

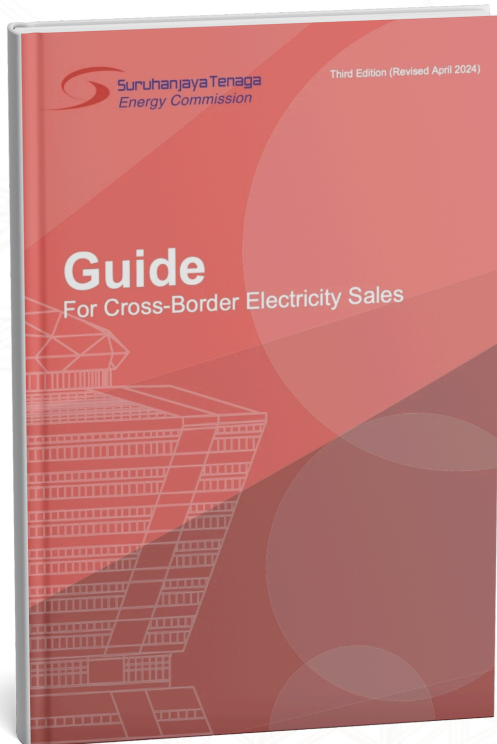


Policy Insight

# Malaysia: Guide For Cross-Border Electricity Sales (CBES)

Corporate Access to Green Electricity





## Background

The Guide for Cross-Border Electricity Sales (CBES) provides a comprehensive framework/guide developed by the Energy Commission of Malaysia (“**Energy Commission**”) to facilitate renewable energy exchange from Peninsular Malaysia to neighboring countries, specifically Singapore and Thailand (“**CBES RE Scheme**”). The guide has undergone several revisions since its initial release on 31 December 2020 with the latest version issued on 15 April 2024.

## Objectives

Facilitate a framework for cross-border electricity sales between Peninsular Malaysia and neighboring countries, specifically Singapore and Thailand.

Set out conditions and requirements for cross-border electricity sales between Power Plant Developers (PPDs) in Peninsular Malaysia and Purchasers in neighboring countries

## Scope

The guide applies to all participants in cross-border electricity sales activities operations, intending no evasion of legal or regulatory requirements. It comprises two chapters (Chapter 1: CBES, Chapter 2: CBES RE), emphasising participants' full responsibility for auction decisions independent of external information.

The CBES Guide applies to:

1. Power Plant Developers (PPDs)
2. Tenaga Nasional Berhad (TNB)
3. The Single Buyer (SB) The Grid
4. System Operator (GSO)



## Evolution of the Cross-Border Electricity Sales (CBES) Guide: A Journey Towards Regional Energy Integration

Malaysia has made a major move towards advancing cross-border renewable energy (RE) trade with the introduction of the Energy Exchange Malaysia (ENEGEM), following updates to the Guide for Cross-Border Electricity Sales (CBES Guide). The CBES Guide has evolved through multiple editions since its inception, showcasing Malaysia's progressive approach to cross-border electricity trading. Below is an overview of the CBES Guide's evolution from its first edition to the most recent:

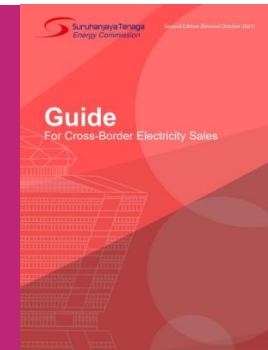
**31 December 2020**

The **Energy Commission (EC) of Malaysia** issued the first edition of the CBES Guide, establishing the foundational framework to facilitate electricity sales between Peninsular Malaysia and its neighbors.

\*The original document may no longer be publicly available, as it has been updated with newer versions.

**25 October 2021**

The CBES Guide was revised, imposing prohibition of export of RE to Singapore. The Second (Revised) Edition of CBES Guide is available on Suruhanjaya Tenaga's website [here](#).



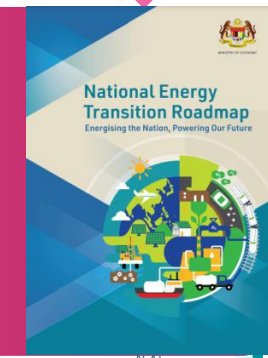
**15 April 2024**

EC announced the third edition of the CBES Guide, which addressing mechanism of cross-border RE sales from the Peninsular to Singapore or Thailand as CBES RE Scheme. The Third Edition of CBES Guide is available on Suruhanjaya Tenaga's website [here](#).



**July - August 2023**

The **National Energy Transition Roadmap (NETR)** issued by Ministry of Economy to hold up the establishment of an RE exchange hub to enable cross-border RE trading under the Malaysia government energy transition initiative. The NETR is available on Ministry of Economy website [here](#).



