CHAPTER 9

Power Purchase Agreements as Instruments of Risk Allocation and Alleviation for Renewable Energy in Asia

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9.1 Introduction

The power sector in Asia has been the target of significant overhaul in the past decade. Countries have recognised the need to implement and oversee an energy transition to ensure energy security driven by a blend of technological innovation, change in supply and demand dynamics and policy shifts (WEF 2018). While the pace of transition may not be at the same level throughout the continent, the movement towards renewable sources of energy is definitely here to stay, with countries like China and India spearheading the revolution. International organisations such as the International Solar Alliance (ISA) and the International Renewable Energy Agency (IRENA), with their headquarters at New Delhi, India and Abu Dhabi, United Arab Emirates, respectively, have played pivotal roles in shifting the narrative of the renewable energy transition from Europe to the Global South. Moreover, several countries in Asia have taken the initiative to implement ambitious national renewable energy policies and targets.

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Apart from facilitating the technical incorporation of renewable power into the energy systems through policy and regulation, a major push has been to bring in investment into these emerging energy sectors. There has been significant national and international focus on aiding the flow of finance to fund the energy transition movement in Asia. However, an early realisation for the sector was the high cost of finance for these projects in a number of these countries, including India (Chawla and Aggarwal 2016). There was an initial struggle in achieving competitive tariff rates for renewable power in these countries, rendering offtaker issues in the sector, due to the availability of cheaper sources of conventional power. There arose the need for these governments to structure policies and incentives to lure foreign investments into renewable power projects. Some of these measures have created an unsustainable ecosystem for the broader power sector. One evident manifestation of such measures is that the state-owned power distribution companies in India, which are already in poor financial conditions, are unable to take on excessive long-term capacity contracts (Bhushan et al. 2019).

The real renewable energy boom is yet to arrive in other Asian economies as compared to countries like India which are investing more in solar PV than in all other fossil fuel sources on electricity generation put together (in 2018) (IEA 2020). The need to re-examine measures that are being implemented to facilitate the flow of investment in renewable energy projects in these countries is urgent. Needless to say, the transparency and predictability of the regulatory framework along with the financial viability of an infrastructure project are prerequisites for investment. Furthermore, through regulations and policies, governments have placed priority on according returns to renewable energy investors, at least at par with what is attained in other infrastructure sectors (Chaudhary et al. 2015).

While there are several ways to address the present issues in the renewable energy sector, one systemic correction that has been relatively overlooked so far is the re-examination and optimisation of the terms of the standard power purchase agreements (PPAs) being implemented in renewable energy projects. Several other infrastructure sectors, such as the roads and ports sectors, have over time developed a robust contractual agreement that addresses several concerns of private parties through elaborate provisions, covering most scenarios that play out during the lifetime of the project (DEA 2011). However, the renewable energy sector is relatively nascent on this front. There is a growing need to re-examine the PPA as an instrument, to lower the risk on receivables faced by renewable energy

project developers and financiers. This will bring down the cost of finance, as well as reduce some of the burden on the offtaker due to the regulatory nature of the agreement.

This chapter will be drawing on the evolution of the PPA structure, related regulation and its judicial interpretation in India. However, several developing countries suffer from similar risks and employ similar contractual structures. This chapter identifies risks from various markets in Asia, and draws parallels between manifestation of these risks in India and other Asian countries, wherever applicable. However, Sect. 9.4, which focuses on identifying PPA remedies is exclusively focussed on the Indian market.

9.2 Risks, Uncertainties and the Power Purchase Agreement

This section is intended to provide a basic introduction to the structure of the PPA, the relevant actors directly and indirectly included in the PPA and then delves into how risks and uncertainties could be addressed by the terms of the PPA.

