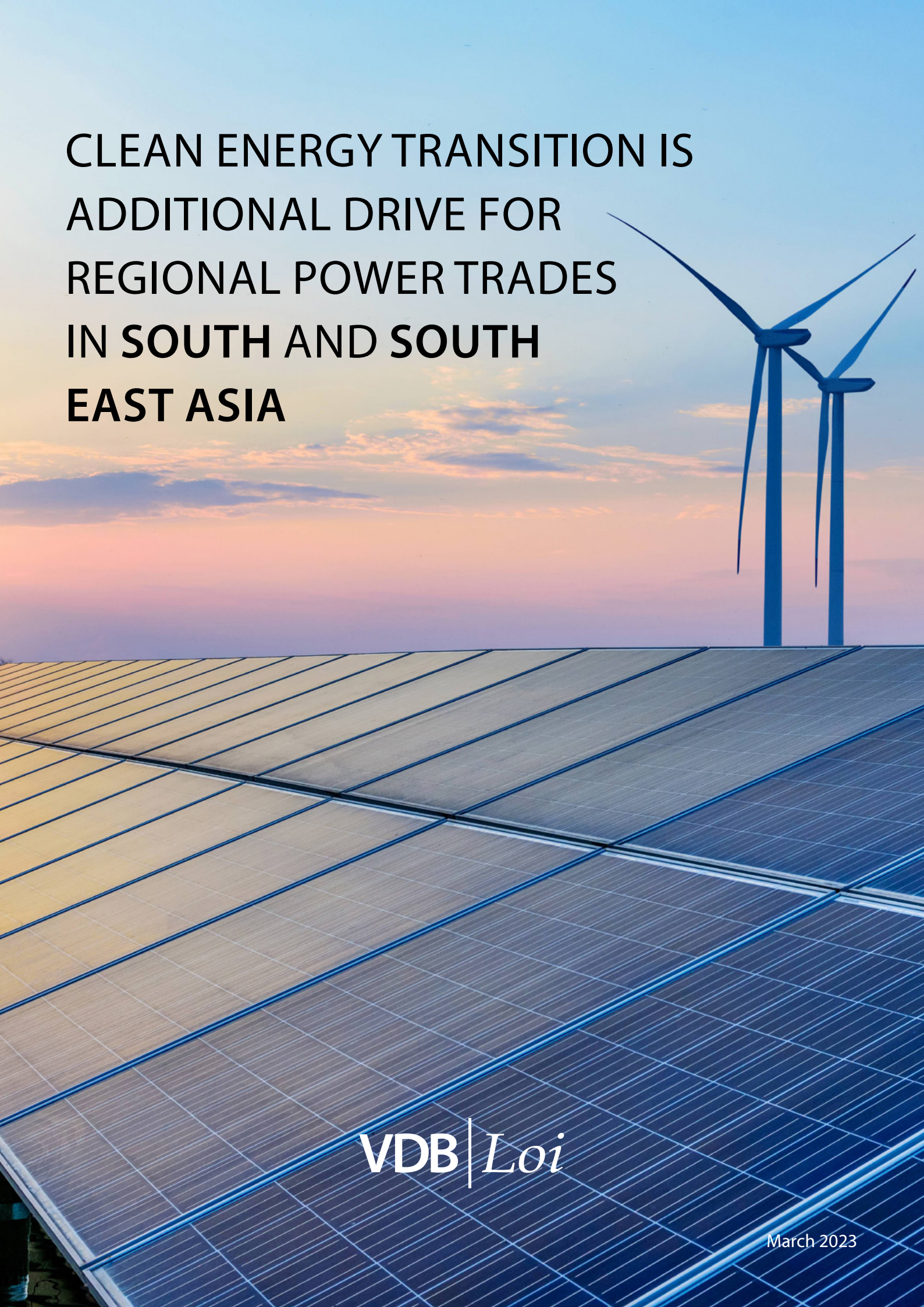
CLEAN ENERGY TRANSITION IS ADDITIONAL DRIVE FOR REGIONAL POWER TRADES IN **SOUTH** AND **SOUTH EAST ASIA**



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Edwin is the responsible legal partner for the legal team. He has often negotiated for, and with, the Myanmar Government, whom he actually advises on a wide range of energy projects. He and his team are working on over 4,000 MW worth of generation in power projects. His strongest points are his knowledge of Myanmar PPAs terms, his insight into what is commercially achievable with Myanmar offtakers, his track record in actually getting things done by the Government, and his extensive regulatory knowledge. Edwin also regularly acts for international lenders such as the IFC and the ADB.

