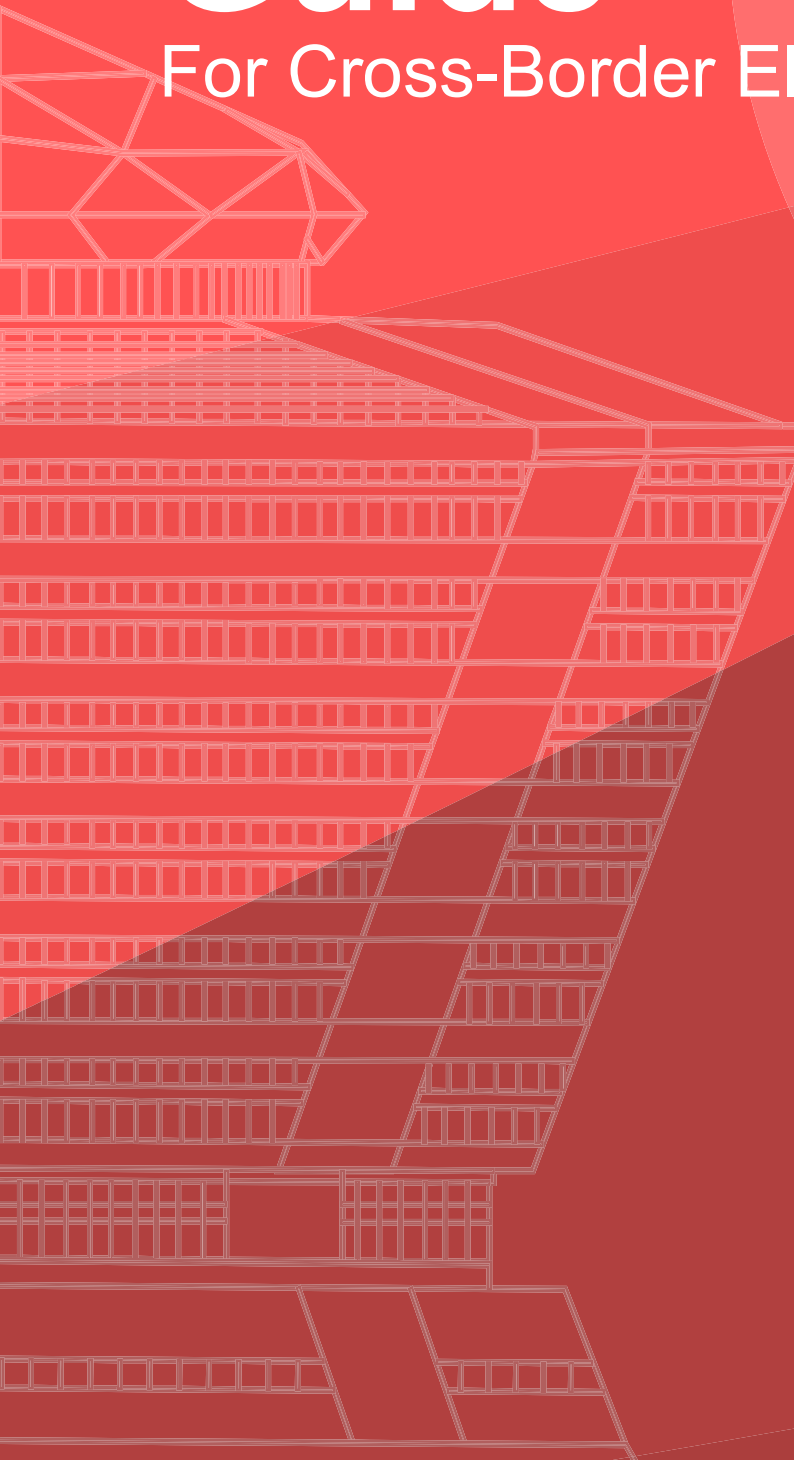


Guide

For Cross-Border Electricity Sales



GUIDE FOR CROSS-BORDER ELECTRICITY SALES

Third Edition (Revised April 2024)

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1. OBJECTIVES

1.1. This Guide is developed by the Commission for the following objectives:

- (a) to facilitate the Government and serve as a guide for the cross-border electricity sales between Peninsular Malaysia and the Neighbouring Country;
- (b) to set out the terms, conditions and requirements for the cross-border electricity sales from Peninsular Malaysia to the Neighbouring Country;
- (c) to specify the energy exchange mechanism for the cross-border electricity sales from Peninsular Malaysia to the Neighbouring Country;
and
- (d) to set out roles, functions and responsibilities of relevant parties.

