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Green independent power producers (IPPs) in Asia:

A practical guide for negotiations and agreements between Chinese and international partners

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Acronyms and abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BOO	Build-Own-Operate
BOT	Build-Operate-Transfer
BRI	Belt and Road Initiative
BOP	Balance of Plant
CAPEX	Capital Expenditure
CDB	China Development Bank
COD	Commercial Operation Date
CPPA	Central Power Purchasing Agency (Pakistan)
DFI	Development Finance Institution
DISCO	Distribution Company
EdL	Electricité du Laos
E&S	Environmental and Social
EPC	Engineering, Procurement, and Construction
EVN	Vietnam Electricity
FiT	Feed-in Tariff
FX	Foreign Exchange
GHI	Global Horizontal Irradiance
IFC	International Finance Corporation
IPP	Independent Power Producer
JV	Joint Venture
JVA	Joint Venture Agreement
MEMR	Ministry of Energy and Mineral Resources (Indonesia)
MW	Megawatt
NTDC	National Transmission and Dispatch Company (Pakistan)
O&M	Operation and Maintenance
OECD	Organisation for Economic Co-operation and Development
PPA	Power Purchase Agreement
PLN	Perusahaan Listrik Negara (Indonesia's state utility)
PV	Photovoltaic
RECs	Renewable Energy Certificates
RMB	Renminbi (Chinese currency)
RfP	Request for Proposal
SDG	Sustainable Development Goal
SOE	State-Owned Enterprise
SPV	Special Purpose Vehicle
TNB	Tenaga Nasional Berhad (Malaysia)
TWh	Terawatt-hours
USD	United States Dollar

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Executive summary

Asia's transition to renewable energy is accelerating, but the region still faces significant barriers to scaling clean power. State-owned utilities—the dominant off-takers in most markets—must manage rising demand, system reliability, and political expectations while integrating intermittent renewable energy. At the same time, Independent Power Producer (IPP) sponsors are playing a growing role in financing, constructing, and operating large-scale energy infrastructure, especially through greenfield solar, wind, and hydro projects.

This guidance outlines how Asian off-takers and IPP sponsors, particularly Chinese IPP sponsors, can work more effectively together to deliver bankable, operationally sound, and socially accepted green IPPs. It provides actionable insights across the project lifecycle—from request for proposals (RfP) and power purchase agreement (PPA) structuring to construction, financing, and long-term operation.

Key findings include:

- For (Chinese) IPP sponsors: Success depends not only on financing capacity and engineering delivery, but on the ability to navigate complex local regulations, labour expectations, and payment or FX risk in the operation phase. Sponsors must align EPC and O&M performance with international standards, engage early on environmental and social safeguards, and structure projects for long-term reliability—not just construction speed.
- For Asian off-takers: The credibility of renewable expansion depends on issuing realistic and transparent RfPs, ensuring PPA structures support bankability, and providing timely permits, payments, and grid readiness. Many off-takers can improve coordination between central and local agencies, especially on land and environmental approvals, while upholding performance oversight and public accountability.

By preparing each phase of the IPP based on a growing awareness of opportunities and challenges, transaction costs for both IPP bidders and off-takers will be significantly reduced, while project delivery and quality should improve (see Figure 1).

1/2 planning and tender stage

- Asian off-takers should issue clear, realistic Request for Proposals (RfPs), including draft PPA and (if applicable) Joint Venture term sheets. Bid evaluation criteria and local content requirements must be transparent and achievable.
- Chinese IPP sponsors should prepare for longer timelines and internal approval cycles, and seek early clarity on licensing, land acquisition, and currency risks.

3. Negotiation stage

- Off-takers must ensure PPA terms are bankable: long-term duration, fixed or indexed tariffs, and clear payment security mechanisms (e.g., escrow accounts, guarantees).
- IPP sponsors should be ready to address regulatory expectations, share risk on curtailment or technology changes, and provide cost-transparent EPC and O&M models.

4. Construction phase

- Off-takers should streamline permitting processes, support land access, and monitor construction timelines against PPA obligations.
- Chinese IPPs must meet local content rules, manage visa and labour constraints, and invest in training for local workforce integration. Clarity on cost responsibility for technical modifications is essential.

5. Delivery phase

- Off-takers must ensure timely payments and manage curtailment transparently. FX conversion mechanisms should be predictable to protect revenue repatriation.
- IPP sponsors should maintain high O&M standards, adopt international testing protocols, and monitor environmental and social compliance throughout the project life.

Figure 1: Success factors for bidders and off-takers in IPP implementation—preparation to power delivery

	Preparation	Bidding/ selection	Negotiation	Construction	Delivery
Description	Offtaker shares **request for proposal (RfP)** and IPP sponsor prepares bid	Off-taker evaluates bid proposals based on a combination of price, technical quality, experience, legal readiness, and local integration and selects preferred bidder.	Negotiate relevant contracts, in particular **power purchase agreement (PPA)** and, if necessary (e.g., in Indonesia), **Joint Venture (JV) agreement**	Select high-quality engineering, procurement and construction (EPC) partners and have enforceable contracts to meet IPP timelines and requirements	Ensuring consistent power generation, meeting contractual performance standards, and maintaining financial viability over the project's lifetime
Issues	• RfP Clarity: Incomplete or vague tender documents (e.g. missing draft PPA or JV terms). • Bid Preparation Time: Short timelines may disadvantage Chinese SOEs needing internal approvals. • Pre-Qualification Criteria: Ambiguous or overly restrictive criteria limit competition or exclude credible sponsors. • Local Content Expectations: Unclear thresholds or enforcement mechanisms. • Communication Gaps: Limited bidder-off-taker engagement hinders clarification of key requirements.	• Tariff competitiveness and financing structure (e.g., FX risks, concessional funding). • Technical feasibility, yield estimates, and EPC/O&M strategy. • Track record in emerging markets and ability to meet timelines. • ESG compliance, land access, and local stakeholder engagement.	• Tariff Structure & Payment Security: Disputes over PPA curtailment compensation, and instruments like letters of credit or sovereign guarantees. • FX Risk: Tensions around convertibility and currency mismatch for Chinese sponsors financing in RMB or USD. • PPA and JV Complexity: Protracted negotiations over risk-sharing, revenue rights (e.g. RECs), and JV roles. • Decision-Making Delays: Approval bottlenecks within off-taker entities and Chinese SOE investment committees.	• Local Content: Compliance with local labor and material requirements can delay progress. • Permits and Land: Delays in approvals and land access due to fragmented local and national processes. • Workforce: Tension between Chinese labor models and local hiring or visa rules. • Timelines and Changes: Schedule risks from permitting delays or late-stage design changes.	• Payment Delays: Off-taker arrears disrupt cash flow and debt servicing for IPPs. • FX Risk: Revenue in local currency may lose value or face repatriation delays. • O&M Performance: EPC-linked O&M may lack local responsiveness or long-term quality control. • Curtailment: Intermittent renewables risk uncompensated output reductions. • E&S Compliance: Ongoing environmental or social grievances can trigger audits or political pressure
Actions for Asian offtaker	• Prepare diligently, potentially with pre-selection of bidders. • Publish standardized but flexible PPAs and JV templates.	• Use clear, weighted evaluation criteria and involve multidisciplinary review teams. • Assess not only project economics, but also a sponsor's delivery track record and social license to operate.	• Empower negotiators to make decisions; • involve legal/technical teams early.	• Set realistic COD targets; • offer local content flexibilities;	• ensure timely payments and manage curtailment transparently. • FX conversion mechanisms should be predictable to protect revenue repatriation.
Actions for (Chinese) IPP	• Conduct early legal, financial, and site assessments; • partner with local experts for regulatory navigation.	• Submit comprehensive bids with strong technical detail, financing readiness, and credible local partnerships.	• Ensure bankability by aligning PPA/JVA terms with lender requirements, including step-in rights and dispute resolution clauses.	• Train local workforce (also in China if necessary) before deployment; • Buy locally where possible • Ensure visa processes are in place for bringing in overseas workers	• maintain high O&M standards, • adopt international testing protocols, • Hedge currency risks and • stay in close contact with local regulatory and offtaker partners (through local hires)

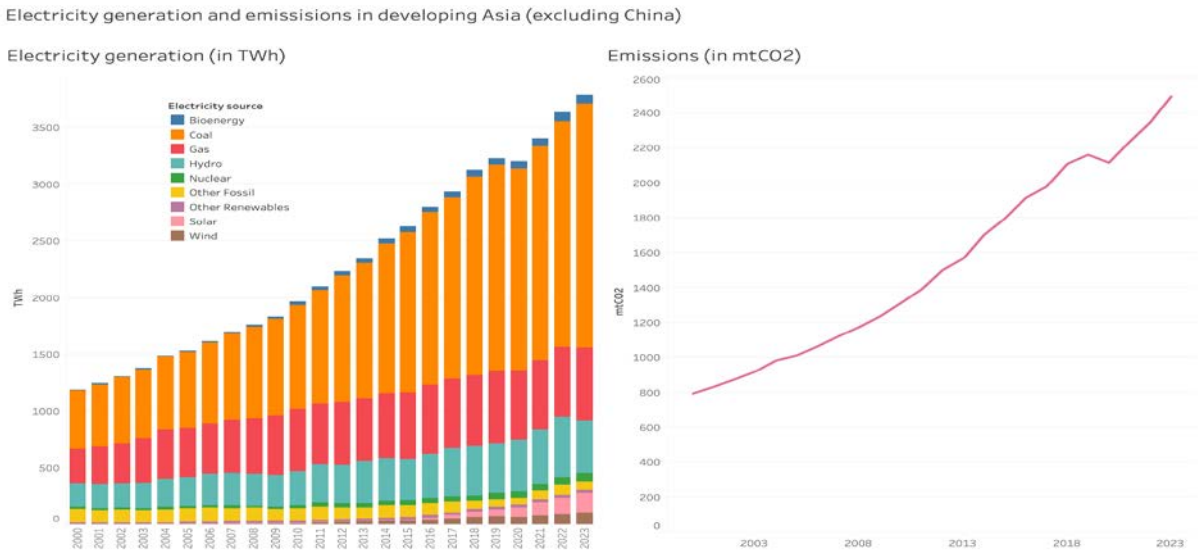
Source: Authors.

Introduction: Role of IPPs in accelerating green energy transition in Asia

Energy transition needs in Asia

Green energy expansion in emerging Asian economies (excluding China) continues to trail behind stated national ambitions and sustainable development ambitions for a net-zero emission economy: across the region, electricity generation grew by 274 per cent between 2000 and 2023 (to now almost 4000 TWh). However, most of the growth relied on the expansion of fossil fuels and in particular coal, whose share of the electricity generation in emerging Asia, excluding China, grew from 43 per cent in 2000 to 57 per cent in 2023.[1] Accordingly, emissions in the region rose by 210 per cent (see Figure 2 left side).

