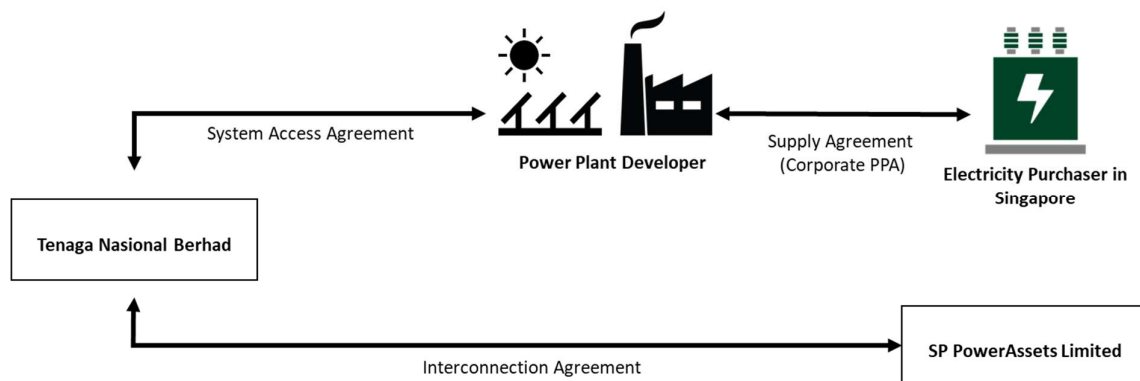
- 6.1. The PPD shall apply for a licence for the operation of the power plant in accordance with the Act. As a condition precedent for applying a licence from the Commission, the PPD must submit to the Commission the following documents:
  - (a) a letter of approval issued to a Purchaser by relevant authority of a neighbouring country;

- (b) a validly executed Supply Agreement
- (c) a validly executed System Access Agreement; and
- (d) any documents as may be required by the Commission to process the PPD's licence application.

6.2. In applying for a licence, the PPD may refer to the Guidelines on Licensing Under Section 9 of The Act [Electricity Supply Act 1990 (Act 447)] available on the Commission's website ([www.st.gov.my](http://www.st.gov.my)).

## 7. CROSS-BORDER ELECTRICITY POWER SALES WITH EXISTING INTERCONNECTION FOR SINGAPORE

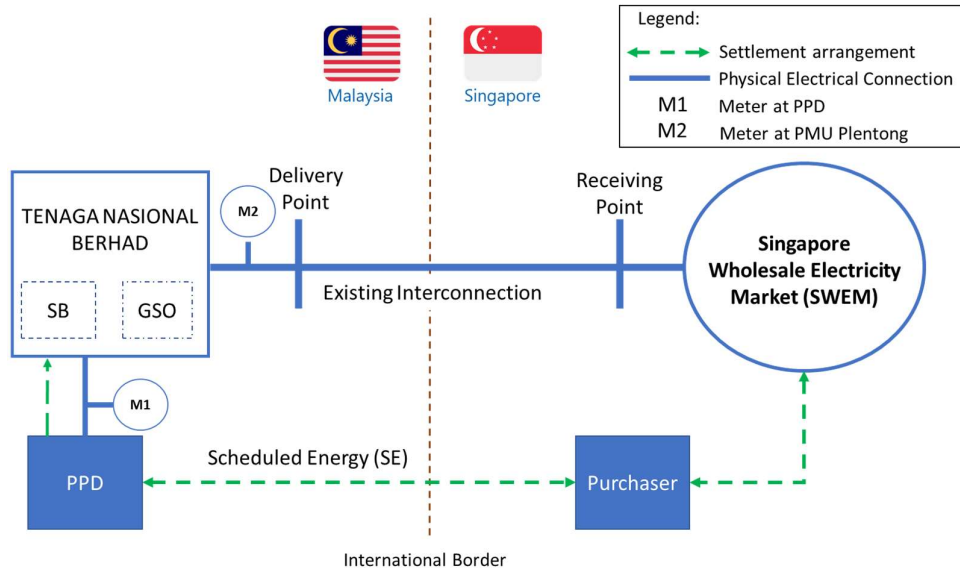
7.1. The contractual arrangement of electricity power sales from Malaysia to Singapore using the Existing Interconnection is illustrated in **Figure 2**:



