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A Regional Common Use Transmission Assets Concept for Advancing Multilateral Power Trade in ASEAN

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Highlights

- Common-use transmission assets are those that provide widespread benefits across a market area, rather than serving only the countries or jurisdictions hosting the infrastructure.
- These assets were integral from the start in two major multilateral power markets: the Southern African Power Pool (SAPP) and the Central American market (SIEPAC), where transmission design, financing, and cost allocation were developed alongside the markets themselves.
- The planning and coordination for multilateral common-use transmission projects benefit significantly from development banks and finance institutions, as demonstrated in other regional markets.
- In ASEAN, several potential common-use transmission projects could progress with the support of development banks, aligned with efforts to develop a multilateral power trade (MPT) market. There are several initial conclusions that ASEAN can draw regarding common use assets, including lesson learned from other regions employing this concept:

  1. **Advancing Infrastructure:** Given its potential for optimal cost allocation, the regional common-use asset concept should be examined by ASEAN stakeholders as a way to accelerate ASEAN Power Grid (APG) infrastructure development and to unlock MPT opportunities.
  2. **Identifying Assets:** In the absence of regional market structures, a region-wide technical study is essential to assess how interconnections can benefit multiple countries. The AIMS process could be tasked with this analysis.
  3. **Regional Market Benefits:** Regional market structures would provide mechanisms for identifying common-use project benefits while allocating costs fairly for new assets.
  4. **Collaborative Financing:** It's critical to work with development finance institutions (DFIs) and partners to create a financing model tailored to the region's needs, including for common use assets.
  5. **Agreement on Cost Allocation:** For the common-use asset model to succeed, participating countries must agree on cost allocation and recovery methods, potentially through a standardized wheeling charge methodology.

Concept of 'Regional Common Used Asset' for Advancing Multilateral Power Trade in ASEAN

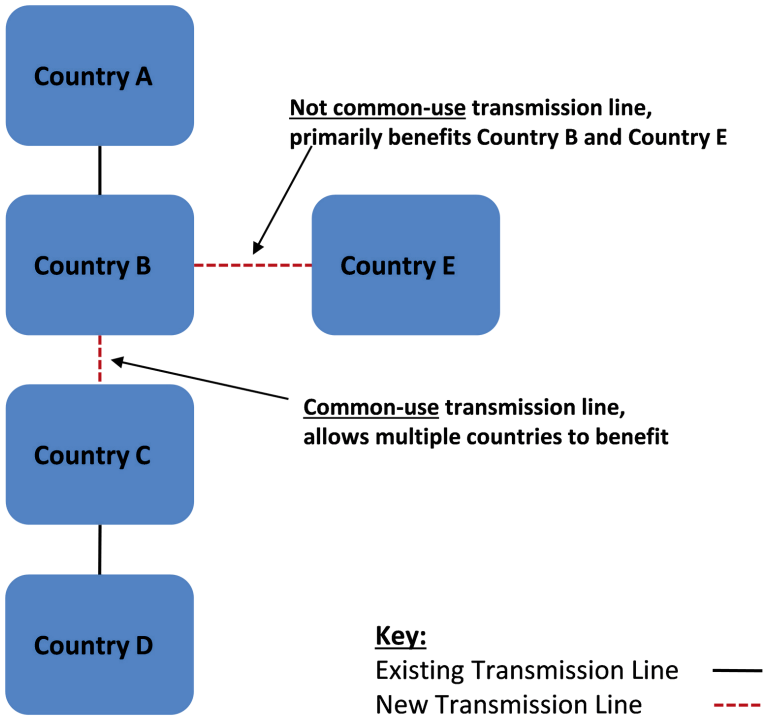
Implementing and expanding MPT in ASEAN will require financing and building multiple new cross-border grid-to-grid transmission facilities. ASEAN utilities are likely to require debt financing for these projects, whose costs range up to USD hundreds of millions or even billions for individual projects. While most new grid-to-grid transmission projects in ASEAN are expected to be primarily bilateral in nature, with MPT benefits being secondary, some grid-to-grid transmission projects - referred to herein as "common-use assets" - provide mainly regional benefits in the sense that they could be used to facilitate MPT among multiple ASEAN member states (AMS). Such common-use assets projects involve unique features and challenges that require special approaches.

To provide context for a discussion of potential approaches to common-use assets, it is necessary to first review essential concepts. First, common-use assets are necessarily grid-to-grid projects, as distinguished from IPP-to-foreign grid projects, of which there are many examples in ASEAN. Since IPP-to-foreign grid projects do not connect the grids of different countries,

and the foreign generating plant is in many respects like any other IPP on the importing country's grid, these projects do not involve trading by other countries or parties across different national markets and hence do not directly facilitate MPT market development. Second, such projects involve bundling of the generation component and the transmission component in a single power purchase agreement that allows for debt financing of the entire project. These projects, which involve only two countries, with a single seller and a single buyer and unidirectional power flows, are fundamentally simpler to execute than common-use transmission asset projects, which by their nature in MPT settings require involvement of more than two countries and multidirectional power flows that are unpredictable over the course of the project.