Figure 2: Electricity generation and emissions in developing Asia (excluding China)

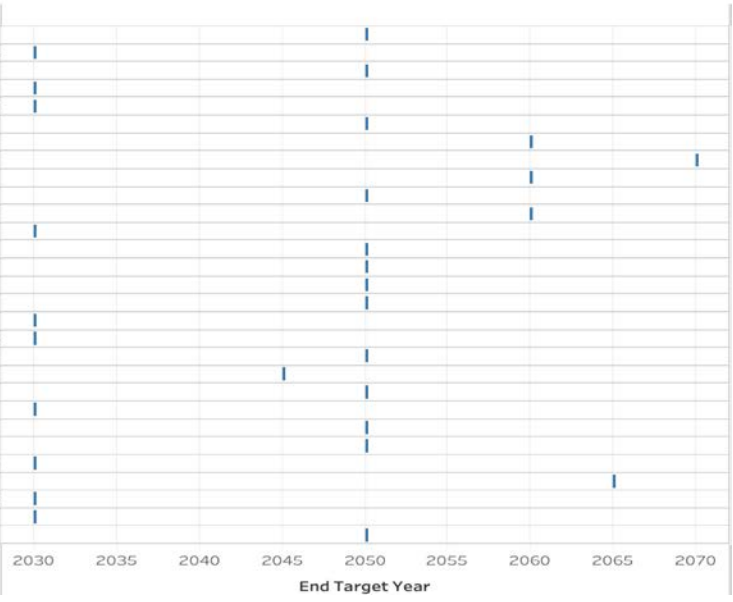


Data source: Ember, 2025

This expansion of fossil fuels and emissions comes despite government intentions to reduce carbon emissions to zero between 2050 and 2070 (see Figure 3).

Figure 3: Net zero targets across Asia

Country	End Target
Afghanistan	Net zero
Azerbaijan	Emissions reduction target
Bangladesh	Net zero
Bhutan	Carbon neutral(ity)
Brunei Darussalam	Emissions reduction target
Cambodia	Carbon neutral(ity)
China	Carbon neutral(ity)
India	Net zero
Indonesia	Net zero
Japan	Net zero
Kazakhstan	Net zero
Korea, Dem. People's Rep.	Reduction v. BAU
Korea, Rep.	Net zero
Kyrgyz Republic	Carbon neutral(ity)
Lao PDR	Net zero
Malaysia	Net zero
Maldives	Net zero
Mongolia	Emissions reduction target
Myanmar	Net zero
Nepal	Net zero
Pakistan	Net zero
Philippines	Reduction v. BAU
Singapore	Net zero
Sri Lanka	Carbon neutral(ity)
Tajikistan	Emissions reduction target
Thailand	Net zero
Turkmenistan	Emissions reduction target
Uzbekistan	Emissions intensity target
Vietnam	Net zero



Data source: Net Zero Tracker.[2]

To meet the regions' sustainable energy investment targets, Asian economies need to mobilise about US$12 trillion between 2025 and 2040.[3] It is expected that most investments would be driven by private and international investors. Such private sector participation aims to drive the mobilisation of financial and technical resources, as well as the improvement of risk management. Indeed, many Asian economies have already been successful in attracting international partners to provide financing, technical and other support (see Table 1).

Table 1: Engagement strategies for external parties in power plants

Type of arrangement	Type of support	Participants	Risks (examples)
EPC (Engineering, procurement and construction)	Provision of engineering, procurement and construction services No ownership or financial involvement from the EPC provider in the power plant.	Engineering firms, construction companies, and international EPC consortia	takes on delivery risk (time, budget, performance), usually under a fixed-price contract
Financial investor (equity and/or debt)	Providing equity to participate as the owner of the power plant with associated owners' risks and equity returns Providing debt financing to plant owners, typically through commercial loans and sometimes with bonds (if a utility company or power plant issues bonds), associated with lower risk and fixed returns	Financial institutions (for debt) Pension funds (typically for equity) Equity funds	Return depends on project performance and risk allocation mechanisms (e.g. guarantees, tariffs, offtake agreements)
O&M (Operation & Maintenance) contractor	Operating and maintaining the power plant after commissioning to ensure performance standards are met	Global utility companies Specialised O&M firms Sometimes same as EPC firms (Build-Own-Operate (BOO) model)	Technical failure or equipment underperformance. Availability risk (plant downtime penalties). Environmental and safety compliance. Cost overruns in spare parts or labour
Independent power producer (IPP)	Developing, financing, owning, and operating the plant; Providing and selling electricity under a Power Purchase Agreement (PPA).	Private IPP developers Energy companies Joint ventures as public-private partnerships	Full risk along the project lifecycle of the plant Managing and mitigating risks through contractual risk allocation

One important partner to support across Asia has been China. Since 2013, Chinese companies and investors have been engaged in about US$100 billion in electricity projects in Asia,[4] while Chinese companies have become the dominant provider for green energy technologies relevant for solar and wind, as well as energy storage.

Yet, attracting investors and sponsors for renewables remains a challenge across most of Asia. While reasons vary across the region, common causes are insufficient financial incentives, governance challenges, local content requirements, complex licencing requirements.[5] Furthermore, a major challenge across the region, is how international investors work in collaboration with Asian state-owned utility companies (e.g., PLN in Indonesia, TNB in Malaysia, EVN in Vietnam, EDL in Laos) that most often act as sole off-taker with significant negotiation (and stalling) power, and sometimes also directly compete with IPPs through their own power generation units.

Independent Power Producer (IPP) to accelerate green energy transition

An often sought after engagement strategy for partners to support development of power plants is that of independent power producer (IPP). IPPs are seen as a key to accelerate the green energy transition, for a variety of reasons:

1. Capital mobilisation: IPPs attract foreign and domestic private investments, reducing the financial burden on governments. For example, in Vietnam, billions in investments in IPPs enabled a growth of the share of IPP in installed capacity from 18.4 per cent in 2018 to 41.3 per cent in 2021.[6]
2. Risk diversification: By involving multiple private investors and funding sources, IPPs help spread risks between participating stakeholders of the IPP and allow for reducing overall risks by combining the best capacity from different involved stakeholders. IPPs also offer greater organisational flexibility, as they are established for specific projects and are not directly tied to management decisions by parent companies, allowing them to manage project-specific risks effectively.
3. Efficiency and innovation: Commercial requirements encourage IPPs to develop cost-effective and technologically advanced renewable energy projects. IPPs can drive innovation by investing in new technologies and clean energy sources.
4. Improved reliability: By building on better incentive structures with contractual requirements for electricity delivery (vis-a-vis the off-taker) and financial liabilities (vis-a-vis the financing institutions), IPPs can improve the reliability of electricity systems. Nepal reduced power outages by increasing the number of IPPs in its electricity.[7]
5. Innovation spillover: IPPs bring advanced technologies, financing, and expertise, benefiting local industries through improved practices, innovation, and enhanced competitiveness. Local industries can gain knowledge in new technologies, business models, and capacity building. Furthermore, properly designed local content requirements in power purchase agreements (PPAs) can stimulate the growth of local industries, integrating them into the supply chain for power project components and materials. For instance, local industries might need to establish new facilities or expand existing operations to meet the demand generated by IPP projects.
6. Public investment: Some IPPs offer opportunities for public financial participation through investment instruments such as green bonds and publicly traded shares. Such instruments allow individuals and institutional investors to contribute to and benefit from renewable energy expansion, fostering greater public support and engagement in the sector.[8]

Yet, despite their proliferation over the past years, IPPs have not been as prominent in most Asian economies as expected, due to several reasons:

1. Regulatory risks: Weak or unstable regulatory frameworks can deter investors and slow project implementation. Clear and consistent policies are essential to attract and retain private investment in the energy sector.
2. Grid integration issues: Many emerging economies lack modern grid infrastructure to effectively integrate renewable energy from IPPs. Upgrading grid systems is necessary to accommodate variable renewable energy sources and ensure reliable distribution.
3. Tariff and payment risks: Power purchase agreements (PPAs) with state utilities may suffer from delayed payments or renegotiations, impacting financial viability. For instance, in 2025, development finance institutions criticised Pakistan's renegotiation of clean power contracts with IPPs, highlighting concerns about investor confidence.[9]
4. Social and environmental concerns: Large-scale renewable projects can face land acquisition conflicts and environmental opposition. Engaging local communities and conducting thorough environmental assessments are crucial to addressing these challenges.

About this guidance

With this guidance, we aim to assess these challenges and provide practical insights to IPP investors and utility companies to support an accelerated Asian green energy transition. for all Asian markets about green IPPs in general and green IPPs with Chinese sponsors in particular. The guidance is based on an extensive literature review and interviews with over 40 experts from 10 Asian countries engaged in policy and IPP design, negotiation, finance, and implementation. To achieve that goal, the guidance first provides a glance into the Asian energy system (Chapter 2). Chapter 3, the key part of the document, provides practical insights for improving IPP design for both IPP bidders and off-takers across the project lifecycle of an IPP (starting from a request for proposals to bidding, from IPP negotiation to finance and operation) with a focus on Chinese engagement. Chapter 4 provides a summary and conclusion.

Asian energy systems—commonalities within the diversity

Each Asian energy market has specific design elements and unique features, opportunities and challenges impacting green IPP design. Regulations about IPP ownership, tariff structures, off-taker requirements, strength of the transmission networks, depth of domestic financial markets, green energy endowments through wind, solar or hydro capacity, policy support and many other characteristics differentiate Asian energy markets. However, the region, as a whole, still has a common theme: A need to accelerate the green energy transition.

Understanding the role of IPPs in Asian energy systems

All major Asian countries support the development of Independent Power Producers (IPPs), but regulatory frameworks differ significantly across the region. These differences shape IPP business models, particularly regarding ownership structures and permitted electricity buyers.

Several countries, including Indonesia, Thailand, Vietnam, and Pakistan, operate under a single-buyer model, where all IPPs sell electricity to one designated off-taker. This off-taker is typically a state-owned enterprise (such as PLN in Indonesia) or a government agency (such as the Central Power Purchasing Agency in Pakistan). However, even within this model, there are variations. Recent reforms in some countries have started to broaden the potential customer base for IPPs, including small-scale, distributed solar generation, which is often allowed to sell to municipal distributors, as in Thailand. [10]

IPP ownership rules also vary by country. For instance, Vietnam permits 100 per cent foreign ownership of IPPs, while other countries impose restrictions based on factors such as required joint ventures or the size of the generation project. In some cases, project developers are allowed to divest their shares after the project is commissioned, although the identity of the off-taker typically remains unchanged.

Table 2: Difference in IPP practices in Asian countries

Country	Offsite PPA	Onsite/corporate IPP	IPP Ownership
Indonesia[11]	PLN sole off-taker	Not commonly practiced	PLN typically requires mandatory partnership through its subsidiaries holding 51%, open to foreign investors
Vietnam[12]	Vietnam Electricity (EVN) main off-taker Direct sale to large consumers also via private connection line	Possible in a zonal or cluster model	No specific co-ownership requirements, open to foreign investors
Thailand[13]	Electricity Generating Authority of Thailand Direct sale to other entities is possible	Possible (e.g., industrial-scale rooftop solar projects)	No specific co-ownership requirements Plans to increase restrictions on foreign ownership to 49% [14]
Malaysia[15]	Tenaga Nasional Berhad primary off-taker	Available for industrial and commercial consumers	No specific co-ownership requirements, restriction of foreign ownership in renewable energy producers to 49%, particularly to participate in the feed-in-tariff scheme.
Philippines	Unbundled	Commonly practiced	No specific co-ownership requirements, open to foreign investors
Pakistan	Centra Power Purchase Agency (CPPA-G) primary off-taker	Currently being evaluated[16]	No specific co-ownership requirements, open to foreign investors

In addition to regulatory and ownership differences, project development and commissioning practices for IPPs also vary significantly across Asian countries. For example, in Thailand, the off-taker does not provide credit support, whereas in Indonesia, it can. Contract structures differ as well: some countries offer long-term agreements that include payment for excess energy, while others do not. Equity arrangements also vary, reflecting national policy preferences and investor requirements.

The involvement of Engineering, Procurement, and Construction (EPC) contractors further illustrates this diversity. In some countries, EPC contractors must be selected through an open tender process. In others, the IPP sponsor may nominate an EPC contractor directly, provided there is no conflict of interest. Rules around local content add another layer of complexity. Some jurisdictions mandate a minimum share of local participation or ownership (e.g., Indonesia), though these requirements are often subject to exemptions or relaxation under specific conditions.