**Figure 2: Contractual Arrangement for CBES Scheme to Singapore Using Existing Interconnection**

## 7.2. Energy Accounting and Settlement Process

- (a) The electricity sale is based on the following arrangement in **Figure 3**:



**Figure 3: Electricity Power Sales Using Existing Interconnection**

- (b) All meters and metering equipment used for measuring the electricity power sales shall comply with specifications and requirements in the Grid Code for Peninsular Malaysia and System Access Agreement.
- (c) The PPD shall generate and deliver the Scheduled Energy to the Grid System in accordance with the dispatch schedule approved by the SB.
- (d) The GSO will not cover the shortfall between the quantum of energy generated and delivered to the Grid System by the PPD and the Scheduled Energy. GSO is with no obligation to make up the short fall from any other sources except as provided for under the System Access Agreement.
- (e) GSO shall dispatch the Scheduled Energy generated by the PPD in accordance with the dispatch schedule under contingency conditions as provided for in the Grid Code for Peninsular Malaysia.

- (f) The export capacity and the Scheduled Energy delivered to the Grid System shall be firm as per dispatch schedule.
- (g) The billing process and the billing period for the wheeling charges shall be in accordance with the System Access Agreement.
- (h) The SB shall be responsible for billing and collecting from the PPD the wheeling charges.
- (i) The energy accounting and settlement procedures for the PPD shall generally be as per the procedures mentioned below:
  - (i) TNB shall read meter M1 located at the site of the PPD and maintain record of energy delivered from the PPD at M1 to the Grid System;
  - (ii) TNB shall read meter M2 and maintain record of energy delivered from the Grid System to SPPG through the Existing Interconnection;
  - (iii) TNB shall maintain record of energy sent out to the Purchaser through the Existing Interconnection;
  - (iv) Any differences between energy delivered from the Grid System at M2 and energy scheduled to a Purchaser shall be accounted as inadvertent flow and the settlement of such differences shall be in accordance with the Supply Agreement;
  - (v) Any differences between the Scheduled Energy and the energy sent out by the PPD to the Grid System as recorded by the energy meter M1 shall be accounted for as follows:

- (aa) if there is a shortfall between the quantum of Scheduled Energy and the energy sent out to the Grid System by the PPD in any half hourly tranches of the dispatch schedule, the PPD shall pay the charges for the shortfall of energy for that particular half hourly tranche to TNB based on the System Access Agreement; and
  - (ab) if there is an excess of energy sent out to the Grid System, no payment will be made by TNB to the PPD;
- (vi) For each billing period, in accordance with the System Access Agreement, TNB shall produce:
  - (aa) quantum of energy delivered from the PPD at M1 to the Grid System;
  - (ab) wheeling charges applicable based on the Scheduled Energy for payment by the PPD for the delivery of energy to a Purchaser; and
  - (ac) shortfall energy charges applicable for payment by the PPD to TNB due to the shortfall of energy delivered at M1 against the schedule of a Purchaser.
- (j) TNB may provide relevant readings of meters upon request by the PPD or the Purchaser.
- (k) The billing and settlement of sales of energy between the PPD and a Purchaser shall be in accordance with the Supply Agreement.

### 7.3. Technical and Commercial Requirements

- (a) the PPD shall comply with the technical requirements as provided in the Grid Code for Peninsular Malaysia and the relevant TNB guides for connection in relation to the CBES Scheme.
- (b) the PPD and TNB are required to sign a System Access Agreement for the connection of power plant and the wheeling of electricity to a Purchaser.
- (c) the PPD and a Purchaser are required to enter into a Supply Agreement for the sale and purchase of the electricity.