The figure below illustrates the difference between common-use transmission assets and other cross-border grid-to-grid transmission projects. In the figure, existing transmission lines allow bilateral trade between Country A and Country B, and between Country C and Country D, but MPT is impossible because no additional trading partners are possible. A new transmission line connecting Country B to Country C, however, would create a four-country block within which MPT could take place, with multiple potential trading counterparty pairs. Such a project could be considered a common-use asset.

Figure 1. Example of Common-use Transmission Project



Source: Delphos

Similar projects that increase transmission capacity on a key congested MPT interface could also be considered common-use assets. By contrast, the new transmission line connecting Country B and Country E in the figure likely would not be considered a common-use asset, since benefits would be likely to accrue mainly to those two countries. Within pre-existing MPT power markets around the world, the specific conditions to be met for projects to receive a common-use asset designation depend on market rules, whereas for MPT markets in the process of being developed, and for which the project in question may be regarded as necessary to establish the MPT market in the first place, the matter would be expected to be addressed during multilateral negotiations related to formation of the MPT market.

This Policy Brief summarises approaches to common-use assets in several international jurisdictions. Considering that MPT in ASEAN is in the process of being developed, the focus is on approaches taken to initiate or expand MPT in markets involving multiple countries: these markets are the Southern African Power Pool (SAPP) and the Central American power market, known as SIEPAC (for its Spanish acronym). Approaches in US power markets are surveyed as well, as these illustrate a multiplicity of potential approaches, including regarding cost allocation.

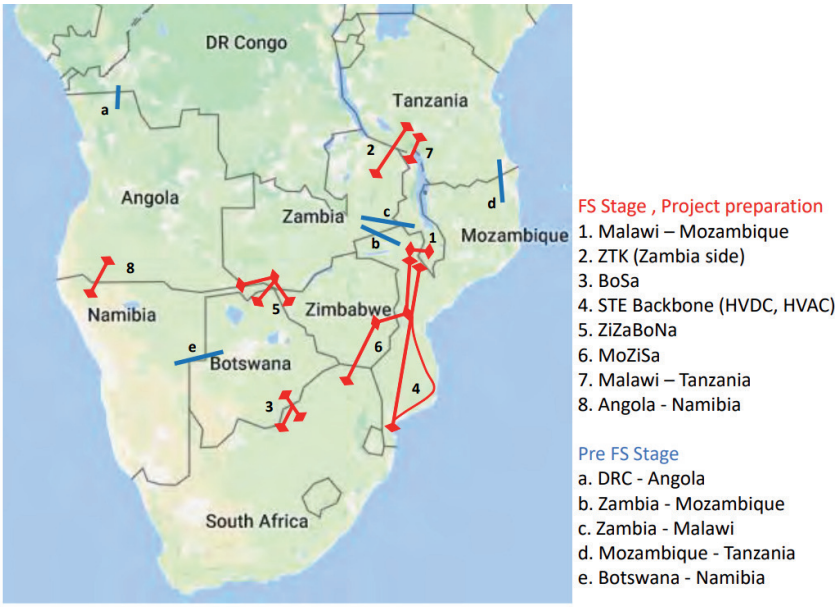
Example of 'Regional Common Use Asset' in Other Regional Markets

Case Study of South African Power Pool (SAPP)

When it was formed in 1995, SAPP comprised weakly interconnected northern and southern blocks. The northern block benefitted from abundant hydropower but inadequate thermal resources to maintain reliability during droughts, whereas the southern block, dominated by South Africa's utility, Eskom, was nearly entirely thermal, with ample spare capacity. Two 400 kV regional transmission projects focused on linking the two blocks had long been in development prior to the 1994 election in South Africa that marked the end of apartheid: the Cahora Bassa interconnector (linking Mozambique, South Africa, and Zimbabwe) and the Matimba interconnector (linking Botswana, South Africa, and Zimbabwe). Progress on these projects essentially froze, however, during the final years of the apartheid regime, during which South Africa became increasingly isolated from other regional governments. With the collapse of apartheid, the two projects advanced rapidly, securing World Bank and African Development Bank debt financing and utility equity contributions; by 1997, both projects had been commissioned [1]. Under a parallel and linked effort, the SAPP power market's early market design and agreements had been developed. At the time, there was considerable international and development partner goodwill towards the new South African government that served to smooth the process of arriving at multilateral agreements and financing arrangements for the transmission projects and for formation of SAPP.

After implementation of the Cahora Bassa and Matimba interconnector projects and the establishment of the market itself, SAPP's approach to identifying and developing common-use assets has been to identify generation and transmission projects with regional benefits through its periodic indicative SAPP Pool Plans. Since there is no funding mechanism for these projects embedded in the SAPP market design, few of these priority projects, and none of the multilateral transmission projects, have advanced to completion. Figure 2 shows the status of priority transmission projects as of 2016, as reported by SAPP.