2. SCOPE

2.1. This Guide shall apply to the participants under Clause 3.1 who are involved in the implementation and operation of the cross-border electricity sales to the Neighbouring Country.

2.2. This Guide is not intended in any way to circumvent the application of, obligations or requirements under any other written law or any regulatory frameworks, and industrial standards.

2.3. This Guide contained two (2) chapters which a summary of each of the chapter as below:

- (a) Chapter 1
Chapter 1 provides for the mechanism of the CBES Scheme of electricity sales from Peninsular Malaysia to the Neighbouring Country.
- (b) Chapter 2
Chapter 2 provides for the mechanism of the CBES RE Scheme of electricity sales from Peninsular Malaysia to the Neighbouring Country.

2.4. In relation to an auction process for the cross-border electricity sales, each participant shall be fully responsible for its decisions taken in relation to preparation and submission of the application to auction, whether or not it was done in reliance on any information supplied by the Commission, the Single Buyer, or any other parties or any of their personnel or representatives.

3. PARTICIPANTS

- 3.1. The categories of participant in the cross-border electricity sales should include, but not limited to:
- (a) PPD;
 - (b) RE PPD;
 - (c) RE Bidder;
 - (d) RE Purchaser;
 - (e) Single Buyer;
 - (f) Grid Owner; and
 - (g) GSO.
- 3.2. Any person who wishes to participate the cross-border electricity sales shall have the full responsibility for conducting an independent analysis of the feasibility of its proposal and for gathering and presenting all necessary information.

3.3. Any person who wishes to participate in the cross-border electricity sales shall refer to the relevant laws, procedures and documents issued by the relevant authorities for further information (if required).

4. INTERPRETATION

4.1. In this Guide, unless the context otherwise requires:

- (a) the terms used shall have the meaning assigned to it under the Act and the subsidiary legislations made under it; and
- (b) the singular includes the plural, and the plural includes the singular.

4.2. In these Guide, unless the context otherwise requires:

“Act” means the Electricity Supply Act 1990 [Act 447];

“ASEAN” means the Association of Southeast Asian Nations;

“Billing Period” has the meaning assigned to it under System Access Agreement and the RE Supply Agreement;

“CBES RE Scheme” means the cross-border electricity sales of renewable energy to the Neighbouring Country, implemented through a renewable energy exchange mechanism between Single Buyer and RE participant;

“CBES Scheme”	means the cross-border electricity sales of non-renewable energy between a PPD in Peninsular Malaysia and a Purchaser in the Neighbouring Country up to the Delivery Point;
“Codes”	means any code developed and issued by the Commission under section 50A of the Act;
“Commission”	has the meaning assigned to it under the Act;
“Dedicated Interconnection”	means the new physical interconnection to be built for transfer of electricity between the PPD and Purchaser. Such interconnection shall be subject to the approval of the Commission;
“Delivery Point”	has the meaning assigned to it under the Supply Agreement and RE Supply Agreement;
“EGAT”	means the Electricity Generating Authority of Thailand, and includes its successors or assigns;
“Electricity Industry Fund”	means the Electricity Industry Fund established under section 44C of the Act;
“Electricity Supply Laws”	has the meaning assigned to it under the Energy Commission Act 2001 [Act 610]
“Emergency Condition”	means the situation that either meets the criteria set out in the Grid Code or, according to the GSO judgment based on the Grid Code or standard utility practices, poses a direct threat to life or property, jeopardises the safety,

integrity, stability, or security of the Grid System, could significantly disrupt the Grid System, or could negatively impact the delivery of safe, reliable electricity to consumers, including interconnected utilities;