### 7.4. Scheduling and Dispatch

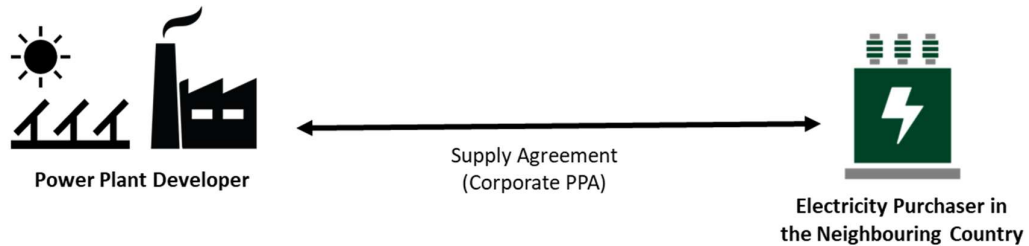
- (a) The scheduling and dispatch shall be in accordance with the prevailing Guidelines for Single Buyer Market (Peninsular Malaysia). The PPD shall submit the Three Months Ahead Dispatch Schedule, the Week Ahead Dispatch Schedule and the Day Ahead Dispatch Schedule in accordance with the Guidelines for Single Buyer Market (Peninsular Malaysia).
- (b) The GSO will confirm system availability to dispatch power based on prevailing scheduling and dispatching methodology in the Grid Code for Peninsular Malaysia and the Guidelines for Single Buyer Market (Peninsular Malaysia).

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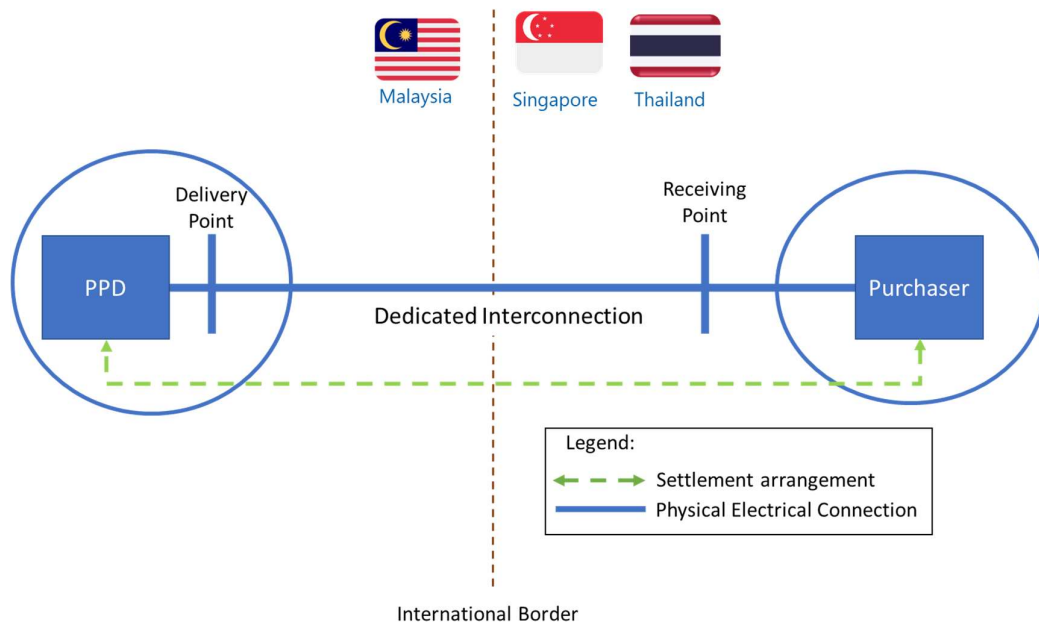
## 8. CROSS-BORDER ELECTRICITY POWER SALES WITH DEDICATED INTERCONNECTION

- 8.1. The commercial arrangement of electricity power sales from Malaysia to the neighbouring country using the Dedicated Interconnection is illustrated in **Figure 4**:



**Figure 4: Commercial Arrangement for CBES Scheme with Dedicated Interconnection**

- 8.2. The CBES Scheme with a Dedicated Interconnection is subject to the approval of the Commission, relevant local authorities and the neighbouring country.
- 8.3. The CBES Scheme with a Dedicated Interconnection is illustrated in **Figure 5**:



**Figure 5: Electricity Power Sales Using Dedicated Interconnection**

- 8.4. The PPD is required to secure, whether by acquiring or leasing, the land for the Dedicated Interconnection.
- 8.5. The PPD and a Purchaser are required to enter into a Supply Agreement for the sale and purchase of the electricity.
- 8.6. The billing and settlement of sales of energy between the PPD and a Purchaser shall be in accordance with the Supply Agreement.
- 8.7. The PPD shall apply for all licences as required under the Act.

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