Figure 2. 2016 Status of Priority SAPP Projects

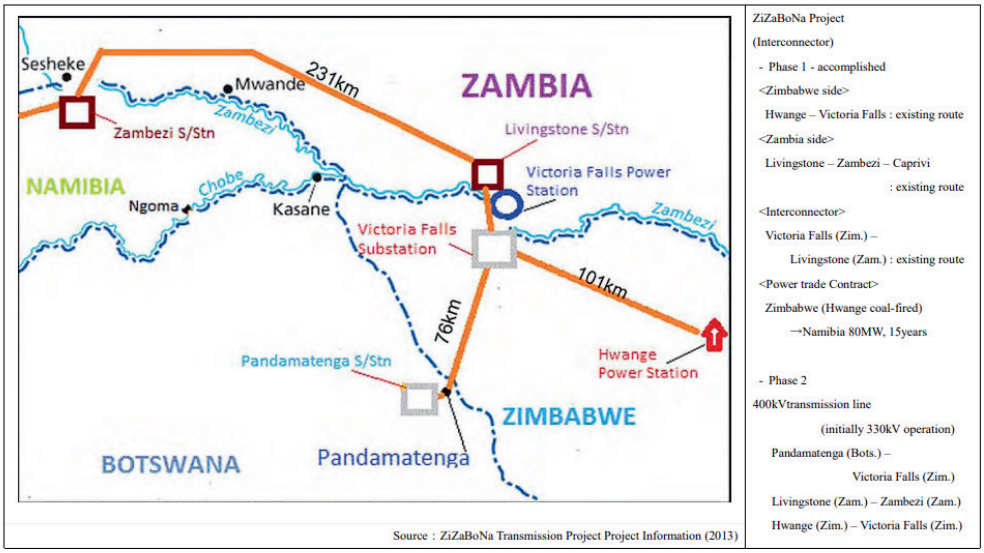


Source: JICA. "Data Collection Survey on Southern African Power Pool Final Report". June 2017.

The ZIZABONA project (project #5 in the figure above), first identified in 2007/2008, involves transmission components in Zimbabwe, Zambia, Botswana, and Namibia, as shown in Figure 3. The first phase of the project, a 130-kilometre line from Hwange Power Station in Zimbabwe to a substation at Livingstone in Zambia has been completed. The second phase will involve the construction of a 300-km 330 kV line from Livingstone to Katima Mulilo in Namibia, through Pandamatenga in Botswana.

All transmission lines are to be constructed for 420 kV, with initial operation at 330 kV and a design rating of 1,444 MVA. [2]. Investments by national utilities in the project were allocated on a basic line-distance basis, that is, each country's investment obligation share was established based on the distance of new transmission lines from each phase built within its borders in relation to total project cost for each phase.

Figure 3. ZIZABONA Transmission Project



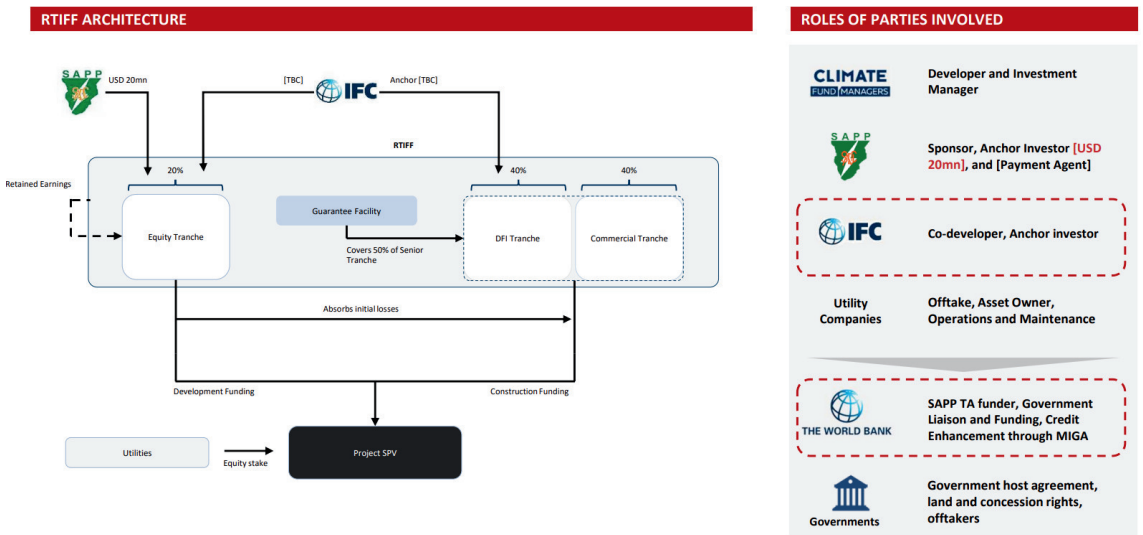
Source: JICA. "Data Collection Survey on Southern African Power Pool Final Report". June 2017.