“Exchange”	means a platform for sales of Green Electricity to the Neighbouring Country.
“Existing Interconnection”	means the existing physical interconnection to transfer electricity between Peninsular Malaysia and Neighbouring Country;
“Fund”	means a fund set up by the Government to facilitate energy transition for electricity sector;
“Government”	means the Government of Malaysia;
“Green Electricity”	means the electricity sold from the approved renewable energy sources, delivered physically and bundled with associated RECs;
“Green Electricity Tariff or GET”	means a Green Electricity Tariff programme whereby all eligible consumers will have an option to purchase Green Electricity together with RECs from the Grid Owner;
“Grid Code”	means the Grid Code for Peninsular Malaysia;
“Grid Owner”	means Tenaga Nasional Berhad;

“Grid System”	means the system consisting (wholly or mainly) of high voltage electric lines (132kV and above) owned by the Grid Owner and operated by GSO 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 by the Grid Owner and operated by GSO in connection with the transmission of electricity;
“GSO”	means the System Operator under section 22A of the Act;
“Guide”	means this Guide;
“Guidelines”	means the Guidelines for Single Buyer Market (Peninsular Malaysia);
“Guidelines on Licensing”	means the guidelines issued by the Commission pursuant to Section 9 of the Act, cited as Guidelines on Licensing Under Section 9 of The Act [Electricity Supply Act 1990 (Act 447)] 2016, which is available on the Commission’s website (www.st.gov.my);
“Interconnection Agreement”	means the agreement executed between the owner of the Grid System and the owner of the Neighbouring Country’s grid system for interconnection between Peninsular Malaysia and Neighbouring Country;

“M1”	means the Meter 1, being the energy meter installed at the site of the PPD or RE PPD to measure and record the energy delivered to the Grid System;
“M2”	means the Meter 2, being the energy meter installed by the Grid Owner at the Delivery Point to measure and record the energy delivered to SPPA through the Existing Interconnection;
Ministry	means the relevant ministry in charge of energy;
“Neighbouring Country”	means Singapore or Thailand;
“Public Generation Licence”	means the generation licence issued by the Commission under section 9 of the Act;
“PPD”	means the Power Plant Developer, being the person who owns a power plant and has a Supply Agreement with a Purchaser in the Neighbouring Country;
“Purchaser”	means the person in a Neighbouring Country who has signed a Supply Agreement with the PPD to purchase electricity generated by the PPD;
“RE Bidder”	means interested buyer and seller who is registered as RE participant in the Exchange;

“RE PPD”	means the RE Power Plant Developer, being the person who owns a renewable energy power plant participating in the CBES RE Scheme;
“RE Purchaser”	means the person in the Neighbouring Country who has signed a RE Supply Agreement with Single Buyer to purchase Green Electricity from the Exchange;
“RE Supply Agreement”	means the agreement between the Single Buyer and the RE Purchaser in any Neighbouring Country for sale and purchase of Green Electricity from the Exchange.
“RECs”	means the renewable energy certificates;
“Receiving Point”	has the meaning assigned to it under the agreement between a PPD and a Purchaser;
“Scheduled Energy”	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 Single Buyer and in accordance with the export capacity as per schedule issued by the Purchaser to the PPD;
“Settlement Bank Guarantee”	has the meaning assigned to it under the RE Supply Agreement;
“Single Buyer”	means the Single Buyer under section 22B of the Act and authorised by the Government to operate the Exchange;

“SPPA”	means SP Power Assets Limited of Singapore, and includes its successors or assigns; and
“Supply Agreement”	means the agreement between a PPD in Peninsular Malaysia and a Purchaser in any Neighbouring Country for the sale and purchase of electricity;
“System Access Agreement”	means the agreement entered between the PPD and Grid Owner 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; and
“Wheeling Charges”	means such charges as specified in the System Access Agreement, subject to the approval of the Commission.

- 4.3. If there are any conflict between the provisions of this Guide and of those contained in the Act and the subsidiary legislations made under it, the provisions in the Act and the subsidiary legislations made under it shall prevail.

5. INTRODUCTION

- 5.1. 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 Grid System and the Neighbouring Countries’ grid system which

is based on electricity exchange and electricity transfer between the two countries' utilities and does not involve third parties.