9.2.1 PPA, Its Signatories and Secondary Actors

PPAs are long-term contracts that define in its entirety, the terms for the sale of electricity between the seller (herein referred to as the project developer) and the buyer (herein referred to as the offtaker). The secondary actors that are indirectly involved in the negotiation of the PPA include:

(i) The Government Authority
(ii) The Regulator
(iii) Transmission Companies
(iv) Distribution Companies
(v) Lenders/Project financiers

The terms of a PPA are generally fixed by the Government Authority overseeing the bidding process for the allocation of power projects at the bidding stage, taking into consideration the type and requirements of the project. The regulator is required to sign off on the final terms of the PPA before execution and is also responsible for approving the tariff rate. The

draft of the terms of the PPA are attached to the bidding document and there is little to no room for negotiation of the terms of the PPA once the project has been awarded. In the case of India, the terms of the PPA are identical for categories of renewable energy projects. For example, projects allocated under Phase I of the Jawaharlal Nehru National Solar Mission (JNNSM) are expected to employ the JNNSM Phase I Model PPA. Similarly, the contracting authority in each state has a model PPA that is followed for projects being awarded in that state. The model PPAs are updated time and again to reflect market trends. This rigidity in model contract structures is prevalent in most markets. For example, the terms of the Kazakhstan standard form PPA does not contain standard provisions required by international investors (step-in rights, international arbitration, compensation in case of early termination, insurance, etc.). On the other hand, some progressive policies in markets like Serbia have taken to adopting PPA models where the provisions are a mix of obligatory and optional. They also provide a further possibility to modify some of the model's provisions and to introduce changes to the PPA from the outset 'so that its application is adjusted to the needs of a particular case' (Popovic 2016).

The long-term nature of the PPA is beneficial to both parties and serves as a risk alleviation instrument in itself. The terms guarantee the sale of part or the entire of its production at a pre-established price for the next 10 or 20 years, and therefore, an insured, predictable income and with a much lower risk than direct market retribution (AleaSoft 2019).

9.2.2 Addressing Risks and Uncertainties

Infrastructure projects require long-term contracts that last for the entire life of project operation. Such long-term contracts must provide for both risks and uncertainties that may arise during the life of the project. Risks pertain to foreseeable occurrences while uncertainties are associated with unforeseen circumstances (Triantis 1992). Standard long-term contract provisions such as the force majeure provision and the change in law provision, cater to both risks and uncertainties (Primack and Weinberger 2009).

Several project risks are foreseeable ones, with lapses in accounting for these in contract structuring due to the absence of forward-looking risk management (Beckers and Stegemann 2013). Clear identification and allocation of risks among the various stakeholders in the sector at the outset provides long-term stability for the project. The risk should be

allocated to the party that is most capable (in their technical and financial capacity) of absorbing and dealing with the risk (ALSF and CLDP 2014). Project developers and financiers stand most to lose from inefficient identification and allocation of risks in renewable energy projects. Clear demarcation of these risks at the outset will also better prepare the sector for long-term risk mitigation (NRC 2005). For instance, currently in India, the offtaker is forced to bear the entire demand risk, resulting in disproportionate curtailment of renewable power since there is a penalty in the form of fixed cost payment for curtailment of thermal power. Emerging risks such as these cannot be effectively allocated through simple contractual structures that are being employed in renewable power projects currently. In many of these cases, there arises a need to balance the risk among the parties to the PPA to avoid situations of bankruptcy and project termination.

9.3 Overview of Renewable Energy Project Risks

The following table (Table 9.1) lists and describes the key risks that arise in the context of renewable energy projects. Some risks are present throughout the lifecycle of the project, while others are restricted either to the construction or operations phase. Risks such as force majeure, change in law, etc. may affect the project at any stage of its life. The project risks have been broadly classified into construction phase risks, operations phase risks and general risks, in accordance with the World Bank Manual on Power Purchase Agreements. In several jurisdictions, the construction-related provisions are laid out in a separate agreement termed the implementation agreement and does not form a part of the PPA (The World Bank Group PPPLRC 2016). The table below does not delve into detail on the construction phase risks as it is beyond the scope of this chapter. The table aims to identify existing risks in Asian markets and how they are being addressed (if at all) in the PPA. It also provides a link to the next section of this chapter by listing out PPA provisions that could be added or modified to address these risks better.

Sections 9.4.1 and 9.4.2 may be applied across all risks listed in the table above.