The second and multilateral (involving three countries) phase of the project has proved difficult to advance, though development efforts were invigorated in 2019 when SAPP commissioned consulting work to identify options for unlocking investment in cross-border transmission infrastructure through a dedicated facility known as the Regional Transmission Infrastructure Financing Facility (RTIFF). It is expected that one of the projects the RTIFF will fund is ZIZABONA.

In March 2024, SAPP, in partnership with the Southern African Development Community, announced it had appointed Climate Fund Managers to manage the RTIFF [5], envisioned to be a USD 1.3 billion target facility. The facility, with USD 20 million in commitments from SAPP, targets a first close of USD 500 million in 2025 to be raised from public and private sector investors locally and internationally and a final close of USD 1.3 billion by 2026.

The facility, with a fund life of up to 25 years, will comprise a USD 100 million target "Development Fund" to provide concessional capital and development expertise including support on viability studies, legal and financial structuring, planning and ESG compliance and a USD 1.2 billion target "Construction Fund" that will make direct investments through the provision of construction finance and value-add expertise for project builds. Figure 4 shows which parties are involved in the RTIFF's Development Fund and how investments might be structured. As can be seen, the Fund is expected to involve an incremental USD 40 million from development finance institutions (DFIs) including the IFC (which would act as the anchor investor), with the remaining USD 40 million coming from commercial investors. A "first loss" facility and likely other credit enhancements would be provided through World Bank/MIGA. Construction financing would include investments through the Construction Fund.

Figure 4. Indicative RTIFF Structure: Development Fund



Source: World Bank. "Regional Energy Transmission, Trade & Decarbonization Project - RETRADE EAST". May 2024.

Lessons from SAPP for common-use asset development in ASEAN include that when there is sufficient political will and strong development partner support, complex and expensive projects can proceed rapidly, as was the case for key transmission projects necessary to provide the physical underpinnings for SAPP. However, it can be difficult to sustain development and financing of common-use transmission projects, especially those that directly involve more than two countries, without the involvement of development partners to help structure and fund investments. In the case of the second phase of the ZIZABONA project, considerable technical development work and well-documented political-institutional agreements were insufficient to secure project funding. Complicating factors for this project include lack of utility capital to invest and poor credit ratings for most of the utilities involved; a similar challenge could arise for some common-use projects in ASEAN. Overall, the RTIFF, including its backing by development partners and DFIs, illustrates the potential value of special purpose infrastructure financing facilities to progress common-use projects: it will be interesting to track the RTIFF's ability to attract and close financing for projects.

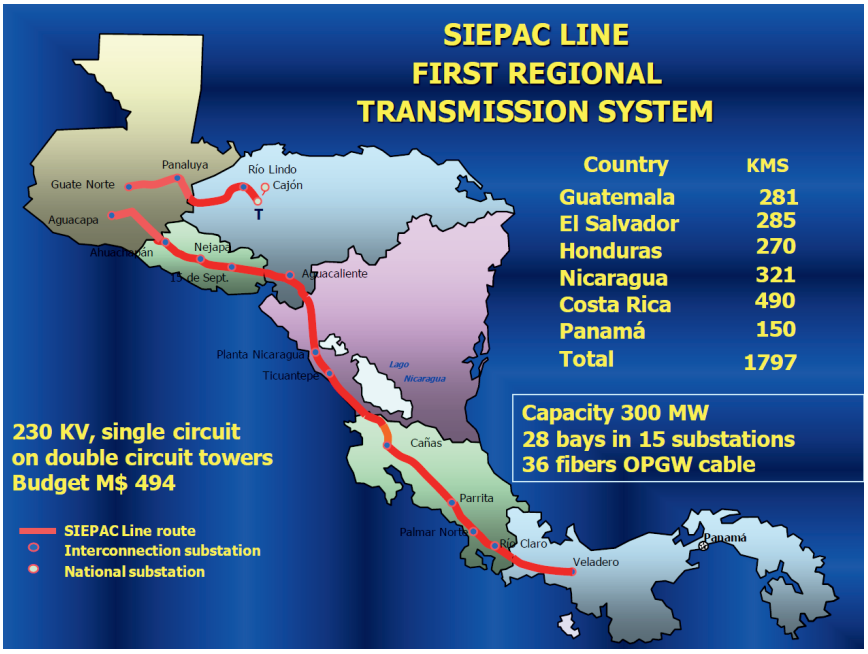
Case Study of Central America Power Market (SIEPAC)

This market, conceived in the early 1990s, involved a common-use assets approach from the beginning, namely, for the design, construction, and ownership by a new market entity of a 230 kV single circuit transmission line linking all six Central American countries, plus a regional market and control centre. Development of the infrastructure for the market and design of the market itself were approached together.

The Interamerican Development Bank (IDB) became interested in the project and conducted its own studies, which recommended technical adjustments and that the concept of a regional electric power market should be further developed. With the IDB's interest in the project fully established, a "Technical Collaboration" was approved in 1995, backed by Spain, the United States, Denmark, Norway, and the IDB, focused on carrying out the project's final studies. The completed studies concluded that the existing national transmission grids and interconnections should be reinforced with a trunk 230 kV transmission line connecting all six Central American countries, and that some national grids required reinforcement as well.