# Chapter 1 – CBES Scheme

The CBES Scheme envisages cross-border electricity power sales via two (2) types of interconnections, The first type of interconnection under the CBES Scheme uses existing physical interconnection to transfer electricity between Malaysia and Singapore but the **total sale capacity shall be no more than 100MW**, and this is termed the **Existing Interconnection**. The second type of interconnection under the CBES Scheme is where new physical interconnection has to be developed and built by the PPD for the transfer of electricity between Malaysia and any neighbouring country, and this is termed the **Dedicated Interconnection**. The CBES Scheme is illustrated in diagram below:

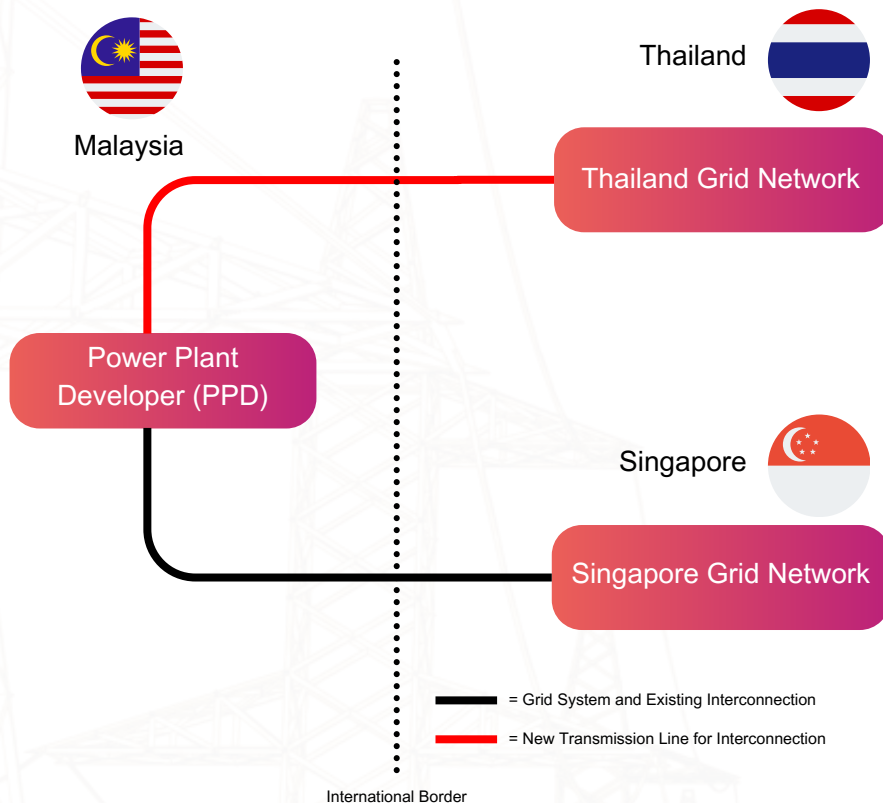
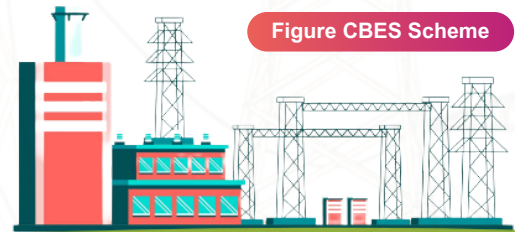


Figure CBES Scheme



## Identify specific requirements for participation in the CBES Scheme

A company intending to act as a PPD under the CBES Scheme is required to apply for a licence for the operation of the power plant in accordance with the Electricity Supply Act 1990 thus the EC's Guidelines on Licensing under Section 9 of The Electricity Supply Act 1990 continues to be relevant.

## Terms and Condition

**Electricity Source and Use :** Non-renewable energy sources must be used to generate electricity sold under CBES (Singapore and Thailand) and can only be sold to neighboring countries (Singapore or Thailand).

## Transfer Limits

Singapore: **Maximum transfer of 100 MW** through existing interconnection only (No dedicated interconnection allowed).

Thailand: **Requires building a separate dedicated Interconnection for electricity transfer** (Existing interconnection cannot be used).

## Licensing Requirement

- The participant of CBES shall submit the following documents :
- Validly executed supply agreement
  - Validly executed System Access Agreement if applicable
  - Other documents required by the Commission

## What are the main differences between the CBES RE Scheme and the CBES Scheme?

The CBES Guide underscored two (2) distinct schemes for electricity export from Malaysia to neighboring countries:

### CBES RE Scheme

CBES RE Scheme facilitate the cross-border electricity sales of renewable energy to Singapore and Thailand under specific conditions:



Singapore

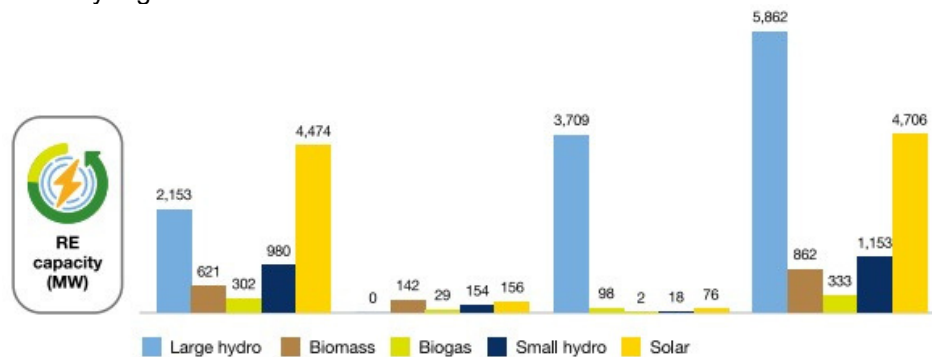


Thailand

The CBES RE scheme allows 300MW capacity to Singapore via existing interconnections, with ENEGEM platform managing auctions and REC issuance for end-consumer green attributes.

Thailand's CBES RE requires new transmission infrastructure for renewable trading, with REC mechanisms and purchase agreements following Thailand standards.

Deals exclusively with renewable energy sources, primarily solar and hydro plants, aligning with Malaysia's "twin peaks" demand profiles as approved by the Energy Commission. The breakdown of RE capacity in 2025 by region is illustrated below.



Source: [Malaysia Renewable energy Roadmap by SEDA Malaysia](#)

### CBES Scheme

The CBES Scheme allows for the sale of non-renewable electricity to neighboring countries under specific conditions:



Singapore

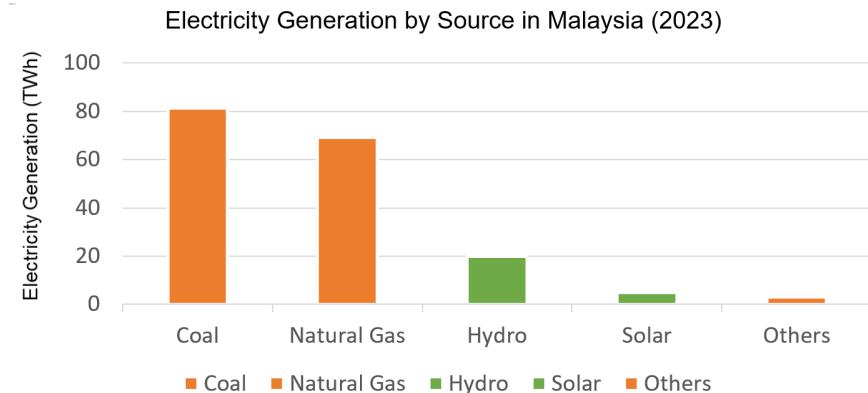


Thailand

The sales of electricity from Malaysia to Singapore shall be generated from the non-renewable energy sources, with transfers limited to 100MW through existing interconnections only.

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.

Focuses on non-renewable energy sources, such as natural gas or coal-fired power plants. Based on the electricity generation data shown in the bar chart for Malaysia in 2023, here's a breakdown of the energy sources:

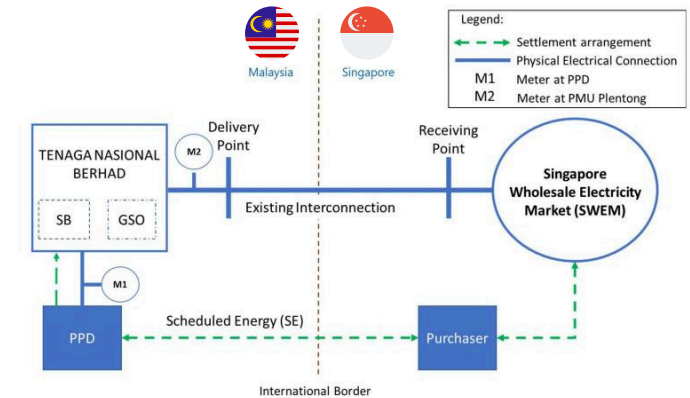
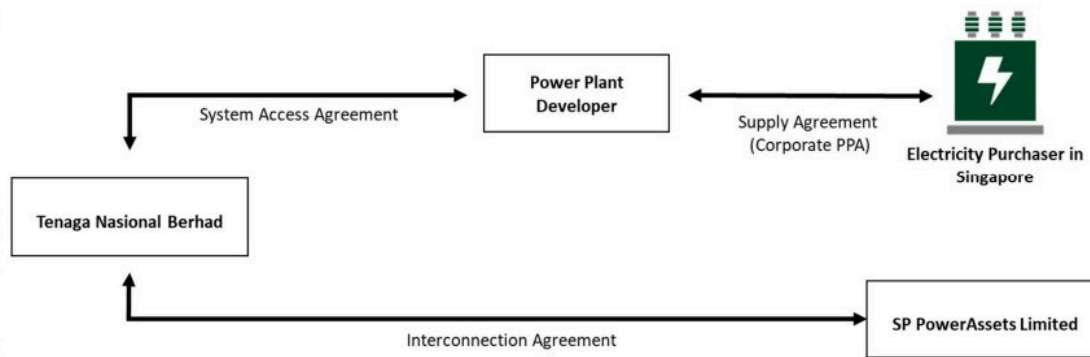