Escalation of risk beyond the scope of remedy provided in the PPA may result in default of either party's obligation under the PPA. The concerned party is then entitled to turn to the dispute resolution process or

Table 9.1 Existing risks in Asian markets

Key features and examples of manifestation of risk	*Existing PPA provision to deal with the risk*	*Suggested provisions to remedy risk*
Operations phase risk		
1. **Offtake risk**—This is typically a private party risk pertaining to payments for power generated by the project, which is in turn linked to the demand risk. The GCC economies have reliable off-takers. Once a project developer enters into a PPA, timely payments are guaranteed by public off-takers, and therefore the risk and cost of financing go down (IRENA 2019). On the other hand, outstanding dues of solar-power companies supplying power to Telangana, India, have shot up to INR 24 billion, plunging them in a financial crisis (ORF 2019).	The minimum offtake guarantee provision is designed to address this risk partially by guaranteeing the offtake of a fixed quantity of power monthly/annually (as applicable). The payment security mechanism whereby the offtaker provides a form of security for the payment due in relation to the minimum offtake obligation also aids in alleviation of this risk.	Lender's substitution provision (discussed in Sect. 9.4.6 below)
2. **Technology risk—**Lack of adequate data to estimate the longevity of the equipment used in the project because the technology is new, evolving rapidly, and often owned by companies with moderate-to-weak credit quality (CRISIL 2019). Unproven technologies with moderate reputation and limited track record face more risks such as steep degradation and dramatic equipment failure. There are also risks associated with implementation of enhanced technology that may be required for existing projects in the future to ensure better integration of renewable power.	This risk is currently addressed under the Change in Law provision. In the case of retrofitting of existing thermal plants to comply with stricter emission restrictions imposed by the Ministry of Environment, the Central Electricity Regulatory Commission opined that it would be considered as a Change in Law (NTPC v, MPPMCL 2016).	Change in scope of the project associated with technology enhancement (discussed in Sect. 9.4.4 below)

(*continued*)

Table 9.1 (continued)

Key features and examples of manifestation of risk	*Existing PPA provision to deal with the risk*	*Suggested provisions to remedy risk*
3. **Infrastructure risk**—This is a contracting authority/offtaker risk concerning the grid infrastructure keeping pace with the requirements of expanding renewable energy supply in the market.	Ensuring coordination between the development of transmission infrastructure and the date of scheduled commercial operation of the project lies with the offtaker. This risk is managed through the obligations of the offtaker and the deemed offtake provision which kicks in post the commercial operation date of the project.	–
General risks		
4. **Demand risk**—Risk associated with the financial health of the offtaker. Regulatory pursuits to encourage renewable energy such as renewable energy purchase obligations imposed on the state-owned distribution companies without considering their financial health and energy supply mix, further aggravates this issue in the current market.	This risk is ultimately borne by the authority under whose jurisdiction the PPA lies. In India, the State Commission has the power under Section 86(1)(b) of the Electricity Act, 2003 to verify the reasonableness of the quantum, price and mode of supply of power under a PPA entered into under its jurisdiction. This risk is quantified in the form of a minimum offtake obligation in the PPA.	Restructuring the minimum offtake obligation (discussed in Sect. 9.4.5 below)

(*continued*)

Table 9.1 (continued)

Key features and examples of manifestation of risk	*Existing PPA provision to deal with the risk*	*Suggested provisions to remedy risk*
5. **Political risk and regulatory risk**—Risk associated with political and policy uncertainties and the potential occurrence of incidents related to corruption, terrorism, etc. that pose a risk to the investment in power projects. This includes incidents such as change in applicable taxes, risks associated with cancellation of or change in applicable tariffs, regulatory environment concerning the sector, etc.	This risk is dealt with under the change in law and force majeure provisions.	Enhanced change in law and force majeure provisions (discussed in Sects. 9.4.7 and 9.4.8 below)
6. **Currency risk**—This is a business risk concerning the fluctuating rates of exchange affecting investors' return from projects, in case of foreign investment in these projects, where recovery is typically in the local currency.	Foreign exchange rate is a known risk factor in projects that have a significant import component, and has to be accounted for by the businesses at the time of bidding for the projects. There is no explicit provision in the PPA to deal with this risk. In a 2017 case before the Central electricity Regulatory Commission, it was concluded that fluctuation in exchange rate is not a Force Majeure event (GGEL v. NVVNCL 2017).	Linking of PPA tariffs to foreign exchange rates and inflation (discussed in Sect. 9.4.3 below)

Source: Author's summary

termination provision of the PPA. A summary of the dispute resolution process is provided in the table below (Table 9.2).