Such variation highlights the need to examine IPP models and energy systems in Asia on a case-by-case basis. Even when countries adopt similar frameworks—such as the single-buyer model—implementation and supporting regulations differ widely.

The following sections focus on Indonesia and Pakistan as illustrative cases. These countries were selected for their high levels of Chinese engagement in the energy sector in recent years and for their contrasting approaches to IPP governance and energy system management.

Energy system in Indonesia

Indonesia's power system is dominated by the state-owned utility PLN (Perusahaan Listrik Negara), which controls most of the country's electricity generation, transmission, distribution, and retail. While the electricity mix remains heavily reliant on fossil fuels—around 66 per cent from coal and 13.6 per cent from natural gas[17]—there is a growing ambition to scale up the role of Independent Power Producers (IPPs), particularly to support decarbonisation. The draft Electricity Supply Business Plan (RUPTL) 2024–2034 outlines an aspirational target of 75 per cent renewable energy in the national energy mix.[18]

IPPs are expected to play a critical role in meeting this target. As of 2022, IPPs accounted for approximately 37 per cent of Indonesia's total installed capacity.[19] According to the draft RUPTL 2025–2034, PLN aims to raise this share to between 65 per cent and 70 per cent. IPPs are projected to develop significantly more renewable energy capacity than PLN itself—an estimated 11,779 MW compared to PLN's 9,144 MW.[20] Correspondingly, investment needs are substantial: approximately USD 4.95 billion for IPPs and USD 2.58 billion for PLN.[21]

Under Indonesia's single-buyer system, IPPs must operate within an integrated electricity sector where PLN oversees all phases of the value chain. PLN operates through a network of sub-holdings and subsidiaries responsible for generation, transmission, distribution, and customer service. In sponsored IPP arrangements, these subsidiaries often take equity stakes in IPP projects. Once an investor is selected through a bidding process, a PLN subsidiary typically forms a joint venture company (JVC) with the IPP sponsor. Ownership structures can vary by project.

For example, the Cirata Solar PV project is managed by Jawa Bali Masdar Solar Energy (PMSE), with Masdar holding 49 per cent and PLN Nusantara Power owning 51 per cent. The Karangkates Solar PV project is operated by Nusantara Guodian Karangkates Indonesia (NGKI), a partnership between PLN Nusantara Power (51 per cent), China Guodian (44 per cent), and Jasa Tirta (5 per cent). By contrast, the Jawa 7 power plant is owned by Shenhua Guohua Pembangkitan Jawa Bali (SGPJB), with Shenhua Energy holding a 70 per cent stake and PLN's subsidiary Pembangkitan Jawa Bali owning 30 per cent. Once the JVC is formed, it negotiates a Power Purchase Agreement (PPA) with PLN.

Local content requirements also influence IPP development. MEMR Regulation No. 26/2021 mandates local content levels ranging from 7 to 70 per cent for electricity projects, with full enforcement beginning in 2025.[22] Recent relaxations were introduced to accelerate solar power deployment but are set to expire on June 30, 2025. These relaxations apply only to projects with PPAs signed by December 31, 2024, and scheduled to reach commercial operation by June 30, 2026.[23]

China plays a major role in Indonesia's electricity sector.[24] Since 2010, Chinese companies have been involved in operating 11,523 MW of electricity capacity in Indonesia, with an additional 3,340 MW under construction and 2,850 MW in planning.[25] Key players include China Guodian, PowerChina, and China Shenhua, along with several Chinese banks.[26] In the green IPP space, China has recently contributed as both project developer and EPC contractor. For instance, Chinese firms are involved in the Karangkates Solar PV project as an IPP partner and in the Cirata Solar PV project as the EPC contractor—highlighting their increasingly central role in Indonesia's renewable energy landscape.

Energy system in Pakistan

Pakistan's electricity sector is shaped by a single-buyer model in which the Central Power Purchasing Agency (CPPA) is the designated off-taker for all grid-connected Independent Power Producers (IPPs).

The sector is vertically unbundled, with separate entities responsible for generation, transmission, and distribution. The National Transmission and Dispatch Company (NTDC) manages transmission, while several public and private entities handle generation. Power distribution is managed by a group of 10 state-owned regional distribution companies (DISCOs) and the privately owned K-Electric (formerly Karachi Electric Supply Company).

IPPs are a central feature of Pakistan's power landscape. As of recent years, they account for more than 50 per cent of the country's installed generation capacity.[27] IPPs operate under long-term Power Purchase Agreements (PPAs), typically denominated in US dollars and underwritten by sovereign guarantees, which has historically made Pakistan a relatively attractive destination for foreign investors.

However, the sector faces persistent financial stress, largely due to circular debt—an accumulation of unpaid bills among power sector entities—which creates delays in payments to IPPs and discourages new investment. Efforts to reform tariff structures, improve distribution efficiency, and reduce losses have been ongoing, but progress remains slow.

China has been a dominant player in Pakistan's electricity sector, particularly under the China-Pakistan Economic Corridor (CPEC), a flagship initiative of the Belt and Road Initiative (BRI). It has installed 832 MW since 2012, with a total capacity of 18,555 MW, of which 11,159 MW are in operation, 4,553 MW are under construction, and 2,843 MW are in planning.[28] Major Chinese IPPs in Pakistan include China Power Hub Generation Company (CPHGC), Port Qasim Electric Power Company (PQEPC), and Suki Kinari Hydropower Project. In many of these projects, Chinese firms also serve as EPC contractors, backed by financing from Chinese policy and commercial banks.

In the renewable energy space, Chinese involvement is growing, though still modest compared to fossil fuel investments. Recent projects include participation in utility-scale solar and wind IPPs, often in collaboration with Pakistani firms under joint venture structures. While local content requirements in Pakistan are less formalised than in Indonesia, there is increasing emphasis on technology transfer, local employment, and grid integration standards for new renewables.

Looking ahead, Pakistan is aiming to increase the share of renewables in its energy mix to 60 per cent by 2030. Achieving this target will depend heavily on continued reforms in market design, improvements in financial governance, and sustained international engagement—including with Chinese firms that remain key partners in both conventional and green power development.

China's role in Asia's green energy transition and IPPs

Chinese companies and financial institutions have played a significant role in developing energy projects across Asia, with strong financial involvement across fossil and green energy projects, energy infrastructure, provision of EPC services and supply of renewable energy components.

Three key factors contribute to China's dominant role in supporting the energy transition in Asia:

- Technology: Chinese companies are the major providers of renewable energy technologies, owning approximately 80 per cent of the global solar PV manufacturing capacity[29] and approximately 55 per cent of the global manufacturing capacity for onshore wind turbines (and projected to reach 70-80 per cent by 2030 for offshore wind turbines).[30]
- Finance: Chinese financial institutions have significant resources to deploy in emerging markets driven by both its policy banks (e.g., China Development Bank or China Exim Bank) and commercial banks (e.g., ICBC, Bank of China, China Construction Bank). In 2023, China engaged around US$3.5 billion in energy investment in Asia Pacific.[31] Further, Chinese banks provided 65 per cent of the financing for Chinese renewable energy projects overseas until 2022.[32] China has the potential to provide significant future financing opportunities for Asian countries to build electricity generation capacity.
- EPC and IPP experiences: With extensive experience building fossil energy IPPs in various Asian countries, China's re-engagement as a player in green IPPs benefits from its established understanding of the Asian electricity market and climate. In addition, some Asian countries that have previously engaged with China already understand how to conduct business with them, fostering confidence on both sides for future green IPP projects.

However, this growing role is not without downside risks. Rising antidumping tariffs on Chinese solar modules, currency exposure from loans denominated in RMB or USD, and debt sustainability concerns—such as those raised by the IMF in Laos and Pakistan—highlight the need for more transparent, diversified, and resilient investment frameworks. Addressing these risks will be critical to ensuring that China's contribution supports both national energy transitions and long-term fiscal stability.

Practical guide for closing the green energy gap with (Chinese) IPPs in Asia

This chapter provides a guide for Asian and Chinese participants in green IPPs, with a focus on IPP sponsors and off-taker. It is developed under the premise that Chinese participation in IPPs is one avenue for scaling green IPPs in Asia, and many of the elements of the guide will also apply to non-Chinese green IPP sponsors. What distinguishes Chinese sponsorship in green IPPs in Asia is the pre-existing engagements in both green energy project development as EPC companies and their participation in conventional IPPs.

Accordingly, the guide focuses on providing specifics of green IPP design with Chinese participation along the project lifecycle. The guidance touches upon elements of general IPP design where necessary, recognising that many of these elements have been well documented previously.

The need for green IPPs

Energy projects—whether based on renewable sources or traditional fossil fuels—are inherently complex and carry multiple layers of risk. These include technical risks related to the construction and operation of power plants, financial risks due to the need for large upfront investment and long-term payback periods, economic risks such as currency fluctuations (especially when revenues earned in local currency must be converted into foreign currencies), and political risks stemming from potential changes in regulation or government priorities.

To manage these risks effectively, energy projects require mechanisms to pool diverse expertise and mobilise finance from multiple parties while distributing risk across stakeholders. The Independent Power Producer (IPP) model is one such mechanism. IPPs are limited liability, investor-owned special purpose vehicle (SPV) that generate electricity for sale to utilities or other off-takers under commercial terms. Unlike state-owned utilities—which historically dominated power generation in much of Asia—IPPs operate with clear profit motives, with financial returns anchored in Power Purchase Agreements (PPAs) that outline the commercial relationship with the off-taker.[33]

To support renewable energy goals, a specific class of IPPs—green IPPs—focus exclusively on generating electricity from renewable sources such as solar, wind, geothermal, hydropower, or other low-emission technologies. Due to the nature of these sources, green IPPs face unique risks and opportunities that differ from those of traditional thermal power projects.

One key distinction lies in intermittency. Fossil fuel and nuclear power plants generally provide consistent output, with utilisation rates often exceeding 90 per cent, depending on maintenance schedules. In contrast, renewable energy sources are subject to natural variability—such as changes in wind speed, sunlight availability, or water flow—leading to less predictable generation.

Other notable differences include:

- Fuel cost variability: Green IPPs benefit from low or zero fuel costs, whereas fossil-fuel projects face ongoing exposure to volatile fuel prices.
- Geographic location: Renewable energy generation often occurs in areas with optimal natural conditions (e.g., wind corridors or high solar irradiance), which may be far from end users, requiring significant investment in transmission infrastructure.
- Deployment and scalability: Green energy systems are often faster to deploy and easier to scale up than large fossil-fuel-based plants.
- Curtailment risk and ancillary revenues: Green IPPs may face curtailment (i.e., having to reduce output due to grid constraints), but can also benefit from additional revenue streams such as renewable energy credits or carbon credits.

These distinctions highlight the need for tailored project structuring and risk mitigation strategies in green IPPs. Table 3 below provides a comparative overview of key differences between thermal and green IPPs.

Table 3: Differences between thermal and renewable IPPs

Characteristics	Thermal IPPs	Green IPPs
Energy source	Fossil fuels, such as coal or gas	Any renewable energy sources such as solar, wind, geothermal (hydropower can be considered renewable)
Availability/reliability	High availability and reliability except for maintenance	Intermittent availability particularly in wind and solar due to weather; Availability can improve with battery energy storage (BES)
Fuel costs	Volatile fuel cost based on market prices with potential additional risk due to foreign exchange risk when paying fuel in USD/EUR	No fuel costs
Physical distance production to user	Flexible distance with potential to build close to user	Need to utilise natural features (e.g., wind, solar, water) to generate electricity, which might be far from power users and thus require stable power transmission
Speed of deployment to reach commercial operation date (COD) from the execution of PPA	The mid-sized thermal plant will take 3-5 years	Mid-sized solar or wind project will take 1 – 1,5 years
Risk of curtailment	Traditionally low, but depending on national energy regulations	Traditionally higher, but depending on national energy regulations
Ancillary revenues	Through carbon capture, possibility to generate carbon credits	Immediate generation of carbon credits and/or renewable energy credits Potential use of land of power plant for agriculture (e.g., agrisolar[34])
Typical PPA features	Physical PPA, cost plus	Virtual, synthetic, sleeved ...