Source: [twobirds](#)



## CBES – Existing Interconnection from Malaysia to Singapore

The CBES Scheme represents Malaysia's structured approach to electricity exports to Singapore, focusing specifically on non-renewable energy sources through existing infrastructure with a 100MW capacity limit, while maintaining strict technical and operational parameters. The contractual arrangement of electricity sales from Peninsular Malaysia to Singapore using the Existing Interconnection is depicted in the diagram below:



### Energy Accounting and Settlement Process

Metering	Delivery	Billing	Accounting
Meters must comply with Grid Code and Agreement specifications.	PPD delivers electricity to the grid based on the Single Buyer's dispatch schedule. The Single Buyer is not responsible for shortfalls.	The Single Buyer bills the PPD for wheeling charges based on the System Access Agreement.	<ul style="list-style-type: none"> <li>Grid Owner records energy delivered by PPD (M1) and to the purchaser (through M2).</li> <li>Inadvertent flow (difference between M2 and scheduled delivery) is settled per the Supply Agreement.</li> <li>Shortfalls (difference between scheduled and delivered at M1) are charged to PPD.</li> </ul>

### Technical and Commercial Requirements

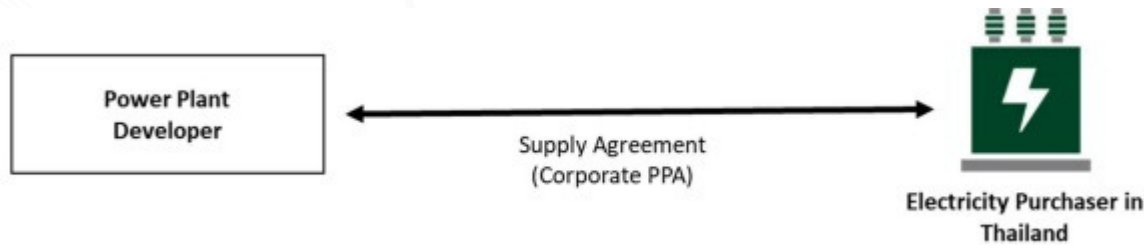
PPD must comply with Grid Code technical requirements, sign a System Access Agreement with the Grid Owner, and enter into a Supply Agreement with the electricity purchaser.

### Scheduling and Dispatch

- The PPD shall submit the dispatch schedule for three months ahead, week ahead and the day ahead to Single Buyer.
- The GSO will confirm system availability to dispatch power and 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.

## CBES – Dedicated Interconnection from Malaysia to Thailand

CBES scheme with a Dedicated Interconnection is subject to the approval of the Commission, relevant local authorities and authorities in Thailand. The commercial arrangement of electricity sales from Malaysia to Thailand using the Dedicated Interconnection is illustrated in the diagram below.



