



ASEAN's dream for multilateral electricity trade

Background

Discussions around cross-border electricity trade are typically accompanied by arguments on concerns of national security and/or national autonomy. States are generally apprehensive about putting itself into dependency upon its neighbours for something as critical as electrical power. However, a robust grid interconnection can also support the integrity of each state and like many other kinds of international trade, there is an economic case for using the most efficient power production and trading the surplus. Therefore, the ASEAN member states have a long-standing goal of establishing multilateral power trading in the region with the hopes of realising the full potential of an integrated power system i.e. the ASEAN Power Grid.

The Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS-PIP) is a pathfinder to complement existing efforts for realising the ASEAN Power Grid and the ASEAN Economic Community, by creating opportunities for multilateral electricity trading in the region. The LTMS-PIP proposes to initiate up to 100MW of cross-border power trade from Lao PDR to the Republic of Singapore (Singapore) via the Kingdom of Thailand (Thailand) and Malaysia using existing interconnections.

In October 2020, it was announced that Singapore will kick-off the import of 100MW of electricity (approximately 1.5 per cent of Singapore's peak electricity demand) from Malaysia for a trial period of 2 years. Singapore's Energy Market Authority announced that electricity imports could begin as early as the end of 2021.

Cross-Border Electricity Power Sales

Malaysia's electricity supply system has been integrated with neighbouring countries' supply systems since the 1980s for reasons of security, stability and enhancing system reliability. However, following the kick-off of the 2-year trial, Malaysia's Energy Commission (EC) issued a Guide for Cross-Border Electricity Power Sales (Cross-Border Guide) on 31 December 2020. The Cross-Border Guide sets out the basic framework for cross-border electricity power sales between Peninsular Malaysia and neighbouring countries i.e. Singapore or Thailand.

According to the Cross-Border Guide, in March 2020, the Government of Malaysia approved a scheme for cross border electricity power sales (CBES Scheme) between a power plant developer (PPD) in Malaysia and a purchaser in the neighbouring country (Purchaser). The electricity generated by a PPD within Malaysia under the CBES Scheme must only be used for sale to the neighbouring countries and cannot be assigned for local consumption.

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. However, the Cross-Border Guide also sets out specific requirements that include requiring an applicant to submit a letter of approval issued to the Purchaser by the relevant authority of the neighbouring country, and an executed sale and purchase agreement with the relevant Purchaser.

The CBES Scheme envisages cross-border electricity power sales via 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.

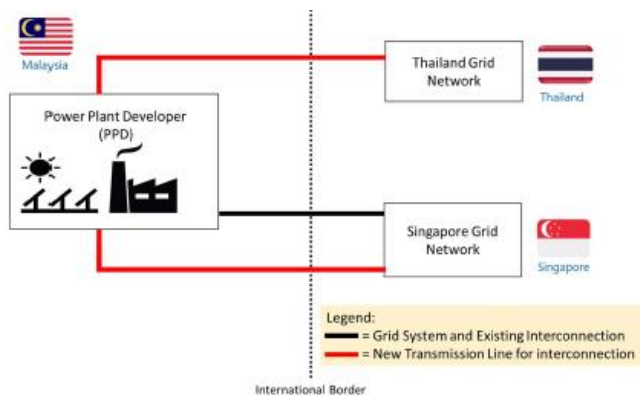


Figure 1: CBES Scheme

Source: Guide for Cross-Border Electricity Power Sales by Malaysia's Energy Commission

Cross-border power sale through an Existing Interconnection

For cross-border power sale through an Existing Interconnection (as would be the case in the 2-year trial), the PPD in Peninsular Malaysia would need to comply with the technical requirements in the Grid Code for Peninsular Malaysia and the relevant Tenaga Nasional Berhad (TNB) guides. This means that the PPD will have to be mindful of ensuring that its scheduling and dispatch will be in accordance with the methodology in the Grid Code for Peninsular Malaysia and the prevailing Guidelines for Single Buyer Market (Peninsular Malaysia).

The same PPD will also need to have in place 2 key commercial agreements i.e. an agreement with TNB for connection, access and operation to the Grid System and the cross-border interconnection and for wheeling of electricity generated (System Access Arrangement), and agreement with the purchaser in Singapore for the sale and purchase of electricity (Supply Agreement). The PPD will be paying TNB the wheeling charges under the System Access Arrangement for the dispatch of energy, and billing the purchaser in Singapore for the sales of energy pursuant to the Supply Agreement.

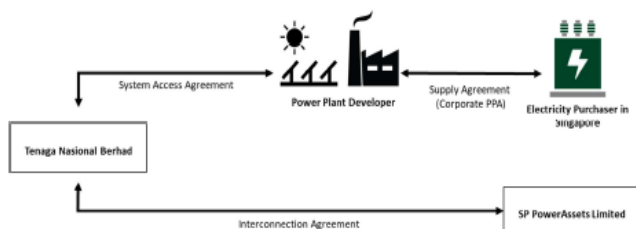


Figure 2: Contractual Arrangement for CBES Scheme to Singapore Using Existing Interconnection

Source: Guide for Cross-Border Electricity Power Sales by Malaysia's Energy Commission

Cross-border power sales through a Dedicated Interconnection

On the other hand, the commercial arrangement depicted in the Cross-Border Guide for cross-border power sale through a Dedicated Interconnection seems more straightforward. It is envisaged that the PPD will execute a Supply Agreement with the Purchaser without having to enter into a System Access Agreement with TNB.

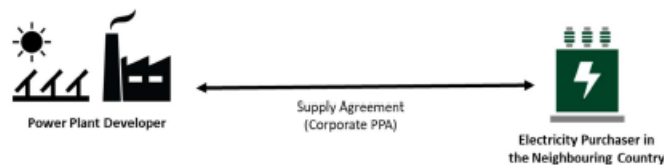


Figure 4: Commercial Arrangement for CBES Scheme with Dedicated Interconnection

Source: Guide for Cross-Border Electricity Power Sales by Malaysia's Energy Commission

In reality a CBES Scheme with a Dedicated Interconnection involves the construction of the Dedicated Interconnection and thus is subject to the approval of the EC, and the relevant local authorities of Malaysia as well as the neighbouring country. Naturally, commercial arrangements will also need to be put in place for the acquisition or lease of the land for the Dedicated Interconnection, and the construction of such Dedicated Interconnection.

Conclusion

The desire for a regional power interconnection to harmonise and liberalise the energy market is also seen in Europe. The European Union (EU) gradually opened up its member states gas and electricity markets to competition so as to create a single EU internal energy market. The United Kingdom (UK) was a leader in designing the EU internal energy market. The UK-UE Trade and Cooperation Agreement contains provisions relating to the regulation of energy markets and reflects commitments to maintaining some core principles underpinning the EU internal energy market. Even though the UK left the EU internal energy market, the UK's energy networks remain interconnected to those of the EU but with new access rules and new trading arrangements.


Going back to the 2-year trial announced by Singapore, the 2-year trial is the much anticipated start towards achieving the ultimate goal of creating a regional power interconnection to connect the energy markets of the ASEAN region i.e. the ASEAN Power Grid To a consumer, a regional power market made possible by the ASEAN Power Grid would lower electricity prices, improve reliability, expand supply to some hard-to-reach areas that were previously underserved by the domestic energy market, and in due course bring about environmental benefits by increasing shares of variable renewable energy in ASEAN (e.g. wind and solar power). Therefore, the 2-year trial is a much welcomed pilot project that hopefully, will prove it is very possible to establish multilateral electricity trade within ASEAN.

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