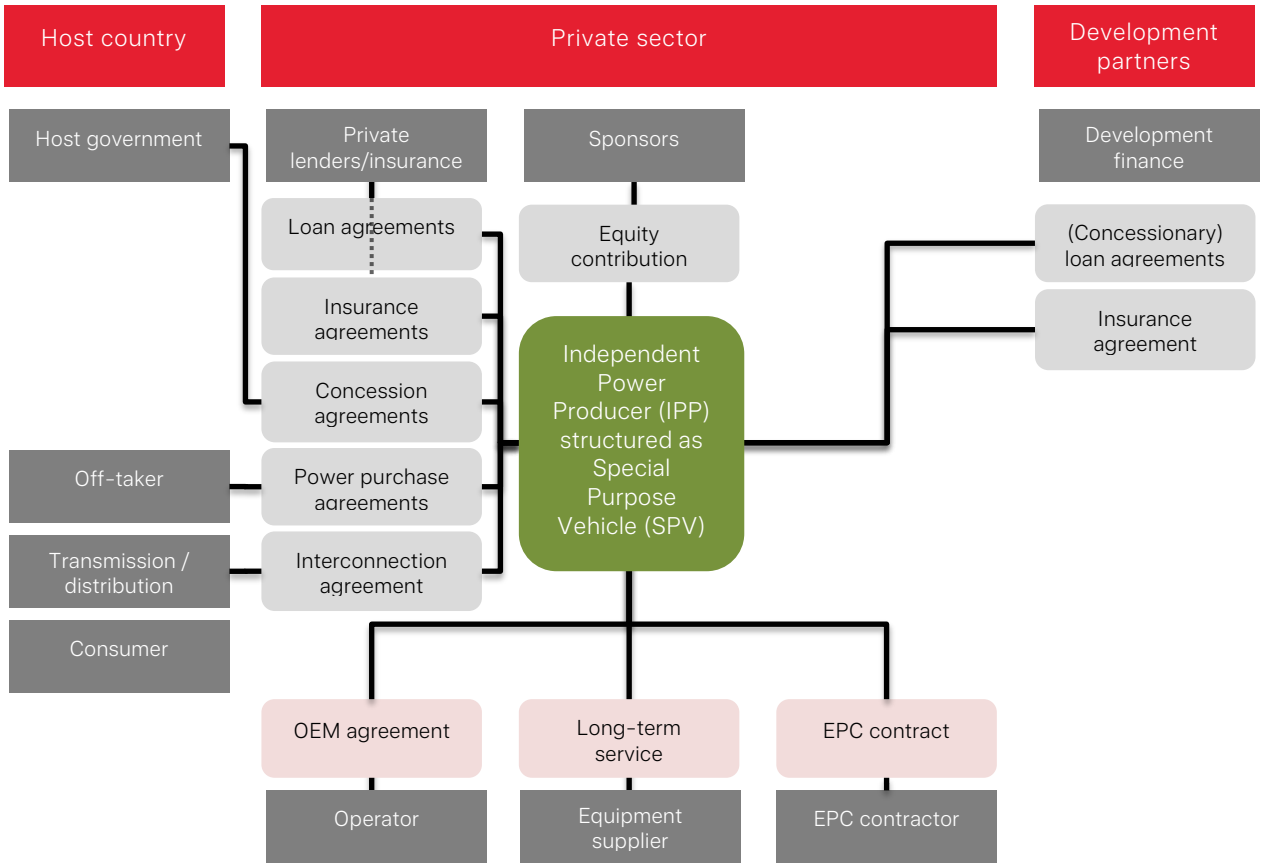
Parties to an IPP

Several key parties are essential to the successful development and financing of an Independent Power Project (IPP). Identifying and integrating the right partners early in the project lifecycle is critical to achieving project objectives while minimising risk.

To allocate responsibilities and distribute risk, IPP stakeholders typically establish a Special Purpose Vehicle (SPV)—a dedicated legal entity created specifically for the project. While less formal arrangements, such as joint ventures, may be used in smaller projects, the SPV model is standard in large-scale project finance. The SPV, usually incorporated as a limited liability company in the host country, is owned by the project's investors and holds all key project agreements, including those with lenders, off-takers, regulators, and service providers.

As the project progresses through its preparation and structuring phases, the SPV becomes the central hub in a network of contracts that manage and allocate risks across parties.

Figure 4: Parties and components of an IPP (based on TransitionZero)



The main parties involved in an IPP include (see Figure 4):

- Shareholders: These are the equity investors in the SPV, bound by a shareholder agreement that defines their rights and responsibilities. In Chinese-sponsored IPPs, sponsors typically include Chinese private and state-owned enterprises.
- Lenders: These institutions provide debt financing to the SPV. Loan terms are defined in a loan agreement between the lenders and the SPV. Lenders may include multilateral development banks (e.g., ADB, AIIB, IFC), Chinese financial institutions, and local public or private banks.
- Insurers: Insurance coverage is provided for exceptional risks, such as political instability or climate-related events. Both commercial (e.g., Sinosure, Allianz) and non-commercial insurers (e.g., the World Bank's MIGA) may be involved.
- Grantors and credit enhancers: These parties may support the project through grants, concessional finance, or export credits. They include development and policy banks, as well as export credit agencies that enhance project bankability.
- EPC contractor (engineering, procurement, and construction): Responsible for delivering the physical infrastructure, the EPC contractor operates under a turnkey agreement. Chinese EPC firms are dominant in constructing energy systems across Asia and often coordinate with subcontractors.
- Equipment supplier: These parties provide critical components such as turbines, solar panels, or battery systems. Chinese suppliers are major players in the green energy equipment market and are involved in most renewable energy IPPs in Asia.
- Operator: After commissioning, the operator is responsible for managing day-to-day plant operations. Operators are often shareholders in the SPV, aligning operational performance with financial interests.
- Off-taker: The off-taker is the primary source of revenue for the SPV, typically a state-owned utility company. The commercial terms are established in a long-term Power Purchase Agreement (PPA). Common off-takers in Asia include PLN (Indonesia), EVN (Vietnam), EdL (Laos), and TNB (Malaysia).

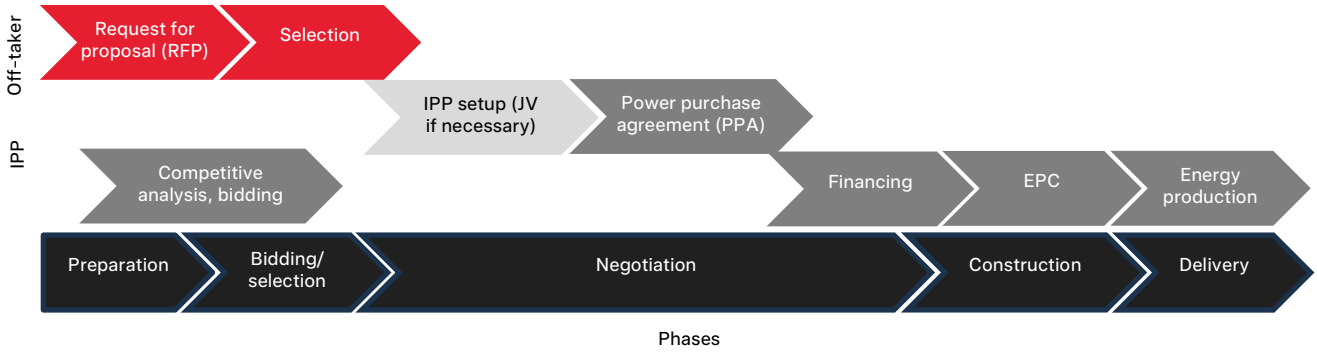
Beyond these core parties, other parties also play important roles at different stages of the project, including:

- Host government / regulatory authorities: These entities issue permits and licenses and may also participate as guarantors or minority shareholders in the project.
- Independent consultants: Provide assessments on environmental, social, technical, and financial aspects of the project, often required for due diligence and compliance with ESG standards.
- Independent auditors: Responsible for verifying financial and operational disclosures to ensure transparency and accountability across all stakeholders.
- Legal advisors: Lawyers draft and review contracts, ensuring legal and regulatory compliance. Early engagement of experienced legal counsel is essential to securing lender approval and minimising contractual disputes.
- Facility agent: Often a lender, the facility agent administers the syndicated loan on behalf of all lenders, ensuring the SPV complies with financial covenants and reporting requirements.

Succeeding in different phases of an IPP

For IPPs to move from proposal to operation, they typically go through several phases, each with their own goals and process steps. With the goal of this guidance to accelerate green IPP development, it is important to understand the purpose and risks associated with different phases of IPP development. Every phase brings challenges to different parties involved in the IPP, particularly for potential sponsors, off-takers and the IPP itself (see Figure 5).

Figure 5: Phases for implementing an IPP



Source: Authors.

Preparation – request for proposal (off-taker)

The Request for Proposal (RfP) phase is one of the most critical stages in the development of an Independent Power Project (IPP). During this phase, the off-taker—typically a state-owned utility or designated authority in an Asian economy—defines the key technical, financial, and legal criteria that will govern the bidding process and project implementation.

This phase must be preceded by a comprehensive planning process, which includes electricity demand forecasting, site assessments, grid integration planning, expected tariff modelling, and regulatory alignment. Only after these preparatory steps are completed should the RfP be developed—often with input from relevant ministries and, in many cases, external advisors or consultants.

A fundamental decision at this stage is whether the RfP will follow an open bidding process, allowing any qualified bidder to participate, or a closed (restricted) process, where only pre-selected bidders are invited. In the latter case, the off-taker must establish transparent, pre-defined selection criteria to determine which firms may participate, often based on previous market experience, technical capabilities, and financial track record.

Regardless of the bidding format, Chinese project sponsors—particularly state-owned enterprises (SOEs) - typically focus on several specific elements of the RfP:

- Longer lead times for bid submission to accommodate internal approval processes from Chinese regulatory bodies (more relevant for SOEs than for private Chinese firms);
- Flexibility to divest equity after Commercial Operation Date (COD);
- Local government support, particularly in navigating licensing processes and meeting local content requirements;
- Attractive PPA terms, including favourable payment structures and risk-sharing mechanisms.

A well-designed RfP should also include a draft term sheet for the Power Purchase Agreement (PPA). This allows potential bidders to assess the expected commercial structure—such as whether the PPA is fixed-price (e.g., feed-in tariff), cost-plus, or market-indexed. While IPP sponsors typically prefer more predictable revenue streams, off-takers often prefer PPAs that allocate more risk to the supplier side.

An increasingly important element in renewable energy projects is the ownership of ancillary revenues, such as renewable energy credits (RECs) or carbon credits. Emerging practice across many Asian markets is for the off-taker to retain ownership of these credits, rather than the IPP. Yet, new developments (e.g., in Indonesia) also allow for negotiation of the ownership of these revenues.

While standardising PPA templates across multiple IPPs can increase efficiency for the off-taker, flexibility remains essential to account for differences in generation type, market risk, and evolving policy priorities. In some cases, PPA terms may be structured to evolve over time—for example, with different tariff or risk-sharing arrangements in the first 10 years compared to the second 10 years of operation.