Commercial Arrangement for CBES Scheme with Dedicated Interconnection

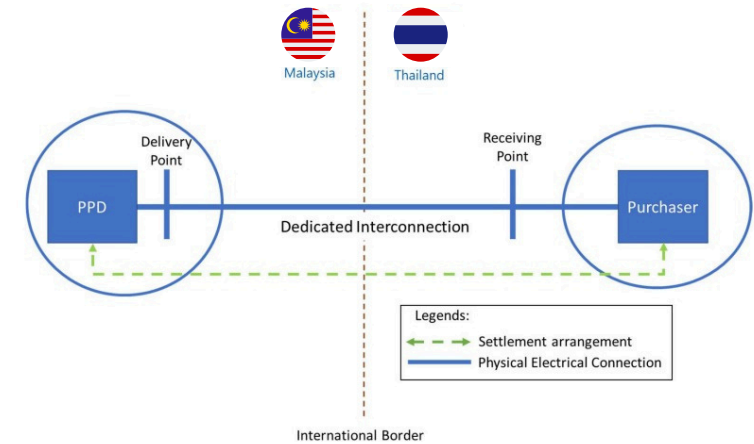


Figure Electricity Sales Using Dedicated Interconnection

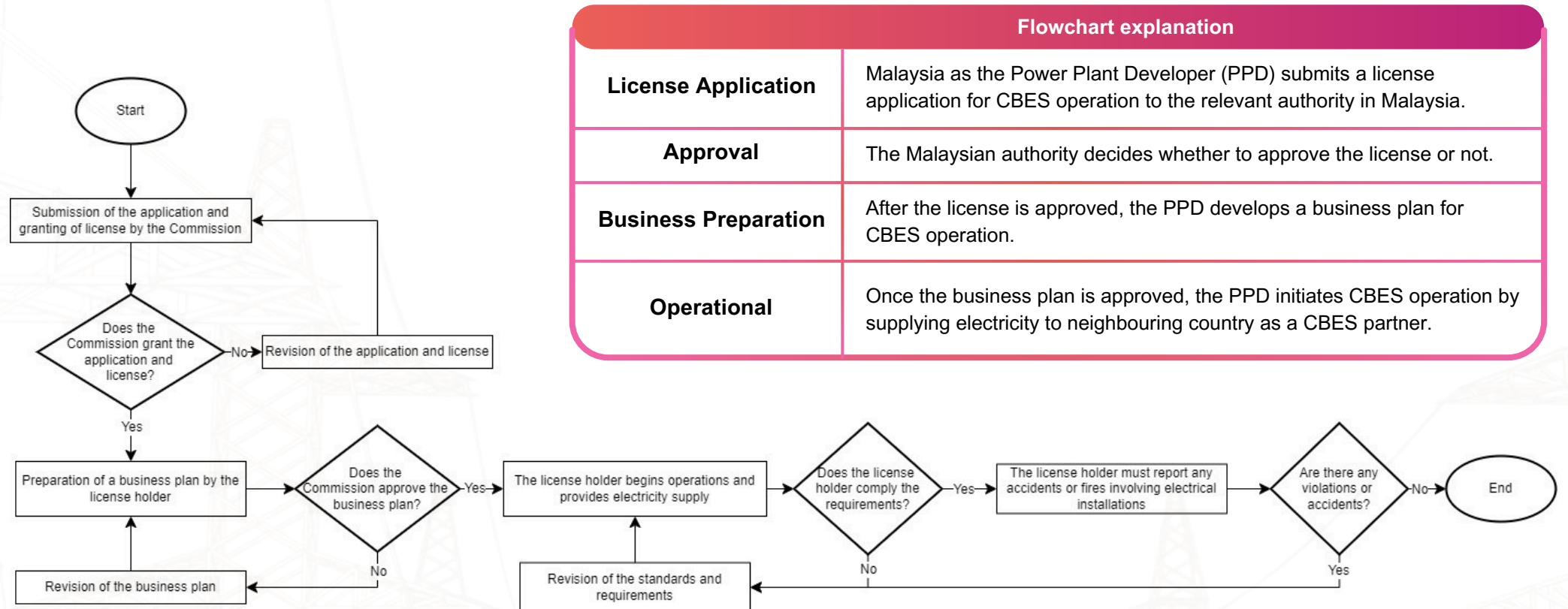
### Key Findings CBES Scheme with a Dedicated Interconnection

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



## Flowchart Process CBES Scheme based from the Electricity Supply Act 1990 [Act 447]

**Act 477** Regulates electricity provision in Malaysia, covering generation, distribution, and usage, as well as roles of various parties like power generators, buyers, and relevant authorities. Act 447 is utilised for CBES Scheme due to its comprehensive regulation of electricity, including transactions from non-renewable power plants in Malaysia to neighboring countries.



Flowchart explanation	
<b>License Application</b>	Malaysia as the Power Plant Developer (PPD) submits a license application for CBES operation to the relevant authority in Malaysia.
<b>Approval</b>	The Malaysian authority decides whether to approve the license or not.
<b>Business Preparation</b>	After the license is approved, the PPD develops a business plan for CBES operation.
<b>Operational</b>	Once the business plan is approved, the PPD initiates CBES operation by supplying electricity to neighbouring country as a CBES partner.