The studies also concluded it was possible to create a regional power market superimposed over the six national electricity markets, and that the regional market and the national markets could function in parallel. This approach allowed national power market structures to evolve independently of the regional market, which was important for regional utilities, some of which were in the process of being unbundled during national power market restructurings, whereas there were no plans to restructure the national markets of other countries.

Figure 5. SIEPAC Transmission Project



Source: Comisión de Interconexión Eléctrica Regional. "SIEPAC (Electrical Interconnection System of Central America Countries) Treaty of Regional Electricity Market (MER)". Undated.

In 1997, Central American countries, plus the IBD and the Spanish government, approved financing for the SIEPAC project, inclusive of the transmission and market components. Contracts to build the infrastructure of the SIEPAC transmission line were finally signed in July 2006, for an initial length of 1,800 km and a transmission capacity of 300 MW at 230 kV. The completed project was placed in service in 2014 (see Figure 5). Market development and implementation was faster. Institutions and interim market rules were in place by 2000, with trading taking place starting in 2001 on existing interconnections.

While arrangements for financing of the transmission project were being made, a major regional treaty, the Framework Treaty (Tratado Marco) was under development to underpin the SIEPAC project and its market. The Framework Treaty executed in 1996 by all six Central American countries and its "First Protocol" (1997), outline infrastructural and market design aspects, as well as expressly addressing an approach to both the market and infrastructure development, including that the six governments would:

1. Support development of necessary interconnection infrastructure, including by designating the SIEPAC transmission project of national importance.
2. Designate a state-owned company in each country to participate as an owner in a new company to be formed to develop, design, finance, build and maintain the new regional transmission system. The new company, known as EPR, would be governed by private law and legally domiciled in Central America (eventually it was decided to locate EPR in Costa Rica).
3. Allow EPR to build, own, and operate the transmission project; and authorize future regional network expansions.

The project eventually cost $494 million, though total capitalization is currently $505 million, reflecting additional, more recent, investment in EPR, as shown in Figure 6. IDB assembled a consortium of development banks to lend to the project, with its own "A" loan backed by sovereign guarantees from the regional governments. Equity was provided by EPR, initially by the utilities of the six Central American countries plus Spain's ENDESA. Since some of the countries had multiple relevant state-owned utilities, investments were sourced from these entities, though the companies in these countries agreed to vote as a single entity for each country within EPR. Mexico's national utility, CFE, plus Colombia's national transmission utility, ISA, subsequently invested to support projects to interconnect those countries' grids with the Central American system.

Figure 6. Sources of Investment in SIEPAC

Source	Amount, USD Millions	Share, %
IDB	235.5	50.2
BCIE	109.0	21.6
CAF	15.0	3.0
BANCOMEXT	44.5	8.8
DAVIVIENDA	11.0	2.2
OTHERS	13.5	2.7
EQUITY	58.5	11.6
TOTAL	**505.0**	**100.0**

- **IDB loans backed by sovereign guarantees from all Central American governments**
- **Loans from other sources not backed by sovereign guarantees**
- **Equity from EPR, provided in equal shares by utilities from six Central American governments, plus the national utilities of Spain, Colombia, and Mexico**

Sources: for data; graphic by Delphos

Lessons from SIEPAC include that deep involvement of a major development bank, supported by other development banks and development partners, can be helpful to drive early power market implementation and related transmission infrastructure financing. The multilateral financing structure of the SIEPAC transmission project also appears especially appropriate for the ASEAN setting.