- 5.2. In March 2020, the Government has approved the CBES Scheme. Under the CBES Scheme, electricity that is generated by a power plant developer can only be sold to a Neighbouring Country and shall not be assigned for local consumption. Subsequently in October 2021, the Government has updated the policy on cross-border electricity sales on the terms and conditions specified in this Guide.
- 5.3. In October 2023, the Government has approved the CBES RE Scheme to be implemented.

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CHAPTER 1

CBES SCHEME

6. CBES SCHEME

6.1 The CBES Scheme is illustrated in **Figure 1**:

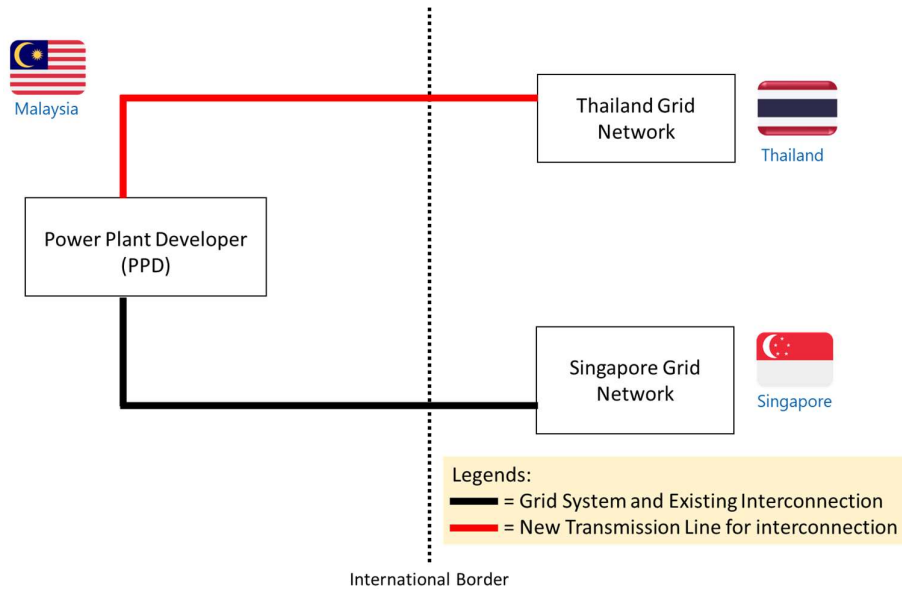


Figure 1: CBES Scheme

7. TERMS AND CONDITIONS FOR PARTICIPATION

7.1 For the sales of electricity from Malaysia to Singapore under CBES Scheme, the electricity shall be generated from the non-renewable energy sources. The transfer of electricity shall not exceed 100MW and through the Existing Interconnection only. No dedicated interconnection is allowed for such purpose.

7.2 For the sales of electricity from Malaysia to Thailand, PPD is required to develop and build a Dedicated Interconnection for the transfer of electricity between the PPD and the Purchaser. The Existing Interconnection is not allowed to be used for such purpose.

7.3 The electricity generated under the 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 Single Buyer to procure the electricity delivered by the PPD.

- 7.4 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 subject to the sources and prices regulated or subsidised by the Government used for generating facilities for local consumers.
- 7.5 The PPD must comply with the provisions of the Act and the subsidiary legislations made under it, the terms and conditions of licences granted under the Act, any relevant Malaysian laws (land, environment, etc.) and this Guide.
- 7.6 The issuance of a licence under the Act shall not in any way attach any liability to the Government or the Commission with regards to the viability of any project developed by the PPD. No claim 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.
- 7.7 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.
- 7.8 For the sales of electricity through Dedicated Interconnection, the power plant and the interconnection facility shall not be connected to the Grid System. No system support from the Grid System is allowed.

8. LICENSING REQUIREMENT

- 8.1 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 if applicable; and
- (d) any document as may be required by the Commission to process the PPD's licence application.