Source, Energy Commission, 2024



# Chapter 2 – CBES RE Scheme

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

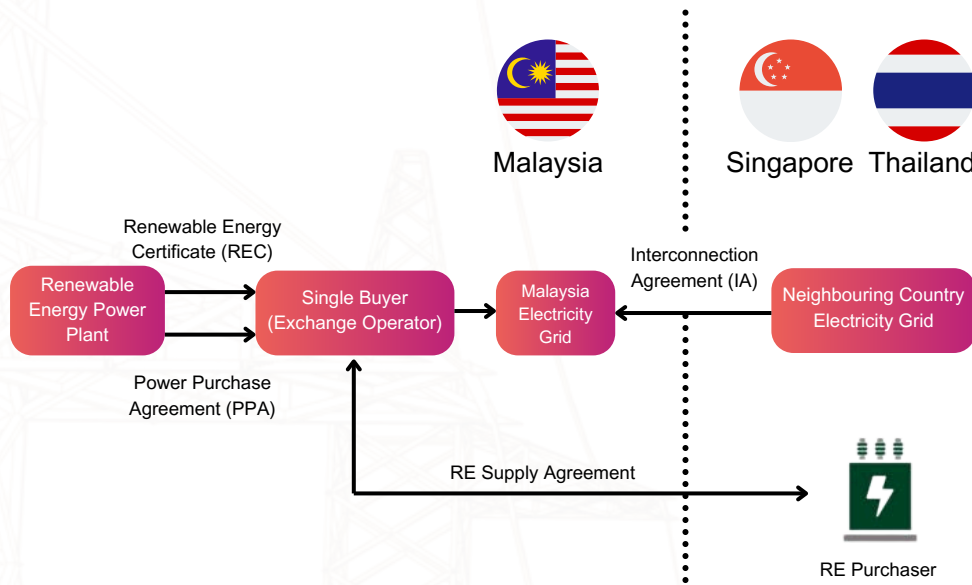


Figure CBES RE Scheme



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.

## Terms and Condition

**RE Bidder Requirements:** Registered with the exchange and follow auction process (including commitment bond).

**RE Purchaser Responsibilities:** Pay all taxes, duties, and charges as defined by law and the Single Buyer's Supply Agreement.

## Technical, Commercial, Operational, and Settlement Requirements

### Green Electricity Specifications & Charges

- Green electricity details are defined in RE Supply Agreements.
- Charges include energy price, RECs, grid services, and fees.

### Settlement Process

- Meters comply with Grid Code specifications.
- RE Purchaser provides a Settlement Bank Guarantee.
- Single Buyer bills and collects all charges from RE Purchaser.
- RE Purchaser pays billed amount according to RE Supply Agreement.
- Grid Owner records green electricity delivered from RE plant (M1).
- Single Buyer records green electricity delivered to purchaser (M2).

## Establishment of an Exchange Committee

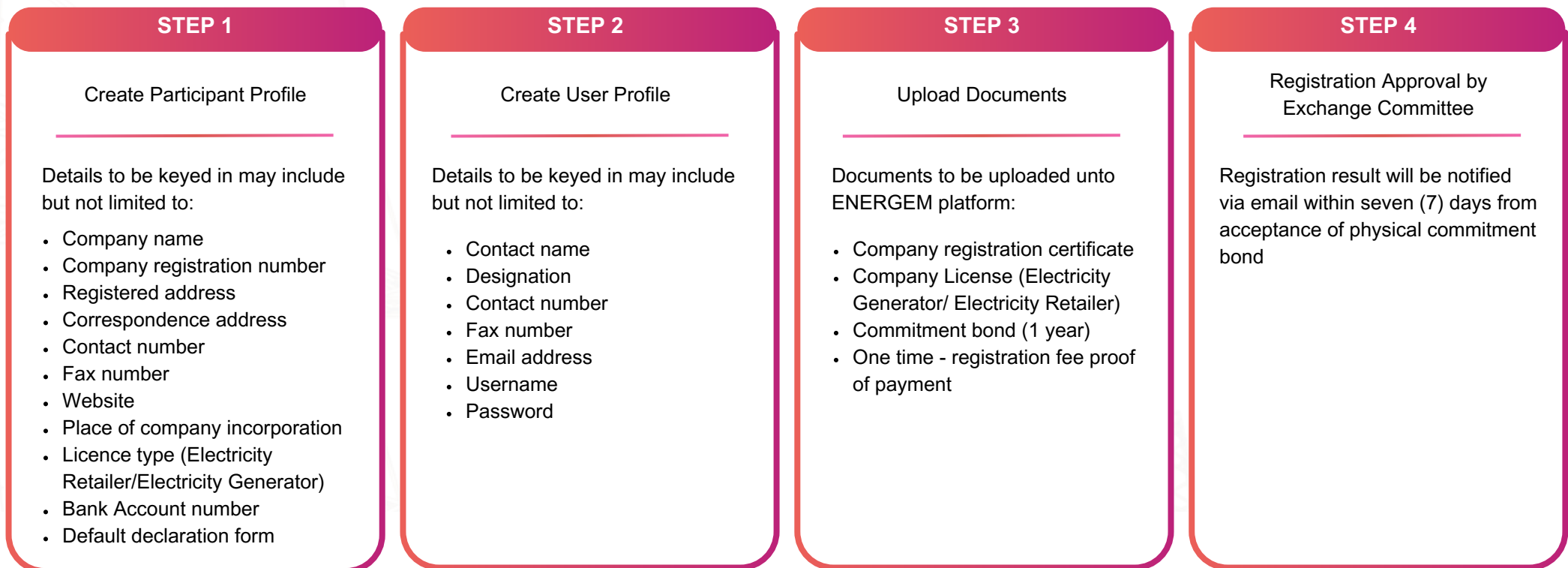
A Ministry-appointed Exchange Committee with representatives from relevant entities will oversee RE Exchange auctions, resolve disputes, and ensure CBES RE Scheme compliance; their decisions are final.