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Regional power trades are on the rise in South East Asia. Historically, Laos is a major exporter of mostly hydropower in the region, reaching nearly 2 billion US$ in 2022 to Thailand, Vietnam and Cambodia. And the exported amount keeps growing. For example, Laos and Vietnam have signed another 3000 to 5000 MW of power to be imported under MOUs from Laos,[1] setting the stage for an increase of the already more than 15 Power Purchase Agreements (PPAs) in force for that purpose.[2] Added transmission capacity facilitates the trend, for example with the currently ongoing construction of a 220 kV line between Nam Mo in Laos to Tuong Duong.[3] But Laos is not the only one. Vietnam is increasingly exporting power to Cambodia since the Chau Doc – Ta Keo 220 kV transmission line that marked 10 year anniversary of operation in 2019[4], now already at 17 border gates,[5] reaching a very substantial share of Cambodia's imported electricity amount. Myanmar, China, Malaysia and Singapore are all increasingly involved in selling or buying electricity across borders on a large scale, or are planning to do so.

Although not all regionally traded power of green power (see for example the controversial planned coal energy exports from Laos to Cambodia), it is fair to say that the need and push for green energy to replace fossil fuel energy has given an added dimension to regional power integration.

Singapore's pilot "**Lao-Thailand-Malaysia-Singapore Power Integration Project**" ("**LTMS-PIP**") is perhaps the most eye catching recent example of this development. Singapore started importing renewable energy from Laos through Thailand and Malaysia in June 2022, after an initial two-year power purchase agreement was signed between Keppel Electric and Electricite du Laos (EDL).[6]

As another initiative, the Energy Market Authority of Singapore in 2021/2022 issued requests for proposal to select importers for the import of low carbon energy sources into Singapore, eventually for a total of 4 GW, to be delivered in over the next several years.[7]

A crucial term in the proposals from bidders will be of course the electricity tariff. For information, Laos exports hydropower to Vietnam at or around 6 US$ cents/kw[8] while

1 *https://moit.gov.vn/en/news/energy/work-starts-on-laos-vietnam-power-transmission-line.html*

2 *https://theinvestor.vn/vietnam-to-import-8000-mw-of-electricity-from-laos-d1714.html*

3 *https://en.evn.com.vn/d6/news/Can-Nam-Mo-Tuong-Duong-220kV-transmission-line-project-be-completed-on-time-66-163-2719.aspx*

4 *https://en.evn.com.vn/d6/news/Chau-Doc-Ta-Keo-220kV-transmission-line-10-years-with-10-billion-kWh-66-163-1736.aspx*

5 *https://en.evn.com.vn/d6/news/EVN-President-and-CEO-welcomed-and-worked-with-the-delegation-of-Electricity-of-Cambodia-6-12-3058.aspx*

6 *https://www.channelnewsasia.com/singapore/singapore-import-hydropower-renewable-energy-laos-through-thailand-malaysia-2766251*

7 *https://www.ema.gov.sg/cmsmedia/Electricity/Imports/RFP2-Electricity-Imports-v1-1Jul2022.pdf*

8 *https://e.vnexpress.net/news/business/industries/vietnam-caps-price-of-wind-power-to-be-imported-from-laos-at-6-95-cents-4102869.html*

Singapore's households, the electricity tariff (before GST) will be 28.95 cents per kWh in the beginning of 2023.[9]

What motivates Governments to import power rather that produce it themselves?

There are several different reasons why one country would purchase power produced in another country. The main reason I have observed in the past few decades in South East Asia is that on a national level, the importing country is temporarily unable for its domestic generation to match its demand.

That does not necessarily mean that the exporting country has plenty to spare. For example, Cambodia in the early 2000's signed a power purchase with is neighboring Thailand to import power that Thailand could actually also sell to its own customers.