In countries with weaker governance systems, where delays in licensing, tariff approvals, or regulatory decision-making are common, or where the off-taker has limited financial capacity, Chinese firms typically seek additional political assurances or sovereign guarantees to manage their exposure. The off-taker should take this into account when drafting RfP documents and ideally coordinate with relevant government entities to clarify or pre-arrange any support mechanisms.

In jurisdictions where IPPs are required to enter a joint venture (JV) with the off-taker—as is common in Indonesia—many Chinese bidders value the inclusion of a draft JV term sheet in the RfP documentation. This term sheet should clearly indicate which provisions are negotiable and which are not. It should also outline the division of responsibilities, risk allocation (e.g., who bears the cost of budget overruns), and governance arrangements between partners.

Finally, the off-taker should establish a transparent and accessible question-and-answer process - preferably in writing—to clarify any uncertainties during the bidding period. To further facilitate Chinese participation, it is beneficial if the off-taker can provide key materials or responses in Chinese where necessary, especially for SOEs with limited English-language capacity.

Table 4: Considerations in a request for proposal (RfP)

Choices	Option	Considerations
Bidder selection process	Open or closed	More work a priori for closed process by pre-screening and selecting various potential IPP bidders, but less work ex post in the evaluation process
Type of PPA	Risk profiles for off-takers and IPP	Choose PPA according to the expected risk of the electricity production site, the attractiveness of the market for potential IPP sponsors etc. PPAs with lower risk for IPP sponsors include feed-in tariff, cost-plus power, whereas PPAs with lower risk for off-takers include fixed price power, physical power agreements
Timeline of bidding process	Fast/slow	Some Chinese bidders (e.g., SOEs) can bid only in long term bidding processes. This might also include a process where the upcoming RfP is announced early for an SOE to get relevant authority from its regulators to engage in the bidding process. For off-takers interested in a quick process, non-SOE bidders are more relevant.
Possibility to sell stake in IPP	Timing of possibility to sell stake	Some Chinese IPP sponsors might be more interested in building a power plant and then sell it to a more capable operator. The possibility to sell a stake in the IPP will thus attract more diverse bidders for the IPP. Particularly in countries where JVs with an off-taker are typical IPP structures, this might lead to additional transaction cost which would have to be specified who bears them (e.g., only seller/buyer in the transaction, or whole JV).
Government support	None/implicit/explicit	Off-takers might offer various forms of government support to reduce various risks for potential bidders, including credit support, FX support, payment guarantees.

Finally, the off-takers should prepare clear and measurable evaluation criteria, which and should be made public as part of the RfP (see Appendix 1 for an overview).

Box 1: Checklist of preferences and considerations specific to Chinese IPP bidders

- ✓ Longer lead times for bid submission, especially for Chinese state-owned enterprises (SOEs), due to extended domestic approval processes for overseas investments.
- ✓ Flexibility to divest equity stakes after Commercial Operation Date (COD), allowing sponsors to exit or reduce involvement post-construction.
- ✓ Strong support from local governments, particularly in:
  - Accelerating licensing and permitting processes.
  - Facilitating compliance with local content requirements.
- ✓ Attractive PPA terms, including:
  - Favourable payment structures.
  - Clear risk-sharing mechanisms.
- ✓ Inclusion of a draft PPA term sheet in the RfP, offering clarity on the expected commercial model.
- ✓ Clarification on ownership of ancillary revenues, such as renewable energy credits (RECs) or carbon credits—preferably with clear terms even if the off-taker retains ownership.
- ✓ Pre-arranged political assurances or sovereign guarantees, especially in countries with:
  - Weaker governance frameworks.
  - History of delayed approvals or financially constrained off-takers.
- ✓ Inclusion of a draft Joint Venture (JV) term sheet (in countries requiring JV structures), with clear stipulations on:
  - Which terms are negotiable.
  - Division of responsibilities.
  - Risk allocation (e.g., handling of cost overruns).
- ✓ A transparent Q&A process during the RfP phase to clarify doubts in a formal, written format.
- ✓ Availability of RfP documents or communication in Chinese, particularly helpful for SOEs with limited English capacity.

Bidding (potential IPP sponsor)

In the bidding phase, potential IPP sponsors, such as Chinese companies or consortia, need to comprehend the opportunities and risks of the project and evaluate its competitive position vis-à-vis potential other IPP bidders. As the bid preparation is associated with significant transaction cost, Chinese bidders should carefully evaluate the likelihood of becoming the preferred bidder. Some guiding questions are:

- Do we have previous experience and credibility in this market?
- Do we have credible capacity to deliver this specific project?
- How does this project fit into our overall strategy? Is it potentially even a strategic investment?
- What are the technical risks of the project itself, risks on the site, natural endowments (sunshine hours, wind hours…), availability of transmission lines etc.? Do we have the capacity and experience to manage these risks?
- What are the political and economic risk, including foreign exchange risks, payment risks, political stability? Do we have the capacity and experience to manage these risks?
- What are the legal risks, including licencing risks, ownership structures, local content requirements, governance? Do we have the capacity and experience to manage these risks?
- What are the environmental and social risks (E&S risks), including the need for resettlement, availability of environmental mitigation options? Do we have the capacity and experience to manage these risks?

The potential bidder should also have a good understanding of the market: who are the competitors likely to bid or prepare offers? What are their strengths in technology, operation, price?

The bidder, including Chinese IPP sponsors, should be working in partnership with local companies and consultants to improve its understanding of the local context. This might include legal advisors to understand the specifics and the dynamics of legal and political issues, as well as with local technical advisors understanding specifics of the sites and power network. The bidder can also include local partners in the bidding preparation for finance (e.g., local banks), construction companies etc. to maximise localisation where possible.

An important consideration for the potential Chinese bidder is to have sufficient English and ideally local language capacity.

It is important to note that bidders should not bid for RfPs where they are unlikely to make a sufficient financial return (unless it's a strategic investment project), or don't have the capacity to deliver or manage the risks appropriately.

Table 5 summarises the considerations for (Chinese) bidders in an IPP bidding process.

Table 5: Considerations for IPP bidding process

Considerations	Details
Technical	Quality and consistency of the renewable resource: • Solar: irradiance levels (GHI, DNI), seasonal variability. • Wind: wind speed and direction profiles, turbulence intensity, shear. • Data availability and measurement duration (preferably 12–24 months of onsite data). Technology maturity and appropriateness: • PV panel type (monocrystalline, bifacial, etc.) • Wind turbine specifications (hub height, rotor diameter). • Design compatibility with local standards and climate conditions. Grid integration capabilities: • Proximity and capacity of transmission infrastructure. • Grid stability and flexibility in the local system. • Interconnection requirements and standards (voltage level, frequency, fault ride-through, etc.). • Forecasting and curtailment readiness—is the grid operator capable, and how will variability be managed? Compliance and certification: • Technical standards: IEC, IEEE, national standards.
Logistics	Infrastructure and logistical considerations: • Transport routes for heavy components (turbines, blades, inverters). • Site accessibility and suitability for construction. • Availability of construction materials and workforce.
Environmental and social	Environmental risks: • Protected areas, biodiversity concerns, migratory paths (especially for wind). • Water use and waste management (especially for PV cleaning or construction). Social Impact: • Land acquisition and resettlement issues. • Community engagement and consent. • Job creation and local development benefits. ESG compliance and international standards: • IFC performance standards or equator principles. • Lender environmental and social due diligence requirements. • Ongoing stakeholder engagement mechanisms.
Legal and regulatory	Permission and approvals: • Clarity, complexity, and timeline of permission process. • Environmental impact assessment (EIA) requirements. • Land rights and leasing regulations. Legal environment: • Strength and transparency of contract enforcement. • IPP licensing requirements. • Local legal counsel availability and quality. Contractual frameworks: • PPA terms: duration, tariff structure, currency denomination, escalation. • Land lease agreements, EPC and O&M contracts. • Dispute resolution mechanisms (local vs. international arbitration). Localisation requirements: • Mandates for local content in equipment or labour. • Compliance with national industrial policy or procurement rules.

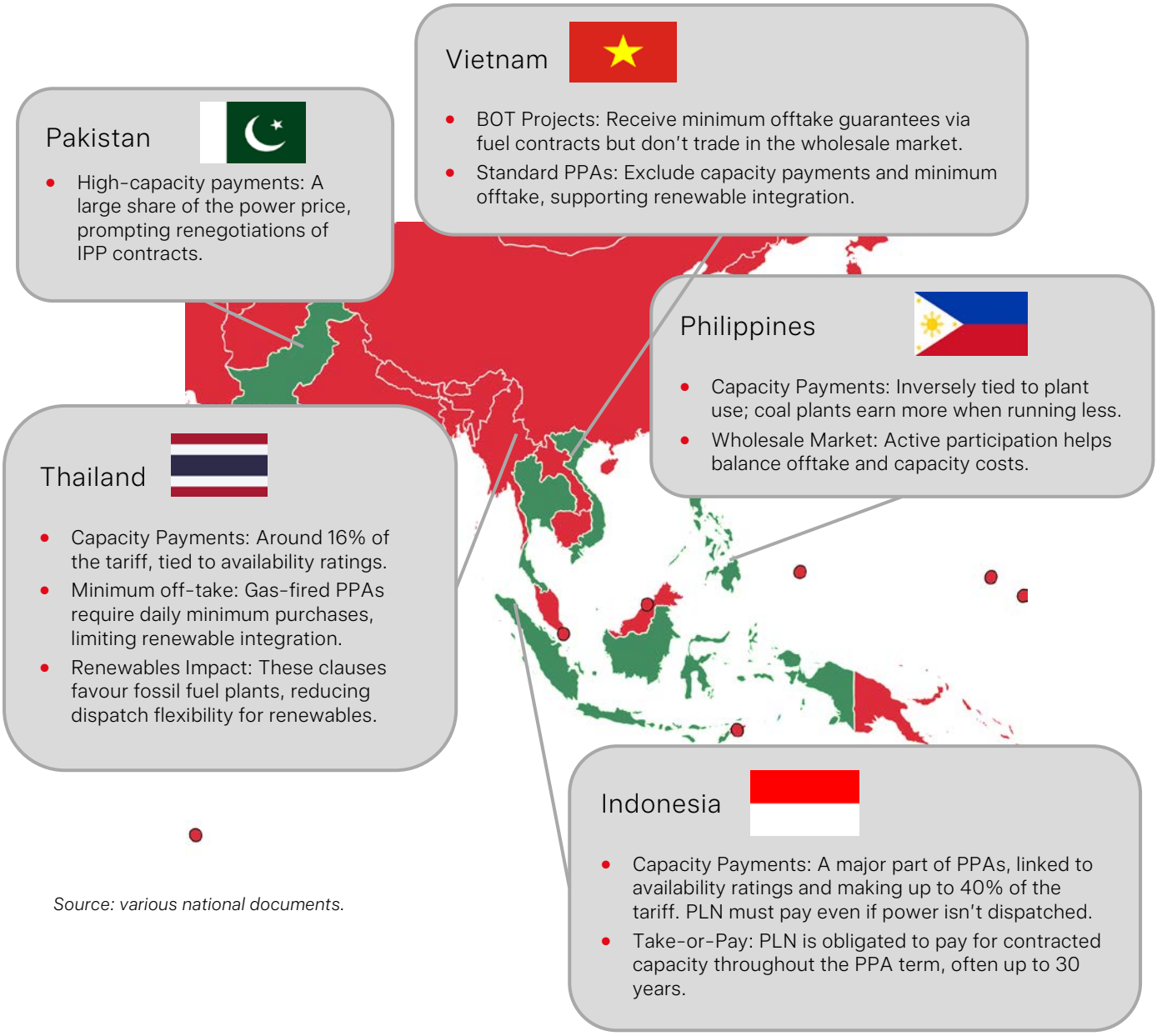
Economic	Project economics: • CAPEX/OPEX benchmarks and local cost factors. • Access to concessional finance or blended capital. • Import duties and tax incentives (VAT exemptions, tax holidays). Tariff attractiveness: • Tariff ceiling or floor set by the regulator or off-taker. • Competitiveness of the bid within the regional context. Currency and inflation risks: • Local currency volatility and convertibility. • Indexation clauses in the PPA or hedging options. Access to financing: • Availability of long-term debt (local or international). • Experience of local banks with RE project finance. • Political risk insurance or credit enhancement mechanisms (e.g., MIGA, IFC)
Institutional and political	Regulatory stability: • Track record of policy consistency in energy sector. • Risk of retroactive tariff changes or contract renegotiation. Utility/off-taker viability: • Creditworthiness of the buyer (often a state-owned utility). • Payment history, receivables delays, or default risks. Government support: • National targets for renewable energy. • Support from ministries or regional authorities. • Sovereign guarantees or letters of support. Political risk: • Country risk rating and political stability. • Exposure to expropriation, corruption, or conflict.
Competition	Competitor landscape: • Who else is bidding? Local vs foreign players. • Risk of undercutting or aggressive pricing in tenders. Strategic partnerships: • Availability of local co-developers, EPCs, and service providers. • Role of development finance institutions (DFIs). Future market dynamics: • Market liberalisation trends or upcoming reforms. • Potential for hybridisation (e.g., solar + storage). • Carbon markets or green certificate schemes.