## How to participate in the CBES RE Scheme Participants Profile, User Profile, Documents, Registration Approval

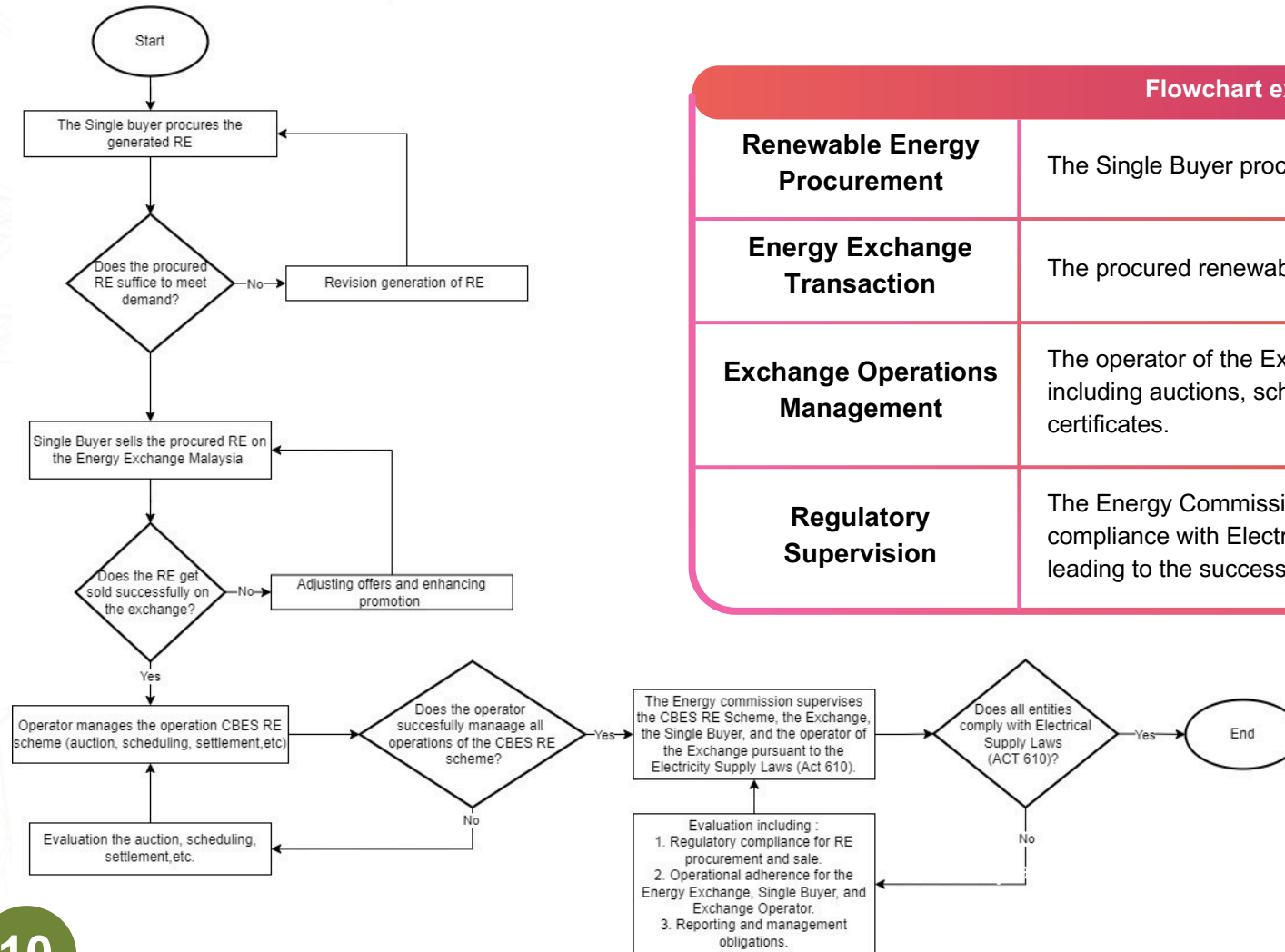
Based on the latest CBES Guide, CBES RE Scheme will be carried out through the Energy Exchange Malaysia ("ENEGEM"), which acts as the marketplace to sell Green Electricity through bidding mechanism operated by Single Buyer, which is entity authorised to conduct electricity planning and manage electricity procurement services peninsular Malaysia. Any interested party (whether buyer or seller) can be registered as a RE participant (known as "RE Bidder") in ENEGEM.