A second very common reason is that it may make a lot more sense because of the availability of the resource, particularly hydrological resources, that the power for an area is generated at one side of the border rather than the other. A good example of this is Laos, which has abundant hydrological resources, and some of the power generated is exported to Thailand, Vietnam and Cambodia. Finally, the differences in peak demand between countries might also make regional power trades sensible. For example, business hours and waking hours vary between countries.

But a new reason is emerging. The push for transition towards clean energy, with the rising price cost of fossil fuels since the Ukraine war acting as a catalyst, is prompting Governments to look at purchasing renewable energy on a regional basis. Case in point, Singapore, lagging behind in clean generation, issued a high-profile RFP to purchase renewable energy from Laos, and is also exploring purchasing solar power from Cambodia through a long discussed sub-sea transmission cable or an even longer talked about and rarely implemented ASEAN grid.

Another good example is the Asian Development Bank's announced support for additional 2,000 MW solar energy in Cambodia, a country with ample solar resources and relatively cheap land, putting it in a good place to export this clean energy.[10]

In this contribution, we discuss some interesting aspects of regional power trades in the countries where I am professionally active, notably Bangladesh, Cambodia, Laos, Myanmar and Vietnam.

One key difference: purchasing power from the utility or from an IPP in the exporting country

For an international power deal, the seller and generator can be an independent power producer (IPP) or it can be the exporting country's state-owned utility itself. This difference has a substantial impact on the legal and commercial aspects of the deal, and often on the politics as well.

Each international power trade will usually require involvement from both Governments. At minimum, there will be approvals and licensing. For example, an IPP developer in Laos who aims to sell his electricity to EGAT in Thailand, will need to obtain Lao government approval for the project at a very early stage. Some exporting country Governments go further, and they want to shape the deal so that their own utility purchases and resells the power to the importing country. In most cases, though, Governments only want to act as the seller if they themselves generate the power, and not when they are stuck between an IPP and a purchaser.

In my experience in the region, the project usually kicks off on the initiative of the importing country. The process will typically involve the signing of a Government to Government non-binding document of some kind, an MOU for example. This happens also when the actual generator is an IPP.

Differences in the Power Purchase Agreement

Regional power deals need a PPA just like any other power project where you have a seller and a buyer.

The PPA with a cross-border IPP may look much like any other PPA with a national off-taker rather than an international one. Rules on the structure of the tariff, the payment rights in case no energy can be produced, force majeure, termination, etc will often need to be agreed regardless of the international nature of the deal. Extra attention goes to a few special issues such as foreign currency, evacuation, taxation, special conditions precedent due to the G to G nature of the deal, and special tariff structures may also exist in some cases. Some of these differences are briefly discussed in this contribution.

Some special tariff structures for G-to-G power deals

Most cross border PPAs have similar tariff features and the more conventional domestic counterparts. The terms may provide for energy and or capacity pricing, but Governments will typically seek an emphasis on energy purchase rather than paying for capacity. This is because no country imports all of its consumed electricity.

Imports are always a minority, a complement in addition to domestic production. More often than not the Government intends the import as an interim solution to fix a temporary lack of production or managing the peaks in demand. The Government will typically aim to be self-sufficient in all aspects of its energy needs at some stage.

Moreover, the utility of the importing state will need to or prefer to dispatch local production, particularly to keep its own facilities running or to avoid paying for capacity without delivery. Those circumstances cause pressure on importing utilities to keep the tariff energy based, in other words, just pay for the power they actually import.

Whether the exporters would agree to such a tariff structure depends on their own situation. For example, if the seller is the generating Government itself, you will see a very different approach from a seller that is an IPP in the generating country. IPPs, when selling to a foreign Government by and large have the same tariff considerations as when they sell to a domestic buyer, with some added concerns.