8.2 In applying for a licence, the PPD may refer to the Guidelines on Licensing.

9. CROSS-BORDER ELECTRICITY SALES WITH EXISTING INTERCONNECTION FOR SINGAPORE

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

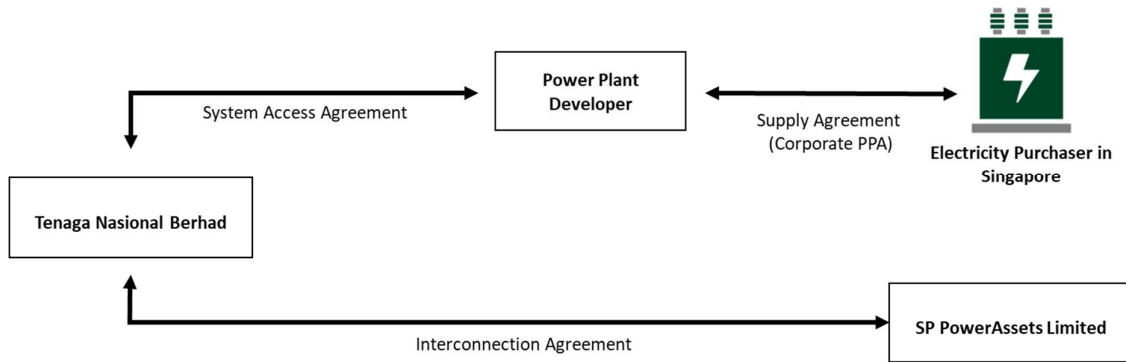


Figure 2: Contractual Arrangement for CBES Scheme to Singapore Using Existing Interconnection

9.2 Energy Accounting and Settlement Process

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

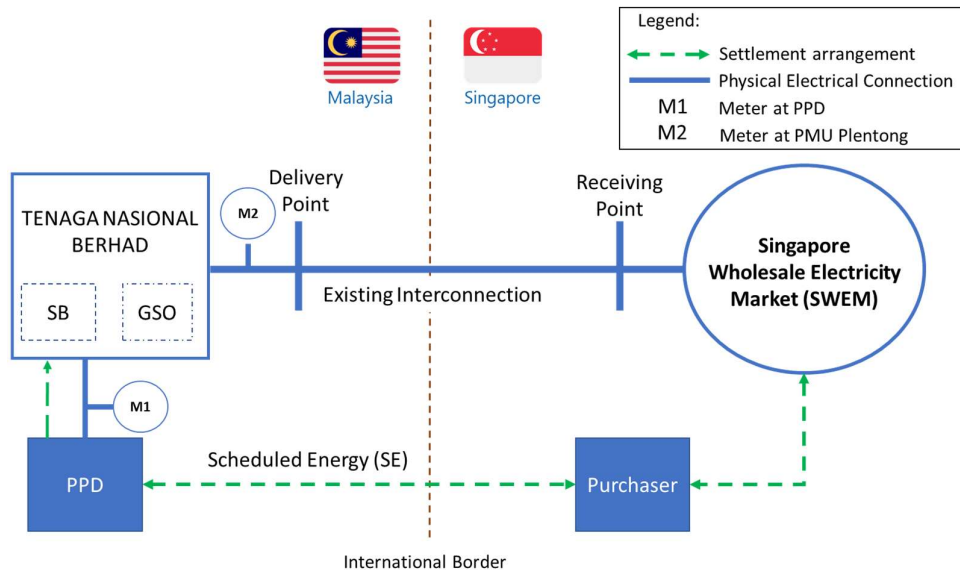


Figure 3: Electricity Sales Using Existing Interconnection

- (b) All meters and metering equipment used for measuring the electricity sales shall comply with the specifications and requirements under the Grid Code 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 Single Buyer.
- (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. The GSO is not obligated to make up the short fall from any other sources except as provided for under the System Access Agreement.
- (e) The GSO shall dispatch the Scheduled Energy generated by the PPD in accordance with the dispatch schedule taking into consideration of any contingency conditions as provided for in the Grid Code.
- (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 Single Buyer shall be responsible for billing and collecting the Wheeling Charges from the PPD.
- (i) The energy accounting and settlement procedures for the PPD shall generally be as per the procedures mentioned below:
 - (i) The Grid Owner shall read M1 located at the site of the PPD and maintain the record of energy delivered by the PPD at M1 to the Grid System;
 - (ii) The Grid Owner shall read M2 and maintain the record of energy delivered from the Grid System to SPPA through the Existing Interconnection. The summation of M2 will include renewable energy under CBES RE Scheme and other energy transferred to SPPA and will be itemised;
 - (iii) The Grid Owner shall maintain the record of energy sent out to the Purchaser through the Existing Interconnection;
 - (iv) Any differences between the 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 delivered by the PPD to the Grid System as recorded by M1 shall be accounted for as follows:

- (aa) if there is a shortfall between the quantum of Scheduled Energy and the energy delivered 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 the Grid Owner based on the System Access Agreement; and
 - (ab) if there is an excess of energy delivered to the Grid System, no payment will be made by the Grid Owner to the PPD;
- (vi) For each Billing Period, in accordance with the System Access Agreement, the Grid Owner shall produce:
 - (aa) quantum of energy delivered by 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 the Grid Owner due to the shortfall of energy delivered at M1 against the schedule of a Purchaser.
- (j) The Grid Owner 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.

9.3 Technical and Commercial Requirements

- (a) the PPD shall comply with the technical requirements as provided in the Grid Code and the relevant guides by the Grid Owner for connection in relation to the CBES Scheme.
- (b) the PPD and the Grid Owner 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.

9.4 Scheduling and Dispatch

- (a) The scheduling and dispatch shall be in accordance with the Guidelines. The PPD shall submit the dispatch schedule for three months ahead, week ahead and the day ahead to Single Buyer.
- (b) The GSO will confirm system availability to dispatch power based on prevailing scheduling and dispatching methodology in the Grid Code and the Guidelines.
- (c) The GSO shall only perform its duties under this Guide if the system permits and shall not be obligated to dispatch power in the event of an Emergency Condition within the Grid System.

10. CROSS-BORDER ELECTRICITY SALES WITH DEDICATED INTERCONNECTION FOR THAILAND

10.1 The commercial arrangement of electricity sales from Malaysia to Thailand using the Dedicated Interconnection is illustrated in **Figure 4**:

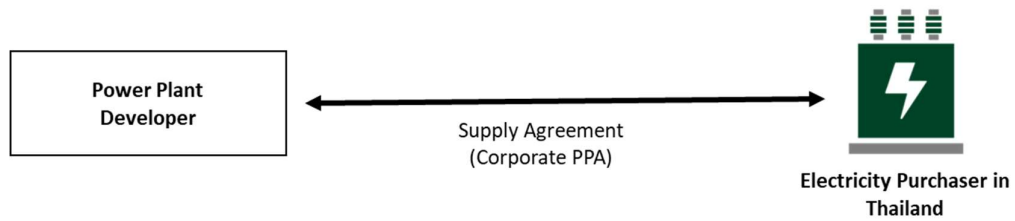


Figure 4: Commercial Arrangement for CBES Scheme with Dedicated Interconnection

10.2 The CBES Scheme with a Dedicated Interconnection is subject to the approval of the Commission, relevant local authorities and authorities in Thailand.