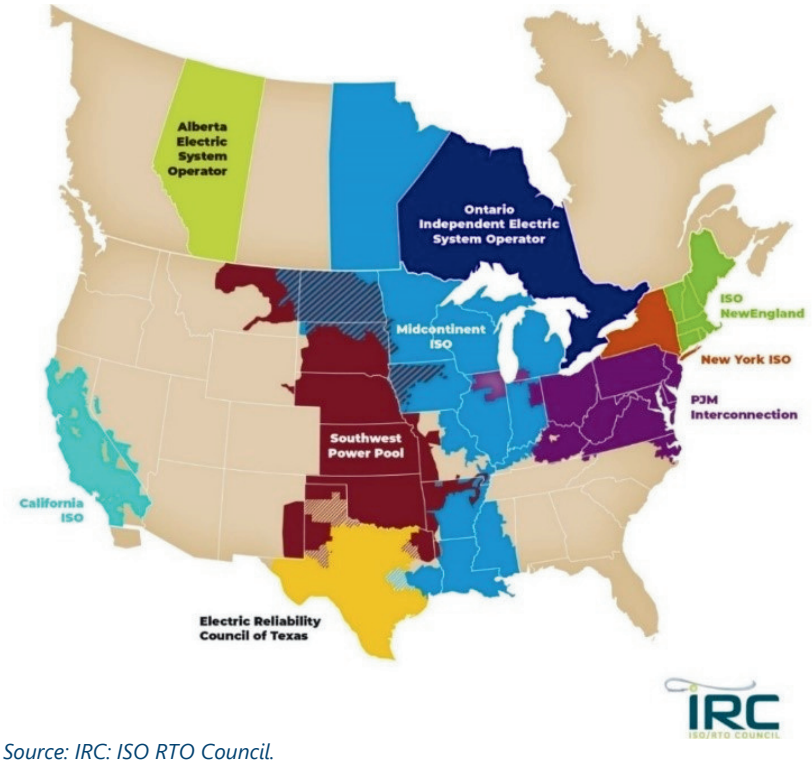
Case Study of the US Market

The starting point for understanding US power markets is that there are both federal and state-level laws and entities. Until the mid-1990s, the US power sector, like most others around the world, involved vertically integrated utilities.

Regulation of these utilities mostly occurred at the state level, though under supervision of the main federal regulatory entity, the Federal Electricity Regulatory Commission (FERC), which has jurisdiction over bulk wholesale electricity markets and interstate transmission. In 1996, FERC issued Orders 888, requiring utilities to open their transmission lines to competition, and to take other actions that would require utility unbundling. Another key entity, the North America Electricity Reliability Corporation (NERC), coordinates and mandates reliability planning across the USA and Canada, plus a portion of Mexico.

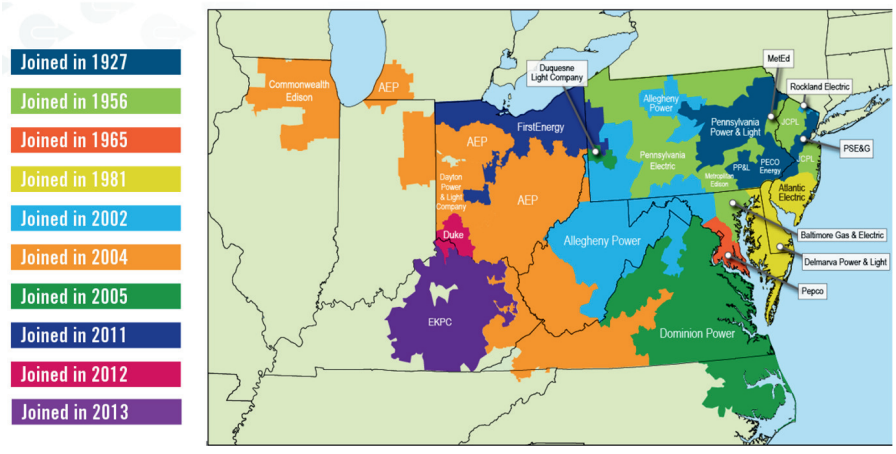
The development of US power markets certainly benefitted enormously from coordination, planning, and market development functions provided by NERC and FERC (the latter also worked proactively to encourage power market development, apart from simply regulating). Currently in the US and Canada, there are multiple Independent System Operators (ISOs – a term that is used to refer to organized power markets) and there are also large areas that remain served by more traditional vertically integrated utilities, as shown in Figure 7. Of the US ISOs, only NYISO and ERCOT exist wholly within a single US state, and within ISOs, multiple if not many utilities often operate (see Figure 8).

Figure 7. Multiple US and Canada Regional Power Markets



Source: IRC: ISO RTO Council.

Figure 8. Multiple Utilities within a Single ISO (PJM)



PJM. "The Evolution of the PJM Market in the United States: Looking Back to Look Forward". Craig Glazer. 2018.

Thus, planning and allocating costs for transmission projects in the US involves projects that could be entirely within, or could cross, utility territories, states, and organised markets (some of which involve multiple US states). Given the obvious coordination challenge in this setting, to be contrasted with ASEAN's power systems, which with few exceptions, involve single national utilities or transmission utilities serving entire countries, considerable effort in the US has gone towards establishing relevant methodologies for projects in the common-use category that could be applicable to common-use cross-border transmission projects in ASEAN.

US transmission coordination received a boost in February 2007 when FERC issued Order No. 890. The Order reflected FERC's assessment that to that point, common-use transmission planning, especially for projects across state-lines within power markets, and between different organized power markets, was inadequate, and had resulted in insufficient transmission investment. Order 890 required transmission utilities to adopt a coordinated, transparent, and participatory transmission planning process.

Transmission owners were required to collaborate with stakeholders, including other utilities, independent power producers (IPPs), and regulators, to develop long-term plans for transmission system expansions. This process was meant to ensure that all parties had an opportunity to influence how transmission infrastructure was developed and upgraded. Recognizing the interdependence of regional transmission systems, Order 890 emphasized the need for transmission providers to coordinate their planning on a regional basis. This was intended to address the "balkanization" of the grid, where each utility planned its transmission network in isolation, sometimes leading to inefficiencies or underinvestment in critical infrastructure.