But there is no fundamental difference. So IPPs might, depending on the commercial and financial structure of their project, actually require a capacity payment or at least a guaranteed dispatch with a compensation for shortfalls. Exporting utilities may reason differently. Besides political considerations by the Government itself, an exporting utility may not regard the capital cost of one particular

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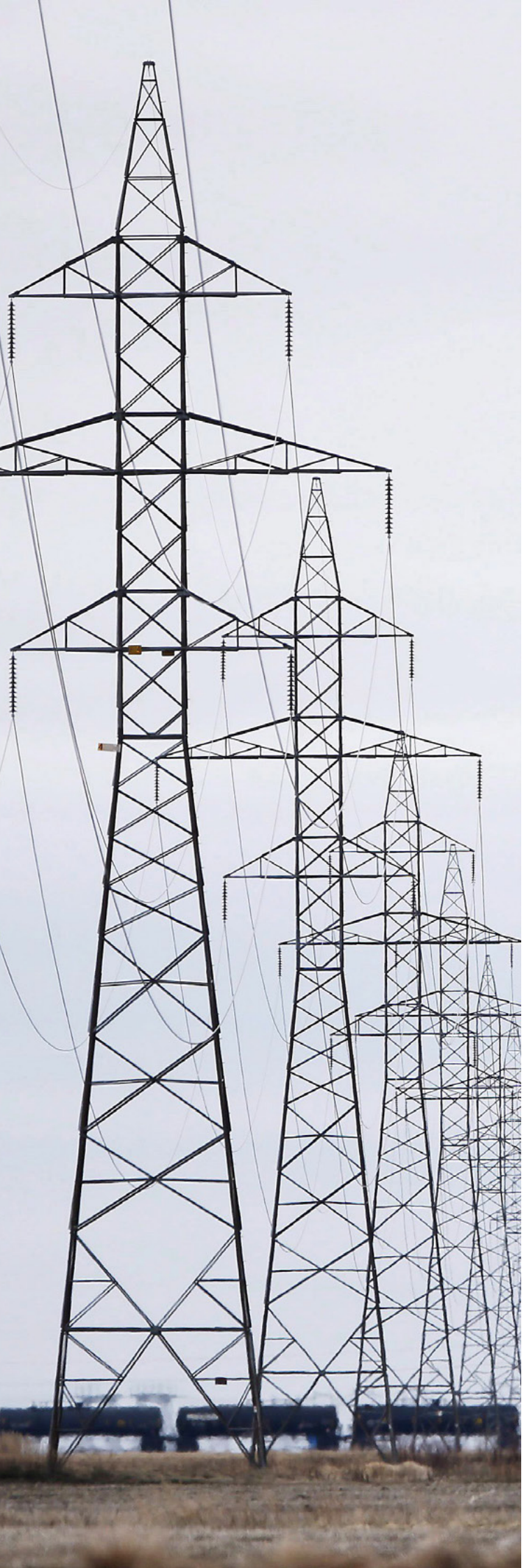
9 *https://www.spgroup.com.sg/wcm/connect/spgrp/3e05a14c-b346-410e-815c-2447f1267484/%5B20221230%5D+Media+Release+-+Electricity+Tariff+Revision+for+Q1+2023.pdf?MOD=AJPERES&CVID=*

10 *https://www.adb.org/news/adb-edc-sign-mandate-2-gw-solar-and-battery-storage-power-program-cambodia*



power generation project as a crucial element of the financial picture, because these investments have or will be made anyway. Instead, the exporter will often see domestic demand, grid stability and general or average, grid-wide production or purchasing costs as more relevant factors to consider.

In a context of generally increasing consumption and lagging production as we see in most places around South and Southeast Asia, why would a Government agree to export power that is could also sell or need domestically? This question has an impact on the pricing of some PPAs.

Certain PPAs will provide that the selling utility can charge the same prices to the purchasing utility as it can sell domestically, including changes to that domestic tariff. This is a rather exceptional arrangement that not always works for the purchaser, unless in case of significant retail tariff market differences. We can also see reservations, carve-outs in some PPAs allowing the selling utility to stop delivery in case of national emergency or local demand that cannot be met otherwise.