10.3 The CBES Scheme with a Dedicated Interconnection is illustrated in **Figure 5**:

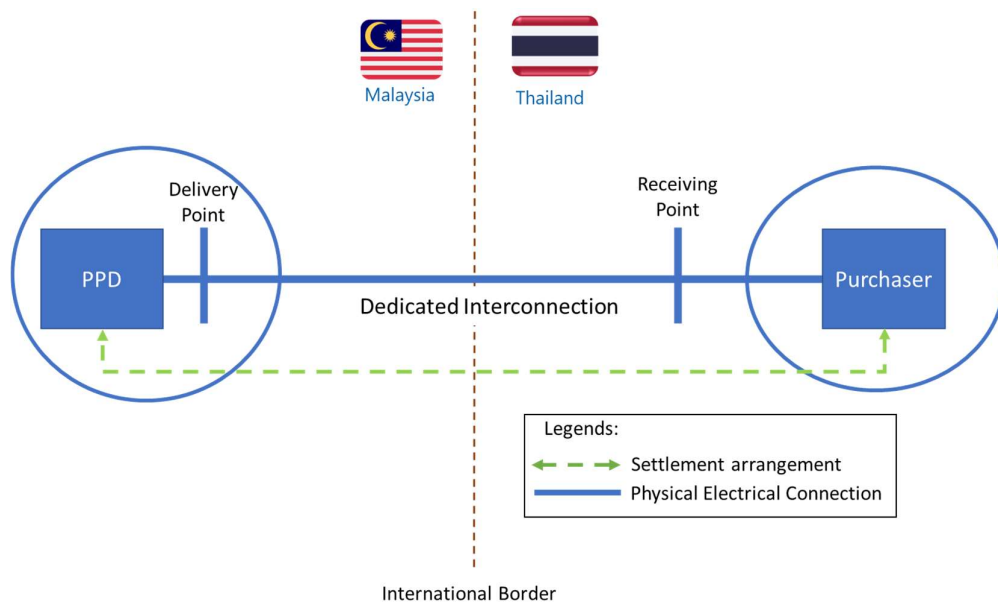


Figure 5: Electricity Sales Using Dedicated Interconnection

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

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CHAPTER 2

CBES RE SCHEME

11. CBES RE SCHEME

11.1 The CBES RE Scheme is summarised in **Figure 6**.

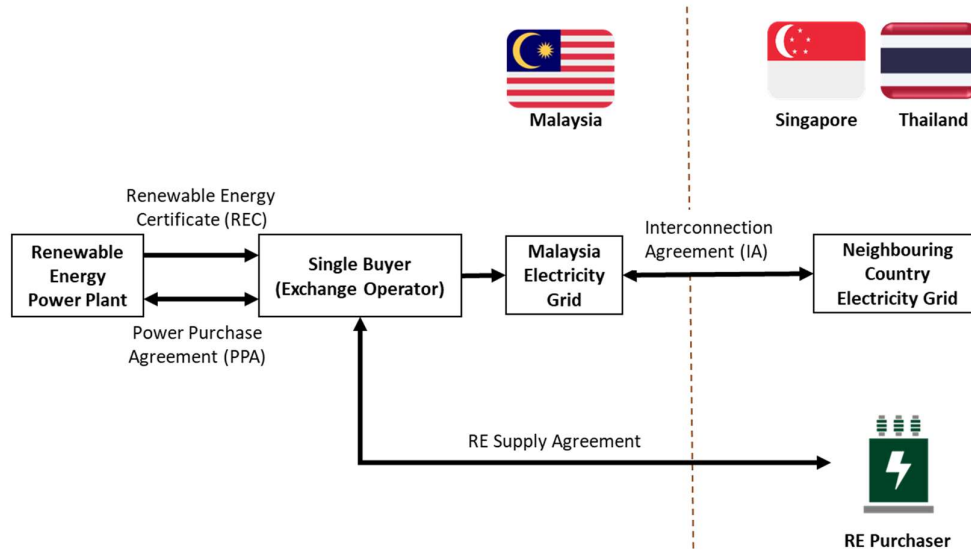


Figure 6: CBES RE Scheme

11.2 The CBES RE Scheme, the Exchange, the Single Buyer and the operator of the Exchange shall be subject to the regulatory supervision of the Energy Commission pursuant to the Electricity Supply Laws and shall ensure that the trading of electricity including the price of RE which is traded cross-border is based on the principles of fairness, equity, inclusiveness and competitiveness, subject to national interest and system security.

11.3 CBES RE Scheme shall be carried out through the Exchange. This platform is operated by the Single Buyer, who will also serve as the verifier of green attributes and the issuer of RECs associated with cross-border electricity trading.

11.4 The Single Buyer is responsible for all operations and initiatives related to CBES RE Scheme, which includes but are not limited to the procurement and sales of renewable energy, implement auction process, scheduling, settlement, and issuance and redemption of RECs related to the CBES RE Scheme.