Once the potential IPP sponsor, such as a Chinese IPP sponsor, has evaluated its own suitability to provide the bid, the IPP sponsor prepares the bid and submits the bid in time. To increase chances of success, the IPP sponsor should have appropriate legal support to ensure all requirements of the RfP are met, while also highlighting the potential sponsor's strengths in delivering the project better than the competition. For RfPs with a requirement for online submission, it should be established that software or technical systems can be overloaded or fail and thus submission of the bid ahead of time is advisable. Some countries, like Indonesia, mandate pre-registration on a procurement platform where unregistered parties are excluded from bidding.

IPP Negotiation (off-taker and IPP sponsor)

Once selected the preferred bidder is selected by the Asian off-taker , the goal of the IPP negotiation is to finalise project agreements, including the Power Purchase Agreement (PPA), Implementation Agreement (IA) (where applicable), grid connection agreements, and often land-related contracts. The goal is to balance commercial viability, risk allocation, and regulatory compliance. In some jurisdictions, the IPP will need to be established as joint venture with a company related to the off-taker (e.g., in Indonesia) (see Figure 6 for an overview of IPP structure requirements and standards across various Asian economies).

Figure 6: IPP structure requirements across various Asian economies



Source: various national documents.

Good preparation, commitment and decision-making authority of the negotiation from both sides is key for a timely negotiation. As experiences from Indonesia and Pakistan show, it can take 6 months to 24 months for PPA negotiation.[35] Prolonging the negotiation can threaten the project's construction and commission timelines and thus the project's commercial viability for both off-taker and IPP sponsor. Unsatisfactory PPA terms can cause prolonged negotiations between IPPs, off-takers, and financiers. Table 6 provides an overview of PPA types across Asia.

Table 6: Types of Power Purchase Agreements (PPAs) across Asia

Overview

The Power Purchase Agreement (PPA) is the key contract for IPPs to agree on a long-term buy-sell relationship with electricity off-takers, such as utilities, corporations, or large consumers. The PPA is a crucial component of any independent power producer (IPP) project, especially in regions with diverse regulatory and legislative practices.[36] Carefully negotiated long-term PPAs are essential, as they lay the groundwork for making IPP projects bankable and thus allow IPP sponsors to secure the necessary financing for the IPP. Across Asia, PPAs often have clearly articulated requirements based in local law or other related energy regulations to reduce transaction cost in designing IPPs and to provide a level playing field among IPP sponsors within a country.

Key considerations of an PPA include:[37]

- Financial Terms: PPAs set the volume of power to be purchased, availability requirements, and risk allocation between parties.
- Contract Duration: Typically ranges from 15 to 30 years, allowing for long-term financial stability.
- Termination Provisions: Often require payment of book value plus lost profits if terminated early.

PPA Type	Characteristics	Advantages	Disadvantages	Examples in Asia
Physical PPA	Electricity is physically delivered; price can be fixed or tied to market rates via caps/floors.	Revenue stability; direct power delivery	Transmission complexity; grid dependency	Indonesia (PLN), Vietnam utility-scale renewable PPAs
Virtual PPA	No physical delivery; buyer pays a fixed price and settles the difference with market price financially.	Location flexibility; supports green energy goals	Exposure to market volatility; no physical control	Used by corporations like Google and Microsoft in India and Singapore
Corporate PPA	Corporation contracts directly with generator; price may be fixed or market-based, depending on PPA type.	Meets ESG targets; long-term price certainty	Contract complexity; off-taker credit risk	Vietnam Decree 57/2025/ND-CP enabling direct sales to corporates
Sleeved PPA	Electricity is physically delivered via an intermediary; price often fixed or based on a virtual contract.	Avoids direct grid arrangements; maintains financial terms	Added intermediary costs; regulatory complexity	Common in Japan and parts of Southeast Asia via local utilities
Green PPA	Focuses on renewables; price typically fixed to ensure long-term support for clean energy sourcing.	Supports sustainability and branding; ESG alignment	May cost more than conventional PPAs	Equinix-TagEnergy deal (Australia, 2024); widely used by MNCs in Asia
Market-based PPA	Price is linked to wholesale market rates; subject to fluctuation based on market conditions.	Potential for cost savings when prices drop	High exposure to price spikes; requires hedging	Thailand's ERC programs (e.g., private PPAs under ERC sandbox); Vietnam pilot under MOIT guidance
Cost-plus PPA	Buyer pays actual project costs plus a fixed margin; price varies with input costs and operational needs.	Lower risk for IPP; transparency on costs	Cost overruns passed to buyer; less price predictability	Used in early BOT coal projects in Pakistan (e.g., Sahiwal plant); legacy hydropower projects in China
Fixed-price PPA	Buyer pays a fixed price for the entire term; price agreed upfront covers all generation costs.	Price certainty; easier financial planning	Missed savings during low market prices	Used in solar parks in India and wind projects in the Philippines
Feed-in Tariff (FiT)	Government sets a fixed price, usually above market rates, to incentivise renewable generation over time.	Long-term security; incentivises green projects	May lead to market distortions; limited competitiveness	Vietnam (pre-2021), Thailand early solar phase, Indonesia pilot programs

During the negotiations, involved parties should consider the following key considerations:

- Tariff structure and payment certainty: The PPA must contain clear terms on the tariff (e.g., fixed vs. indexed), payment timelines, force majeure, and penalties for late payment or dispatch issues. For Chinese sponsors, often backed by state-owned entities or concessional finance, a stable and predictable revenue stream is essential for internal approvals and lender confidence. Payment security instruments—such as letters of credit or sovereign guarantees—become even more important where the off-taker is financially constrained or has a history of delayed payments.
- Measurements of energy:
    - Energy measurement The PPA must define how energy output is measured, choosing between historical data or site surveys, and deciding on measurement frequency to accurately assess generation and manage weather-related risks.
    - Excess Energy: The agreement needs to specify payment terms for surplus energy and whether the IPP can sell it to other parties, as this impacts project revenue and off-taker demand.
- Foreign exchange and convertibility risk: Given that Chinese IPPs typically finance in USD or RMB, they must negotiate mechanisms to hedge or offset local currency risks. This may include denominating tariffs in hard currency or negotiating clauses that ensure timely conversion and repatriation.
- Grid access and dispatch certainty: In many emerging markets, grid infrastructure is limited or unreliable. Chinese sponsors must ensure clarity on who bears the cost and responsibility of interconnection. Provisions for curtailment compensation and priority dispatch—especially for intermittent renewables—are critical to protect expected cash flows.
- Political and regulatory risk mitigation: Stabilisation clauses, change-in-law protections, and clear permitting responsibilities are vital. The Implementation Agreement can offer sovereign commitments on these fronts, as well as tax incentives or land access support. Chinese sponsors may also seek these assurances to address internal risk thresholds tied to overseas investment approvals.
- Environmental and social safeguards: Increasingly, host governments and multilateral lenders require alignment with international standards (e.g., IFC Performance Standards). Chinese sponsors whose projects have not historically required such compliance may need to adapt by hiring E&S consultants, developing grievance mechanisms, and enhancing transparency in community engagement.
- Lender-related protections: Off-takers should be prepared to accommodate standard financing-related provisions such as step-in rights for lenders, assignability of contracts, and dispute resolution through international arbitration. These are often non-negotiable for international or Chinese financial institutions.
- Local expectations and geopolitical context: Given rising scrutiny around Chinese investment in infrastructure, particularly through Belt and Road-related financing, negotiations may involve heightened concerns over transparency, local content, and longer-term impacts. Proactively addressing these concerns through clear communication, transparent procurement of EPC services, and inclusion of local stakeholders can improve project resilience and reputational standing.

A summary of risks and challenges for Chinese and Asian partners in the IPP negotiation is provided in Table 7.

Table 7: Risks and challenges in IPP negotiations

Legal interpretation discrepancies	• Differing understandings of legal terminology can lead to misinterpretation, especially new technical and legal terms in renewable energy. • Language barriers, particularly with Chinese partners lacking local representation, amplify the risk of misunderstandings.[38]
Lack of decision-making authority	• Negotiations are delayed when representatives must defer to coordinators or headquarters for approvals. It slows down progress and reduces responsiveness at the table.[39]
Fragmented negotiation teams	• PPA documents often include a main body and a technical appendix. • Using separate teams for each can result in inconsistent interpretations, necessitating renegotiation of previously agreed terms.

Finally, two points need to be considered in the IPP negotiations:

- First, experienced legal counsel is essential in drafting an IPP. These professionals must have a deep understanding of critical local conditions (including regulatory requirements) provisions, terms, and any variations depending on the type of power generation (e.g., solar, wind, hydro). They must also be adept in negotiating key elements of the PPA, ensuring that it is tailored to the specific type of energy source, and addressing related issues such as grid connection, transmission, and ancillary services agreements.
- Second, as the individuals who initially negotiate the IPP may not be involved during the project's operational phase, it is essential that any agreements between the parties are thoroughly addressed and clearly outlined in the written contract to avoid potential misunderstandings in the future. Ultimately, it is critical to emphasise that regardless of any informal discussions or verbal agreements between the parties, only explicitly contractually stated terms carry legal weight.