Cost and time of building new transmission lines

As we are now still at a rather early stage of regional power integration, many new cross-border power deals require new transmission infrastructure. The much talked about ASEAN Power Grid ("**APG**"), which was supposed to facilitate a more integrated electricity market, has to date not been able to covert much of that ample discussion into actual COD's of projects. As one author observed:

> ***"Although the objectives and the expected benefits of having such an integrated and interconnected power grid are very clear right from the beginning, its implementation is proven to be very challenging with a lot of hurdles that come along the way. As a result, the APG progress is lagging behind, both infrastructure-wise and the trading-wise. The target CODs of a number of the grid interconnection projects are overshot more than once".***[11]

At a bilateral level, the situation is not much better. Most of the international connections that have been implemented so far in the past decade, are inspired by ad hoc power trades, and not by regional harmonization and integration. A long talked about subsea transmission cable between Cambodia and Singapore, for example, has never left the drawing board, although there are some signs there may be momentum now.[12]

So, a new power import deal will have to take into account the cost and time of building new infrastructure. If the cost is predictable enough, the T-line fee is not that much of an issue, but timing concerns of a "**project on project**" risk could be a major problem on which lenders are sure to focus.

That problem is exasperated by the fact that the T-line is built in 2 or even 3 different countries, as would be the case for the Nepal power export to Bangladesh through India.[13] Constructing what is essentially just one piece of infrastructure by 2 or 3 different contractors, in different

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11 *Hazleen Aris and Bo Nørregaard Jørgensen 2020 IOP Conf. Ser.: Earth Environ. Sci. 463 012055, available at https://iopscience.iop.org/article/10.1088/1755-1315/463/1/012055*

12 *https://www.phnompenhpost.com/business/new-deal-paves-way-clean-energy-exports-singapore*

13 *https://www.tbsnews.net/bangladesh/bangladesh-nepal-write-india-trilateral-power-trade-deal-514846*

legal and regulatory contexts such as with regard to acquisition of right of way, is not ideal.

Who pays for transmission losses and grid-outages?

Some cross border power deals require evacuation of the electricity over large distances and thus with not negligible transmission losses. For example, a planned but now no longer advanced Myanmar LNG/CCGT project with a gas pipeline to Thailand would have required a 220 kV line of 450 km.

One frequent negotiation point in cross border power deals is the degree each of the parties will assume the cost of this transmission leakage. The discussion is further complicated by the fact that in many countries there are several and separate departments or state-owned enterprises ("**SOEs**") involved in delivering imported electricity to consumers, each with their own financial accounting. To those departments or SOEs, the detailed breakdown of the payments and deductions may make a difference. It sometimes seems to me that the matter of transmission losses is a bit of a non-issue given that actually, both the seller and the buyer will need to take into account all elements of the price, including the wider compensation and any deductions, to decide whether the trade makes sense. There is no point in pushing an exporting utility to accept the cost for a transmission loss, just to have that exporter than raise the tariff to make up for it.

Massive or local grid outages also raise financial questions in regional power integration. For starters, connecting national grids raises technical challenges in and of itself. But if a commitment has been made to import electricity and the domestic grid can actually not take the power due to an actual or feared outage, the cost of this will be regulated by the PPA concluded between the parties.

The possible negotiating positions range between the seller continuing to be paid regardless of the outage in the buyer's country, on the one hand, and the buyer not having to pay anything for energy that could not be taken. A middle ground is probably that the buyer country receives a limited number of hours for which no payment is due in case of a grid failure.

Currency and forex control issues complicate regional power deals

The foreign exchange aspects of investment in power projects are challenging enough with only one single country involved.

The forex regime (and to be more precise – the degree of commercial flexibility that it allows) is in many instances the key to successful kick-off and completion of a project. If forex controls are too tight, many investors and lenders may simply decide to look for projects in other regions.

In energy projects, typically, foreign exchange controls would have impact on the following:

1. Currency in which payments will be made under PPA.

   For example, in Bangladesh's power trades with India, both home currencies are not freely convertible. That raises the issue one party can actually control the performance by the other party by controlling its own currency, such as revaluation and devaluation or sanctions. A third trading currency will likely have to be used, exposing the parties to possible exchange losses over time.

2. Currency and mechanism for make payments to the construction company (that will build power plant or transmission line).
3. Flexibility to obtain external debt financing from commercial lenders and international development institutions.

   This item 3 is particularly important to make it possible for a project to be financed using private funding (rather than government budget).