In reviewing the table, note that US markets tend to develop prices on a "locational marginal price" (LMP) basis. Typically, LMPs correspond to specific substations or aggregations of several substations. The markets also tend to aggregate LMPs into large price areas or zones, and yet larger price aggregation and planning regions or subregions. In addition, ISOs use different terminology to cover the concept of common-use assets.

Table 1. Common-use Transmission Cost Allocation Approaches, US Markets

Power Market	Cost Allocation Methodology
CAISO	Reliability: Costs of upgrades 200 kV allocated to load on a MWh basis. Economic: Same.
ERCOT	Reliability: ERCOT conducts a system-wide assessment. Costs allocated across all loads based on share of summer peak demand. Economic: Same.
ISO-NE	Economic: Reliability Upgrades included in ISONE Regional System Plan as needed to ensure reliability. Regional Benefit Upgrades are 115 kV and above; costs allocated to load based on zonal monthly coincident peak loads. Economic: Same.
MISO	Reliability: Baseline Reliability Projects 345 kV or above - costs allocated 20% regionally on a postage stamp basis, 80% sub-regionally based on electrical proximity using Line Outage Distribution Factor (LODF) analysis. 100 kV to 344 kV – costs allocated 100% sub-regionally to pricing zones based on LODF analysis. Economic: Costs allocated 20% regionally on a postage-stamp basis, 80% to the three Transmission Provider Planning sub-regions (West, Central, East) as determined by congestion-based metrics (beneficiary analysis, 70% based on production cost benefits, 30% based on expected LMP-based load benefits. Analysis determines each sub-region's benefit from the upgrade, and costs recovered on a postage stamp basis within each). If a project can be designated as both a Regionally Beneficial Project and a Baseline Reliability Project, costs are allocated as a Regionally Beneficial Project.

NYISO	Reliability: Reliability planning identified by the NYISO Comprehensive Reliability Planning Process. Cost allocation on a beneficiary-pays basis. Primary beneficiaries – zones identified as those contributing to the reliability violation that the project will alleviate. Costs allocated to zones based on contribution to violation. Economic: To be eligible for this allocation, the projected benefit of the project (measured as the savings in statewide production cost with and without the proposed project) must exceed the estimated cost, as measured over the first ten years from the proposed commercial operation date. Total capital cost must exceed $25 million, and a super-majority of 80% or greater of the identified beneficiaries are required to approve the project. For each load zone that would benefit from a proposed project, costs are allocated based on the zonal share of total LMP energy savings.
PJM	Reliability: Reliability Upgrades included in the Regional Transmission Expansion Plan (RTEP): Backbone Facilities: 500 kV, costs allocated 100% to load based on each zone's share of zonal noncoincident peak load; < 500 kV and cost < $5 million – are allocated to zone; cost $5 million – direct beneficiaries identified and allocated costs. Economic: Costs of Economic Upgrade enhancements to reliability-based projects included in RTEP that reduce cost of meeting load are allocated the same way as reliability upgrades. For projects that are <500 KV and accelerate completion of an approved reliability project, cost allocation assigned to zones based on the reduction in LMP payments if there is at least 10% difference between this method and the method for reliability projects. For new economic transmission that is <500 KV, costs allocated to zones which have a projected decrease in load energy payments and is based on each zone's pro rata share of the change in load energy payment.
SPP	Reliability: The Highway/Byway cost allocation system applies to new transmission facilities identified as Base Plan Upgrades (BPU). BPU's include both reliability and economic projects approved by the SPP Board of Directors, including priority projects and projects arising from SPP's proposed Integrated Transmission Planning (ITP) process. Highway: 300kV. All costs allocated regionally. Byway: < 300 kV. All costs allocated zonally. Economic: Priority projects designated BPU are paid regionally through the Highway/Byway methodology. Projects arising through the ITP will be allocated according to Highway/Byway. ITP will integrate both reliability and economic study systems and will include an annual reliability assessment, a triennial 10-year midterm assessment, and a triennial 20-year long-term assessment.

Source: National Renewable Energy Laboratory. "A Survey of Transmission Cost Allocation Methodologies for Regional Transmission Organizations." 2011.

The key lessons from US markets are (i) coordinated transmission planning does not happen on its own but requires either a centralized planning entity or a coordination function or mandate, and (ii) there are a multiplicity of approaches to cost allocation.

Key Takeaways for ASEAN on Considering the Regional Common-use Asset

In the case of LTMS-PIP, the pathfinder for MPT development in ASEAN, it is clear that increased transmission capacity in wheeling countries will be crucial for enabling higher cross-border power flows across LTMS countries. Currently, the Thailand-Malaysia transmission facility supports only 300 MW of capacity, compared to 1,000 MW between Malaysia and Singapore, and 700 MW between Thailand and Lao PDR, with further increases expected in these latter interfaces.

Additionally, the Thailand-Malaysia interface is aging. Enhancing the capacity of this interface would not only benefit Thailand and Malaysia, but also Lao PDR and Singapore, making it one clear case of a common use asset in the ASEAN context, and suggesting that the regional common-use assets concept should be examined carefully as part of efforts to advance MPT under the APG.