Box 2: Checklist for negotiation with Chinese IPP sponsors

1. Tariff and revenue security
   - ✓ Clear, stable tariff structure (fixed or indexed).
   - ✓ Strong payment security (letters of credit, escrow accounts, sovereign guarantees).[40]
   - ✓ Defined penalties and remedies for late payments or dispatch failures.
2. Currency and repatriation
   - ✓ Tariff denominated in USD or RMB.
   - ✓ Assurances on currency convertibility and timely repatriation of funds.
3. Risk allocation and legal protections
   - ✓ Robust force majeure and change-in-law clauses.
   - ✓ Grid access clarity (responsibilities and costs).
   - ✓ Compensation for curtailment and priority dispatch rights.
4. Implementation and permitting
   - ✓ Sovereign-backed Implementation Agreement with guarantees for land, tax, and regulatory stability.
   - ✓ Clear responsibility allocation for licensing, land access, and approvals.
5. Joint venture structure (where applicable)
   - ✓ Draft joint venture agreement (JVA) provided early.
   - ✓ Clear equity split, board composition, and voting rights.
   - ✓ Defined exit mechanisms, profit-sharing, and transfer restrictions.
6. Contractual alignment
   - ✓ Consistency across PPA, IA, JVA, and shareholder agreements.
   - ✓ Clear measurement standards and terms for excess energy sales.
7. Timely and efficient process
   - ✓ Negotiation teams with authority to make binding decisions.
   - ✓ Coordinated legal and technical teams to avoid renegotiation.
8. Compliance and ESG
   - ✓ Clear expectations for environmental and social standards (e.g., IFC Performance Standards).
   - ✓ Guidance on grievance mechanisms, local engagement, and transparency.
9. Dispute resolution
   - ✓ International arbitration clause (e.g., SIAC, ICC) for contract enforcement.
10. Communication and support
    - ✓ Transparent Q&A process with written responses.
    - ✓ Availability of bilingual support and translated documents (especially in Chinese).

Securing finance

Mobilising sufficient and appropriately structured financing is a critical determinant of success for green IPPs in Asia. Unlike thermal projects, renewable energy IPPs often require higher upfront capital investments with lower operating costs and longer return horizons.

Green IPPs in Asia typically rely on a combination of equity, commercial debt, and development finance, with capital providers from both domestic and international sources. Equity is typically provided directly by the IPP sponsor, while debt and development finance are drawn from a variety of sources, some of which are listed in Table 8. (If an IPPs is set up as JVs, special financing challenges need to be considered, which are discussed in Appendix 4.)

Table 8: Financing sources for Asian IPPs

Financing source	Key players/instruments	Terms and conditions	Opportunities/trends
Chinese capital providers	Policy banks (e.g., China Exim Bank, CDB), and SOE commercial banks	Sovereign guarantees, political assurances, revenue security often required	Green finance mandates increasing support for overseas renewables (e.g., green bonds)
Development finance institutions (DFIs)	IFC, ADB, AIIB, China Exim Bank, offer concessional loans, guarantees, blended finance	Stricter E&S safeguards (e.g., IFC Performance Standards); stakeholder engagement	Mobilise concessional capital and reduce project risk through de-risking instruments
Domestic financial institutions	Local banks (e.g., in Indonesia, Vietnam) increasingly active in renewables	Faster processing and familiarity with local regulations	Limited capacity in deal size, tenor, hard currency lending, and project finance experience
Emerging instruments and innovations	Green bonds, sustainability-linked finance, carbon finance (RECs, carbon credits)	Link finance to sustainability performance outcomes or emissions targets.	Clarify ownership of carbon benefits in PPAs; mechanisms still maturing in many markets. Not available in all markets, depending on capital market development. Sometimes available in local currency.

To increase the likelihood of mobilising finance, project sponsors and off-takers should consider key 'bankability' factors typically assessed by Chinese policy and commercial banks (see Table 9). Bankability refers to the extent to which a project can attract debt financing by demonstrating reliable revenue generation, effective risk allocation, and compliance with regulatory and contractual standards.

Table 9: Checklist for improving 'bankability' in IPPs

Evaluation criteria	What banks look for	Why it matters
Long-term PPA	15-30 years with a creditworthy off-taker	Ensures predictable revenue stream and project longevity
Tariff structure	Fixed or indexed tariffs with inflation and FX adjustments	Protects revenue against currency and inflation risks
Payment security	Letters of credit, escrow accounts, sovereign or partial risk guarantees	Mitigates default risk and ensures cash flow stability
Lender protections	Step-in rights, assignment clauses, international arbitration	Ensures lender can intervene or recover in case of dispute or failure
Contract quality	Bankable EPC and O&M contracts with performance guarantees and penalties	Assures timely delivery and ongoing performance of the plant
Development milestones	Clear timelines for permits, financial close, and construction	Reduces uncertainty and delays in project execution
Off-taker credit support	Provision of guarantees, escrow-backed payments, or risk sharing	Boosts lender confidence in payment reliability
FX risk management	Clear mechanism to hedge or adjust for FX exposure	Addresses mismatch between local currency revenues and foreign currency loans
Regulatory streamlining	Timely approvals for permits, land, grid connection, and E&S compliance	Accelerates development and reduces regulatory risk
Blended finance facilitation	Coordination with DFIs, multilateral banks, and guarantee providers	Improves financing terms and reduces perceived project risk

For Chinese sponsors, financing strategies are shaped not only by project economics but also by domestic approval processes, bilateral relationships, and the evolving landscape of China's overseas green finance ecosystem.

Constructing the power plant

For Chinese IPP sponsors and Asian off-takers, the construction phase is where execution risks become tangible. Finalising the Engineering, Procurement, and Construction (EPC) contract is a priority, as construction must align with the performance milestones and timelines specified in the PPA. The EPC contractor may be the sponsor's affiliated company or a third-party firm and be selected by the IPP or through public tendering (which is often required by law across Asian economies).[41] In many green IPPs—particularly wind—EPC responsibilities are split. Turbine suppliers handle installation and commissioning, while civil contractors manage the balance of plant (BOP) operations.[42]

Many IPPs prefer working with Chinese EPC contractors due to their integrated project delivery approach. Close coordination between Chinese IPP sponsors and affiliated EPC firms streamlines communication, speeds up decision-making, and reduces delays. Chinese EPCs also often establish local manufacturing in host countries, helping meet local content requirements and supporting job creation. Additionally, some firms offer training for local workers—including basic Chinese and workplace practices—to improve on-site coordination and reduce friction during construction

Several recurring challenges complicate this phase, some of which are listed in Table 10.

Table 10: Recommended actions in construction phase

Issue	Description	Recommended Action
Local content	Compliance with local content requirements is mandatory in many jurisdictions and can affect project approvals.	Support local manufacturing or joint ventures; ensure early understanding of thresholds and documentation.
Permits and social and environmental issues	Delays often stem from unclear permitting processes, land acquisition issues, and conflicting local vs. central government regulations.	Engage early with authorities; ensure clarity on land rights; conduct community consultations.
Timelines	Missing construction deadlines outlined in the PPA or EPC contract can trigger financial penalties or even termination.	Set realistic schedules and include clear force majeure provisions in both PPA and EPC contracts.
Workforce	Challenges include balancing the efficiency of Chinese EPCs with quality control and navigating foreign worker visa requirements and quotas.	Develop a hybrid labour strategy, provide early training for local workers, and streamline visa coordination.
Technology modifications	Design or equipment changes may be initiated by the off-taker or driven by market or regulatory shifts, raising questions about cost responsibility.	Define cost-sharing responsibilities and establish clear change-order procedures in project agreements.
Testing	Final testing verifies grid connection, component functionality, and compliance with performance standards—critical for project acceptance.	Use internationally recognised testing standards and agree on protocols prior to commissioning.

Operation

The operation phase marks a shift from project delivery to long-term performance. For Chinese-sponsored IPPs, the core responsibilities become ensuring consistent power generation, meeting contractual performance standards, and maintaining financial viability over the project's lifetime. For Asian off-takers, the priority is securing reliable electricity supply while managing system stability, payment obligations, and regulatory oversight. While the construction phase tests coordination, the operational phase tests resilience—particularly in revenue flow, technical performance, and environmental and social compliance.

Several persistent challenges emerge at this stage. IPPs face heightened payment and FX risk, especially when revenue in local currency must be repatriated to service debt in USD or RMB. Curtailment, particularly in renewable energy projects, can create unanticipated revenue losses if not managed transparently. In parallel, O&M performance—often handled by affiliated Chinese EPCs—must maintain long-term asset quality while integrating with local expectations for responsiveness and workforce development. Off-takers must also uphold environmental and social standards post-commissioning, especially under the scrutiny of development finance institutions or local communities.

Table 11 highlights recommended actions to address these challenges.

Table 11: Recommended actions in operation phase

Challenge	Description	Recommended Action
Payment delays	Delayed or partial payments from off-takers disrupt cash flow and debt servicing schedules.	IPP sponsors should implement regular payment tracking and escalate overdue invoices; Off-takers must adhere to payment schedules and resolve bottlenecks swiftly.
FX risk	Revenues are often in local currency, while financing is in USD or RMB, exposing IPPs to conversion and volatility risks. In addition, in countries like Pakistan, balance of payment issues limits cross-border payments.	IPP sponsors should manage currency risk through hedging or timely repatriation; Off-takers can facilitate predictable FX conversion processes and support with repatriation of foreign reserves where balance of payment issues is a risk.
O&M management	O&M is often handled by Chinese EPCs, raising concerns about responsiveness, quality control, and local engagement.	IPP sponsors should maintain performance reporting and invest in local workforce capacity; Off-takers should monitor service levels and raise issues through contractual governance mechanisms.
Curtailment risk	Intermittent renewable projects may face grid-related curtailment, reducing power output and revenue.	IPP sponsors should log and report curtailment data consistently; Off-takers should transparently disclose dispatch constraints and explore grid improvements.
E&S compliance	Post-commissioning social or environmental concerns (e.g., land use, biodiversity) may trigger audits or community backlash.	IPP sponsors should maintain E&S monitoring systems and community liaison teams; Off-takers should ensure coordinated response and compliance oversight.

Summary: Advancing green IPPs through stronger China–Asia energy partnerships

Asia's energy systems are under increasing pressure to transition away from fossil fuels while ensuring security, affordability, and investment stability. Meeting national renewable energy targets will require not only policy ambition but also large volumes of private capital, technical expertise, and coordinated project delivery. Independent Power Producers (IPPs)—including those backed by Chinese sponsors—can play a key role in scaling up renewable capacity, if their investments align with the financial, institutional, and operational realities of Asian off-takers.

This guidance has highlighted the importance of tailoring project structures to local market conditions. For Chinese IPP sponsors, the priority is to ensure that projects are bankable, executable, and resilient over time. This includes navigating joint venture requirements, complying with local content rules, and adapting to payment and FX risks in the operation phase. It also requires aligning EPC and O&M performance with international standards, while building long-term trust with local stakeholders. For Asian off-takers, the focus is on creating investable conditions: transparent RfPs, clear permitting pathways, timely payments, and governance mechanisms that uphold performance without delaying progress. Off-takers must also manage the political and fiscal implications of curtailment, tariff design, and community impact—especially in renewable-heavy grids.

For both sides, the path forward is not standardisation but coordination. Green IPPs succeed when contracts are structured to reflect real project risks, when responsibilities are clear at each stage of the project cycle, and when counterparties engage not just at financial close—but throughout construction, commissioning, and long-term operation. With stronger alignment between Chinese sponsors' delivery models and Asian off-takers' regulatory environments, green IPPs can move from one-off projects to scalable, system-reliable investments that support Asia's low-carbon transition.

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Dr Christoph Nedopil is Director of the Griffith Asia Institute and Professor at Griffith University, Australia. He is also a Visiting Professor at Fudan University and Singapore Management University. Christoph advises governments, financial institutions, and civil society on sustainable development and has authored key publications, including the UNDP SDG Finance Taxonomy. His work appears in leading journals like *Science*, and he is frequently cited in global media such as the *Financial Times* and *The Economist*. He has held roles with the World Bank, GIZ, and top universities in China, and serves on boards promoting sustainability in business and finance.

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ABOUT GRIFFITH ASIA INSTITUTE

Griffith Asia Institute (GAI) at Griffith University, Brisbane, Australia, is an internationally recognised institute providing knowledge, and solutions for sustainable development in Asia-Pacific. With a history of over 20 years, GAI has forged strong partnerships with key decision-makers in business, policy and with research institutions across the region. With over 80 faculty members and 50 adjunct members, GAI works in multidisciplinary teams and draws on a wide range of technical expertise in energy, finance, policy, and economics as well as in regional studies including a strong China component.