   Some of the countries continue to follow "**permitting**" approach for external borrowings of local companies. For example, if a company intends to develop a power plant project and is willing to receive a loan from a syndicate of international lenders, such company would need to get a "**permit**" from the central bank, "**approving**" every single material term of the loan – repayment schedule, interest rate, etc. In some countries it is even necessary to submit a business plan of the borrower to prove that this company is good enough to be entitled for external financing.

   In modern realities this seems to be an excessive regulatory requirement, major roadblock and time delay factor.

   International lenders will in any event undertake in-depth due diligence of every borrower before they decide to provide a loan: financial, legal, tax, environmental, technical, to name a few. Loan documentation usually imposes strict requirements on borrowers to follow modern corporate governance, emissions reduction, AML and other principles. Accordingly, such deals actually not only help to implement a specific project, but also improve overall economic, compliance and other practices more generally.

   It may be logical to have a requirement to keep local authorities informed about external loans (so that regulators have visibility about incoming/outgoing major cashflows in the country). But a requirement to obtain a prior approval for every individual loan delays and may sometimes even prevent some projects from happening.

How to resolve disputes between Governments on regional power trades?

Most Governments are quite reluctant to get involved with disputes before courts or arbitration tribunals, in any subject matter. They do not want to hang out any dirty laundry or raise suspicions in the general public that they must have messed something up. Along the same lines it is not uncommon for regional power agreements to make it harder for any party to start some kind of legal proceeding against the other party.

The utilities realize they need some kind of dispute settlement system, else there is no final say in any disagreement, but we very often see clauses that require parties to negotiate, do consultations, get politicians involved, or get advice, whatever measure they can think of to delay the case actually going to a formal proceeding.

These clauses are in my view generally unhelpful. They give litigators a reason the frustrate and delay the inevitable and they (the clauses) do not bring anything of value. After all, you can negotiate and consult all you want during the arbitration proceeding as well.

Creating a suitable legal and regulatory framework

Some countries, including Vietnam, have provided a special regulatory regime for cross border power transactions. Governments will likely feel the need to regulate import of power with general regulation that also captures the numerous smaller projects in the vicinity of the countries' borders.

Vietnam, for example, has provided guidelines on which approvals and licenses are needed to import or export electricity, and how to obtain those licenses: there must be a PPA for the project (or written request from foreign counterparty for purchase of electricity), a detailed plan describing projected demand and how the project will be implemented generally. This is mostly targeted at privately initiated, smaller scale imports and exports of power rather than national level, Government initiated projects going into the hundreds of megawatts.

Although Vietnam's electricity policy is not without challenges, its approach on import and export is helpful. It sets clear standards for import and export of power, so investors know in advance what they need.

How to boost regional trade of green energy?

There are real wins on the table by getting a lot better at regionally integrating and trading green energy. The solar resource and land situation in Cambodia is a lot better than that in Singapore. Offshore wind projects in Vietnam are going to work better than in most of Laos. But Laos's hydropower resources, even non-mainstream, will nearly always make a better business case than those in Myanmar.

Similarly at the demand side. Peaks in demand often differ between neighboring countries, for example working hours and the weekend in Bangladesh are not the same as in Myanmar. .Electric vehicles are likely to be widespread in Singapore sooner than in Laos or Cambodia. What do we need to make the most of the opportunities that lay before us?

Bilaterally, and at an ASEAN level, there has not been enough progress with the integration of electricity infrastructure. Now markets are suddenly calling for more regional trade in especially green electricity, the need for additional infrastructure is painfully obvious. Clearer, uniform standards and incentives for building and managing cross border transmission facilities are a must to move this forward.

Transparent (and concise!) legislation addressing import and export of power, costs, fees and taxes on transmission will increase confidence of relevant investors and hopefully reduce red tape. Regulatory framework should generally just set the fundamentals, and allow parties to agree on detailed deal regime contractually in most cases.

Flexible central bank policies and foreign exchange rules would help mitigate some of the currency woes that almost always appear in 2 or 3 jurisdiction power deals, which will help convince lenders and EPC providers.

But most of all, these deals need to be done faster. A power project that needs to seek approvals from one Government is lengthy enough, imagine what happens when 2 or 3 Governments are involved. The world is simply moving too fast for parties to spend 5 to 10 years on a transaction.