The process of registration as ENEGEM participants is summarised by Single Buyer in the diagram below:



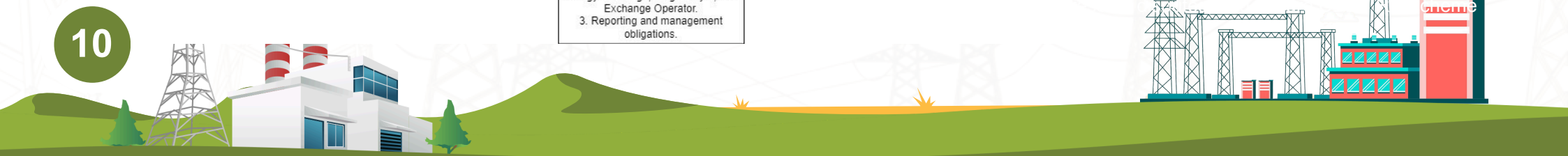
## Flowchart Process CBES RE Scheme based from the Energy Commission [Act 610]

**Act 610** Established by the Energy Commission to regulate Malaysia's energy industry, focusing on efficiency, sustainability, and the use of diverse energy resources, including renewable and non-renewable ones. Act 610 is used for CBES RE including development, regulation, and further supervision related to renewable energy and various energy resources.



Flowchart explanation	
<b>Renewable Energy Procurement</b>	The Single Buyer procures renewable energy generated by producers.
<b>Energy Exchange Transaction</b>	The procured renewable energy is sold on the Energy Exchange Malaysia.
<b>Exchange Operations Management</b>	The operator of the Exchange manages all CBES RE scheme operations, including auctions, scheduling, settlements, and issuance of RE certificates.
<b>Regulatory Supervision</b>	The Energy Commission oversees the CBES RE Scheme, ensuring compliance with Electricity Supply Laws (Act 610) by all entities involved, leading to the successful operation of the scheme.

Source, Energy Commission Act 2001, 2011



## Updates on CBES RE Implementation: Commencement of 50MW of RE under ENEGEM Pilot and Joint Study on RECs between Malaysia and Singapore

Under the CBES RE Scheme, PETRA initiated an auction of pilot ENEGEM with a total available capacity of 300MW using the existing Malaysia-Singapore interconnection. Within this broader framework, PETRA announced there were two winners with a take-up of 50MW each, without naming them from the June auction.

On 9 December 2024, **Sembcorp Power Pte Ltd** signed a supply agreement to import **50MW** of renewable electricity from Malaysia's **Tenaga Nasional Berhad (TNB)** to Singapore for a **duration of 2 years**. Flow into Singapore has started since 13 December 2024. The ENEGEM project is the first power import project into Singapore where the renewable power is coupled with Renewable Energy Certificates. To date, around **15,000 MWh** of electricity has been traded under the ENEGEM pilot project.

Malaysia and Singapore also jointly study pathways towards a credible framework to recognise RECs associated with cross-border electricity trade which aims to develop a credible cross-border REC framework that is expected to catalyse demand for cross-border electricity trading projects to support the long-term viability of RE projects in the region.

This builds on the positive momentum following the increase in capacity of the **Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP)** to up to 200MW under Phase 2. The inaugural flow from Malaysia to Singapore commenced in September 2024. To date, almost **8,000 MWh** of electricity has been traded under Phase 2.

The press release is available on the Ministry of Trade and Industry Singapore (MTI's) website [here](#).

### RE auction through the ENEGEM platform

Guide for CBES	Provides guide to CBES RE Scheme
Expression of interest Form	Interested parties who holds Generation and/or Retailer license from Singapore may express their interest to participate in the inaugural auction
Invitation to Bid (ITB)	The objective of this document is to invite interested parties from neighbouring country to participate in RE auction through the ENEGEM platform.
Default Declaration Form	This form serves as a reference in conducting our due diligence exercise prior to entering into any business transaction with the RE bidder.

This pilot auction is exclusively open to bidders with an electricity generation and/or retailer license from Singapore. Interested bidders can submit their details through an **"Expression of Interest form"**. Single Buyer will assess the submissions and send the **"Invitation to Bid"** (ITB) document to eligible bidders, which outlines the registration process, bidding process, and other related rules and requirements in the auction.

After the issuance of the Invitation to Bid (ITB) document, eligible bidders must complete and submit a **"Default Declaration Form"**, which provides essential information for conducting due diligence prior to entering any business transaction. This form helps assess the bidder's compliance, financial standing, and operational integrity, ensuring their suitability for the renewable energy export project to Singapore. For more details and to participate in the inaugural auction, please visit the Single Buyer website to view and download the relevant ENEGEM documents [here](#).



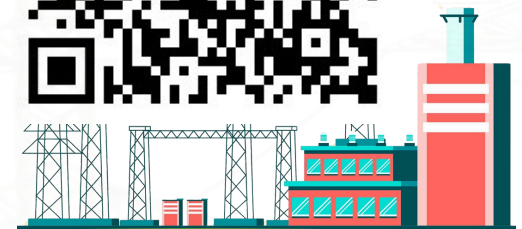


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