GAI is led by Professor Christoph Nedopil Wang and is organised through knowledge and regional hubs:

The Green Transition and Sustainable Development Hub addresses major challenges and opportunities for Asian and Pacific economies in addressing SDGs related to climate, life on land, life in the sea, partnerships, infrastructure and energy.

The Governance and Diplomacy Hub addresses major challenges and opportunities in the region for peaceful co-existence, diplomacy, inclusive governance, policymaking and institution building.

The Inclusive Growth and Rural Development Hub addresses major challenges and opportunities in the region regarding currently underserved communities (e.g., women, indigenous, youth, rural, or people with disabilities).

The four regional hubs address major regional and country-specific challenges and opportunities in (1) Southeast Asia, (2) South Asia, (3) Pacific and (4) China and the Region, each with their own hub lead.

https://www.griffith.edu.au/asia-institute

ABOUT PAKISTAN-CHINA INSTITUTE

Pakistan-China Institute (PCI) is a non-governmental, non-partisan think tank established in 2009 under the Chairmanship of Senator Mushahid Hussain. It is dedicated to promoting people-to-people ties between Pakistan and China, with a focus on areas such as defence, diplomacy, education, energy, the economy, environment, and the inclusion of youth and women.

PCI leads dialogue and research through initiatives like conferences, lectures, exchanges, journals, and documentaries. As a key advocate of the China-Pakistan relationship, PCI has quickly gained credibility in both countries. It serves as a vital resource for understanding regional dynamics in the context of the Asian Century.

PCI also supports policy discussions and fosters connections between governments, educators, students, civic leaders, and citizens interested in geostrategic developments in Asia. Its mission is to deepen cooperation and mutual understanding between Pakistan and China while advancing broader regional engagement.

https://www.pakistan-china.com/

ABOUT THE INSTITUTE FOR ESSENTIAL SERVICES REFORM

The Institute for Essential Services Reform (IESR) is a leading Indonesian think tank focused on energy and environmental issues. IESR promotes the transition to a low-carbon energy system through evidence-based policy advocacy and strategic collaboration. Their work is grounded in rigorous, data-driven research that supports informed decision-making by governments, businesses, and civil society.

By providing capacity-building support, IESR empowers local stakeholders with the knowledge and tools needed to adopt sustainable energy solutions. The organisation also builds strong partnerships with non-governmental actors, fostering a collaborative approach to address climate and energy challenges.

IESR's mission is to accelerate Indonesia's shift towards clean, renewable energy and to support policies that align with global efforts to reduce carbon emissions and tackle climate change. Through research, education, and partnerships, IESR plays a vital role in shaping an equitable and sustainable energy future for Indonesia and the wider region.

https://iesr.or.id/

ABOUT THE GREEN FINANCE & DEVELOPMENT CENTER

The Green Finance & Development Center (GFDC) is a leading research centre that provides advisory, research and capacity building for financial institutions and regulators for green and sustainable finance in China and internationally.

The GFDC works at the intersection of finance, policy, and industry to accelerate the development and use of green and sustainable finance instruments to address the climate and biodiversity crisis, as well as contribute to better social development opportunities.

The topics of our work at the Green Finance & Development Center respond to the needs and developments of the financial markets and related policies in China and internationally, while we also aim to provide evidence-based advisory and research for future policies and strategies to accelerate the greening of finance in policy and practice.

The Green Finance & Development Center was founded in 2021 by Christoph Nedopil Wang. It is associated with the Fanhai International School of Finance (FISF) at Fudan University in Shanghai, PR China.

ABOUT CLIMATE SMART VENTURES

Climate Smart Ventures Pte. Ltd. (CSV), established in 2020, is a transition and transaction advisory firm focused on accelerating Asia's energy transition in a just, orderly, and competitive way.

CSV works with leading asset owners, debt and equity providers, ESG investors, and experts to identify practical, commercially viable pathways suited to the region's energy needs. The firm supports decision-makers in corporations, investment bodies, development finance institutions, governments, and philanthropies to craft robust transition strategies and link them to impactful, market-driven transactions.

CSV operates in the Philippines, Indonesia, Vietnam, Singapore, and India, with strategic partnerships in Thailand, China, South Korea, Bangladesh, Sri Lanka, Kazakhstan, and Pakistan. With deep regional insight, CSV plays a key role in driving high-impact energy solutions that align sustainability with economic growth.

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Annex

Appendix Error! Main Document Only.: Overview of interviews

For this study, we conducted semi-structured interviews with 26 people between November 2024 and April 2025 and solicited feedback on a draft document during the inaugural network meeting of the Green Energy Network – Asia in May 2025 among 40 participants.

Regional distribution	Professions	Seniority
• Indonesia: 6 • Pakistan: 5 • China: 4 • Malaysia: 2 • Vietnam: 2 • Others: 7	• Finance: 4 • Utilities: 6 • Developers: 3 • Advisory companies: 5 • Think tanks: 3 • Regulators: 4	• Minister: 1 • Senior leaders: 18 • Mid-level decision-makers: 6

Appendix 2: Evaluation criteria example for Request for Proposal (RfP)

Evaluation Category	Specifics	Weight
Financial offer	Tariff price • Levelised Cost of Electricity (LCOE) or proposed Power Purchase Agreement (PPA) tariff. • Indexed vs. fixed pricing. • Currency denomination and foreign exchange implications. Financing plan • Debt-to-equity ratio and funding sources (local vs. international). • Evidence of financial close readiness (e.g., term sheets, letters of intent). • Use of concessional finance or guarantees (e.g., from DFIs, MIGA). Financial strength of sponsor • Sponsor balance sheet and track record. • Creditworthiness and ability to absorb construction or market risks.	60-80%
Technical proposal	Technology selection and suitability • Type and quality of solar panels, wind turbines, inverters, or trackers. • Appropriateness for local climate and grid characteristics. Energy yield estimates • Accuracy and realism of energy yield modelling (P50, P90 scenarios). • Track record in achieving projected performance in similar settings. Design and engineering quality • Layout optimisation, grid connection plan, and BOS design. • Construction timeline, milestones, and commissioning strategy.	10-30%
Track record/experience	Relevant project experience • Prior IPP projects delivered in emerging markets. • Familiarity with local conditions (e.g., terrain, permitting, grid). EPC and O&M capability • Identification of EPC and O&M contractors. • Evidence of successful past collaboration or completion. Performance guarantees • Warranties on equipment and performance (e.g., PR, availability). • O&M strategies to minimise downtime and maintain yield.	5-15%
Legal and contractual readiness	Bankability of offer • Mark-ups on PPA, land lease, grid connection agreement, etc. • Willingness to accept standard contractual terms or propose workable alternatives. Permitting and land access • Evidence of land rights or site control. • Status of EIA approvals and permits. Compliance with local law • Registration of legal entity. • Alignment with national IPP or energy regulations.	5-10%
Local content	Local job creation and capacity building • Commitment to local hiring and workforce development. • Inclusion of training programs or knowledge transfer. Use of local materials and contractors • Sourcing from local manufacturers or service providers. Community benefits • Community development plans or benefit-sharing mechanisms. • Stakeholder engagement and social license to operate.	5-10%
Environmental and social performance	Environmental safeguards • Alignment with national EIA laws and international standards (e.g., IFC PS). • Mitigation of biodiversity or water use impacts. Social risk management • Community consultations and grievance mechanisms. • Minimisation of land acquisition and displacement risks.	5-10%

Appendix 3: JV negotiations

In some Asian emerging markets such as Indonesia, where Independent Power Producer (IPP) projects are often developed through joint ventures (JVs) between an external sponsor and the off-taker or its affiliate (in Indonesia typically PLN or a subsidiary). This adds an additional layer of complexity to the IPP negotiation phase.

Unlike traditional IPP structures where the sponsor and off-taker are contractual counterparts, a JV structure makes them equity partners, blending commercial, political, and operational interests into a single corporate entity. As such, the negotiation of the Joint Venture Agreement (JVA), alongside the PPA and other project documents, is critical for risk allocation, control mechanisms, and project bankability.

Below are the key requirements, steps, and considerations specific to JV negotiations in this context:

1. Ownership structure and equity allocation

    - Clearly define the shareholding ratio between the external sponsor and the off-taker-affiliated entity (e.g., PT Indonesia Power or PT Pembangkitan Jawa-Bali).
    - Equity contributions: cash vs. in-kind (e.g., land, permits, existing infrastructure).
    - Align with local ownership regulations (e.g., foreign ownership caps, approvals from BKPM/OSS in Indonesia).

2. Joint Venture Agreement (JVA) terms

The JVA outlines the governance and operational rules of the project company (SPV). Key provisions include:

- Decision-making rights and board composition:
    - Reserved matters requiring joint approval (e.g., budget, capex, refinancing).
    - Board seat allocation and quorum requirements.
- Capital contributions and future funding:
    - Initial equity tranches and timelines.
    - Procedures for equity calls or shareholder loans.
    - Remedies for defaulting shareholders.
- Profit distribution:
    - Dividend policy (e.g., after debt service reserve and maintenance capex).
    - Repatriation mechanisms for foreign sponsors.
- Exit rights and transferability:
    - Lock-in periods, rights of first refusal, tag/drag-along clauses.
    - Limitations on transfer to third parties (especially politically sensitive).

3. Alignment with project contracts

    - The PPA, Implementation Agreement, and Shareholders' Agreement must be harmonised.
    - Regulatory approvals: PLN/Ministry of Energy (MEMR) may require alignment of JVA with Perpres 112/2022 or sector-specific procurement regulations.
    - Ensure inter-party consistency across contracts, especially on performance obligations and risk-sharing.

4. Governance and dispute resolution

    - Clear dispute resolution mechanisms, often international arbitration (e.g., SIAC or ICC) for foreign sponsors.
    - Management of deadlock situations: mediation triggers, buy-sell mechanisms, or winding-up clauses.

5. Regulatory and licensing requirements

    - Establishment of the JV SPV in compliance with applicable corporate law.
    - Obtain required licenses (IUPTL, ESDM approvals), tax registrations, and land rights (e.g., HGU/HGB).
    - Registration with BKPM for foreign investment (PMA) companies.

6. Trust, transparency, and local integration

    - Building strong working relationships with the off-taker's representatives is key, as the JV requires operational coordination far beyond a typical IPP-off-taker model.
    - Sponsors should anticipate and respect local bureaucratic rhythms and consensus-building culture.
    - Transparent accounting, local stakeholder engagement, and alignment with national renewable energy priorities bolster long-term success

    In JV-based IPPs, negotiation is not just about locking in commercial terms but laying the foundation for a working partnership that spans decades. Chinese or other international sponsors must adapt their governance expectations, ensure contractual clarity, and approach the relationship with a long-term, partnership-oriented mindset.

Appendix 4: Financing challenges for JVs

A critical of the JV requirements is the provision of equity financing into the JV and its relationship to the ownership share. Some off-takers are not able or willing to provide direct financing or require the external IPP sponsor to provide a loan to the off-taker to finance the IPP's equity investment. Other issues might be the share of responsibility in the IPP for technical and licensing (including land acquisition) issues, where typically the off-taker might be more suitable to be responsible for the latter and the other sponsor the former.

Considerations in JV financing:

- Will the off-taker or its subsidiary contribute equity, or will it rely on the sponsor to finance its share?
- Are shareholder loans permissible and how are they treated in the capital stack?
- What are the implications for dividend policies and exit rights for Chinese sponsors?
- Are there restrictions on debt collateralisation, particularly where the off-taker is a shareholder?

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