Prices of the technology, the foreign exchange situation, oil and gas prices and local political constellations can all change in a matter of months. One need only refer to what happened with the price of solar panels in just a few years[14], for example, and how this affected numerous projects around the world. There is not enough time to take it slow. For regional integration of green power to succeed, Governments need to do one thing more than anything else: pick up the pace.

14 *https://fortune.com/2022/07/14/solar-projects-could-stop-polysilicon-prices/*

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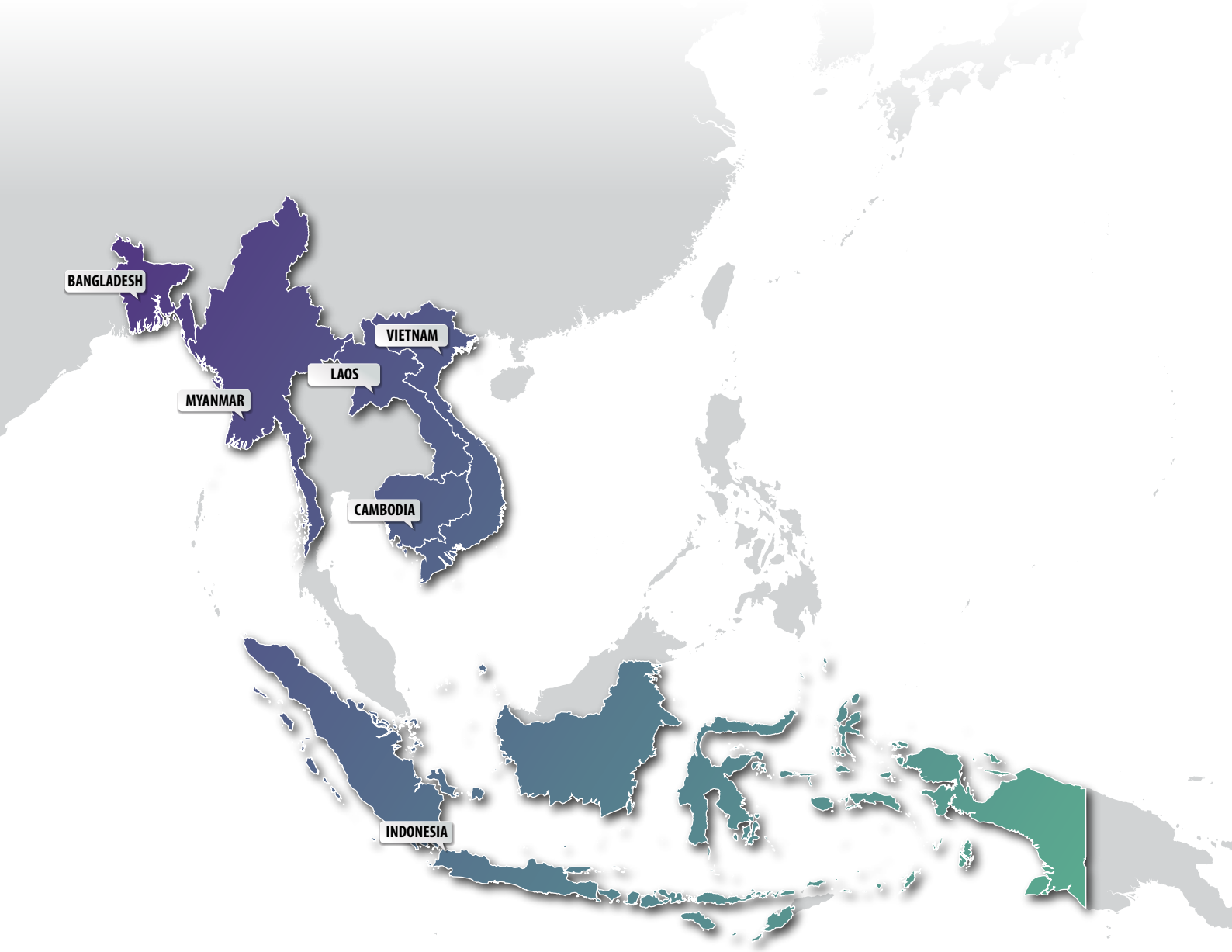

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