- 11.5 CBES RE Scheme will utilise the existing interconnection between Peninsular Malaysia and Neighbouring Country up to 300MW for Singapore and subject to availability for Thailand. The Green Electricity sold under the CBES RE Scheme will be fulfilled through physical delivery of the committed volume of MWh and associated RECs.
- 11.6 The Green Electricity sold will be sourced from solar and hydro plants or any other renewable sources approved by the Commission.
- 11.7 Green attributes of the renewable energy sold through Exchange will be redeemed by the RE Purchaser's final consumer. Redemption of RECs will be done in accordance with the RE Supply Agreement.
- 11.8 Scheduling of the Green Electricity under the CBES RE Scheme will be implemented by the Single Buyer as determined by each auction exercise.
- 11.9 Balancing of surplus and shortfall of energy during operation for CBES RE Scheme with Neighbouring Country will be carried out by the GSO in accordance with the Interconnection Agreement.
- 11.10 In the event the GSO is excused from its duties pursuant to Clause 13.2(c), settlement and delivery of RECs will be adjusted accordingly in accordance with the RE Supply Agreement.
- 11.11 The Single Buyer and the RE Purchaser are required to enter into the RE Supply Agreement for the sale and purchase of the Green Electricity.
- 11.12 The net proceeds from the CBES RE Scheme will be contributed to the Fund.
- 11.13 The implementation of CBES RE Scheme shall be implemented in accordance with the relevant requirements and provisions of the Act and the subsidiary legislations made under it, the terms and conditions of licences granted under the Act and any other relevant Malaysian laws (land, environment, etc.).

12. TERMS AND CONDITIONS FOR PARTICIPATION

- 12.1 The interested RE Bidder shall be registered to the Exchange.
- 12.2 The RE Bidder shall adhere to registration and auction process, including but not limited, to furnish a commitment bond, as determined by the Single Buyer in the invitation to bid documents.
- 12.3 The RE Purchaser shall bear all taxes, duties, contribution to the Fund, other charges, levies etc. which may be imposed under the Act, other laws and charges imposed by the Single Buyer as provided in the RE Supply Agreement.

13. TECHNICAL, COMMERCIAL, OPERATIONAL AND SETTLEMENT REQUIREMENTS

13.1 Technical and Commercial Requirements

- (a) The Green Electricity supplied by the Single Buyer to the RE Purchaser shall be as specified in the RE Supply Agreements.
- (b) The charges in the supply of the Green Electricity shall include but not limited to the energy price, RECs, grid services, transaction fees and contribution to the Fund.

13.2 Scheduling and Dispatch

- (a) The scheduling and dispatch shall be in accordance with the Guidelines and RE Supply Agreement.
- (b) The GSO will confirm system availability to dispatch power based on scheduling and dispatching methodology in the Grid Code and the Guidelines.

- (c) The GSO shall only perform its duties under this Guide if the system permits and shall not be obligated to dispatch power in the event of an Emergency Condition within the Grid System.

13.3 Settlement Process

- (a) All meters and metering equipment used for measuring the electricity sales shall comply with the specifications and requirements in the Grid Code.
- (b) The RE Purchaser shall provide Single Buyer with a Settlement Bank Guarantee prior to the execution of RE Supply Agreement.
- (c) The Single Buyer shall be responsible for billing and collecting all charges from the RE Purchaser as provided in Clause 12.3.
- (d) The RE Purchaser shall pay the billed amount as specified in paragraph (c) to the Single Buyer, in accordance with the RE Supply Agreement.
- (e) The energy accounting and settlement procedures shall generally be as per the procedures mentioned below:
 - (i) The Grid Owner shall read M1 located at the site of the RE PPD and maintain record of Green Electricity delivered from the RE PPD at M1 to the Grid System;
 - (ii) The Single Buyer shall read M2 and maintain record of Green Electricity delivered from the Grid System to SPPA through the Existing Interconnection. The summation of M2 will include renewable energy under CBES RE Scheme and other energy transferred to SPPA and will be itemised;
 - (iii) The Single Buyer shall maintain record of energy sent out to the RE Purchaser through the Existing Interconnection;

- (f) The Single Buyer may provide the relevant meter readings to the RE Purchaser upon request by the RE Purchaser.
- (g) The billing and settlement for sales of Green Electricity between the Single Buyer and a RE Purchaser shall be in accordance with the RE Supply Agreement.

14. ESTABLISHMENT OF AN EXCHANGE COMMITTEE

- 14.1 The Ministry shall establish and appoint the members of the Exchange Committee. The Exchange Committee shall consist of representatives from the Ministry, Commission, Single Buyer, GSO and other parties as may be required by the Exchange Committee.
- 14.2 The Exchange Committee shall have a right to deliberate and resolve matters including necessary endorsement and/or approval for the purpose of RE Exchange auction exercise and dispute and/or non-compliance in relation to the implementation of the CBES RE Scheme.
- 14.3 Any decision made by the Exchange Committee shall be considered final and conclusive.

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