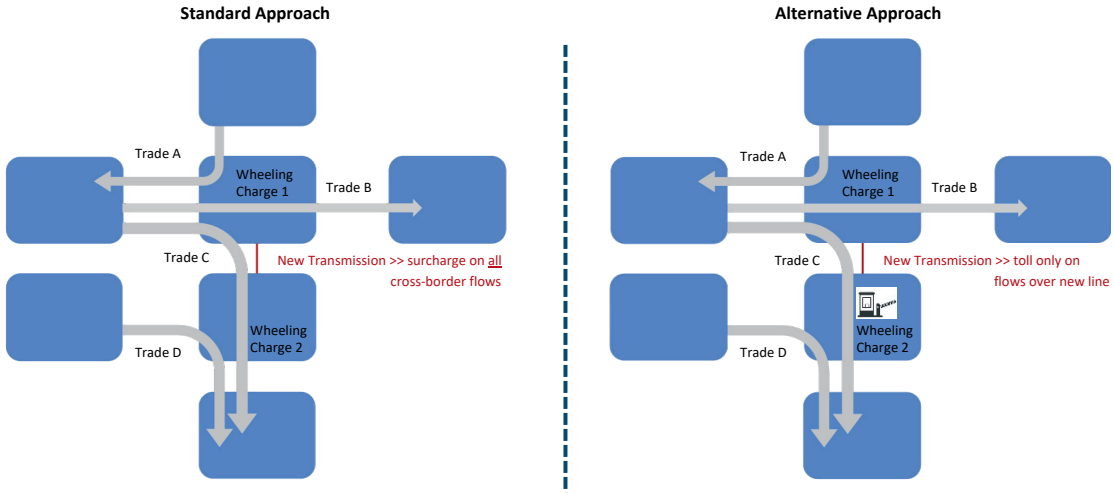
A joint study by Thailand and Malaysia has begun to with the intention of ultimately replacing and upgrading this interface, with significant investment likely required. To address this, exploring a common-use asset financing approach is may be sensible and appropriate. At the same time, identifying these assets requires regional technical efforts to determine how and which specific interconnectors may benefit multiple countries. The ASEAN Interconnection Master Plan Study (AIMS) can support this task, in the absence of market-based identification, as is seen in other regions.

Even without a fully developed regional MPT market, the common-use asset financing model should be carefully examined. Unlike typical common-use projects, this would primarily benefit a subset of market participants, not necessarily just the two countries sharing the interface. In developed markets, costs for such projects are often allocated to all participants based on standard methodologies, such as non-by passable surcharges on transactions.

In the absence of a market, as with LTMS, transparent wheeling charge calculations agreed upon by all countries could guide cost allocation.

It is important to distinguish between cost allocation for equity financing and cost recovery, though the latter should logically reflect the former. A conceptual approach to cost recovery for ASEAN common-use assets should be developed, as illustrated in the figure below.

Figure 9. Potential Approach for Financing Regional Common-Use Assets



Transmission charges:
Trade A: Wheeling Charge 1 + New Transmission Charge
Trade B: Wheeling Charge 1 + New Transmission Charge
Trade C: Wheeling Charge 1 + Wheeling Charge 2 + New Transmission Charge
Trade D: Wheeling Charge 2 + New Transmission Charge

Transmission charges:
Trade A: Wheeling Charge 1
Trade B: Wheeling Charge 1
Trade C: Wheeling Charge 1 + Toll + Wheeling Charge 2
Trade D: Wheeling Charge 2

Source: Delphos

The graphic on the left, labeled the "Standard Approach," illustrates how the surcharge for a new common-use transmission asset (marked by the red line) is typically passed on to all market participants, even those not using the asset. In contrast, the "Alternative Approach" on the right shows that only transactions utilizing the new asset (those on the Trade C transmission path) would incur increased transmission fees, applied as a toll on that interface. This cost recovery method could align with a "beneficiary pays" approach, where investment costs are allocated based on expected use of the facility.

There are therefore several initial conclusions that ASEAN can draw regarding regional common use assets, including lesson learned from other regions employing this concept:

1. **Advancing Infrastructure**: Given its potential for optimal cost allocation, the regional common-use asset concept should be examined by ASEAN stakeholders as a way to accelerate ASEAN Power Grid (APG) infrastructure development and to unlock MPT opportunities.
2. **Identifying Assets**: In the absence of regional market structures, a region-wide technical study is essential to assess how interconnections can benefit multiple countries. The AIMS process could be tasked with this analysis.
3. **Regional Market Benefits**: Regional market structures would provide mechanisms for identifying common-use project benefits while allocating costs fairly for new assets.
4. **Collaborative Financing**: It's critical to work with development finance institutions (DFIs) and partners to create a financing model tailored to the region's needs, including for common use assets.
5. **Agreement on Cost Allocation**: For the common-use asset model to succeed, participating countries must agree on cost allocation and recovery methods, potentially through a standardized wheeling charge methodology.

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