There is a need to expand the scope of the current PPA structure to afford parties more flexibility in terms of available options to deal with these risks, such that the default provision is not triggered easily. For

Table 9.2 Governing law and dispute resolution process in the PPA

Contracting parties have a right to choose the governing law of a contract, which shall be inferred from the terms of the contract (NTPC v. Singer 1993). However, most model PPA formats prescribe that the laws of the country where the project is being implemented shall apply.

The dispute resolution process varies across different models of the PPA, based on the will of the contracting authority. For example, the 2018 solar and wind bidding guidelines released by the Ministry of Power, Government of India prescribes that any dispute between the contracting parties to a PPA with regard to tariff related matters, will be decided by the appropriate regulator (which is either the Central Electricity Regulatory Commission or the State Electricity Regulatory Commission). Any other matter of dispute is to be resolved by arbitration as per the Indian Arbitration and Conciliation Act, 1996.

It is worthwhile to note that most newer forms of PPAs mandate arbitration as the preferred means of dispute resolution. Most jurisdictions prescribe a time frame for completion of the arbitration process. For example, in India (under Section 29A of the Arbitration Act), arbitral tribunals are required to make its award within a period of 1 year, which can be extended by 6 months. However, several other Asian jurisdictions such as the United Arab Emirates and Indonesia prescribe a shorter time period of 6 months.

The arbitral award can be enforced as if it were a court decree and is final and binding on the parties to the arbitration. However, parties are permitted to challenge the award within a prescribed period (which varies from 30 days to 3 months across jurisdictions). The grounds for challenging the award are largely procedural and include the following:

- lack of capacity of the parties to conclude an arbitration agreement;
- lack of a valid arbitration agreement;
- lack of proper notice of appointment of an arbitrator or of the arbitration proceedings, or inability of a party to present its case;
- lack of impartiality or independence of the arbitrator;
- composition of the tribunal or conduct of the proceedings contrary to the effective agreement of the parties;
- non-arbitrability of the subject matter of the dispute; or
- conflict with the public policy of the country

Countries in Central Asia such as Kazakhstan follow a similar format of dispute resolution process where arbitration at the Astana International Financial Centre is prescribed (Nurbekov and Zharasbayev 2019), while jurisdictions in south-east Asia such as Vietnam allow for negotiation of provisions for international arbitration under the aegis of a neutral tribunal such as the Singapore International Arbitration Centre, as agreed to between the parties.

The inclusion of a workable dispute resolution clause is a key element in assessing the bankability of the project. However, it is also important to understand that there may be local limitations on forum selection on the contracting authority.

Source: Author's summary

example, the model concession agreement for construction, maintenance and operation of roadways in India, provides for an extension of the term of operation of the project in case the project does not recoup the invested money (in the form of toll collected from the users of the constructed road) in the anticipated time period. Such flexibilities in the terms of the contract that provide comfort to the project stakeholders are absent in the current structure of the PPA. There is a dire need to examine how the risks and uncertainties in the sector can be better managed by introducing such flexibilities, to avoid delays and an eventual breakdown of contractual relations between the parties to the PPA.

9.4 Identifying Lacunae and Remedies in (and for) Existing and Future PPAs for Renewable Energy in Asia: A Case of India

The renewable energy sector in India has received significant government support in terms of policy pushes such as waiver of inter-state transmission charges, capital subsidies, government guarantees, renewable energy purchase obligations and so on. However, the sector recently suffered from a significant setback when the state government of Andhra Pradesh ordered a review of already executed solar and wind PPAs owing to the high tariffs recorded in these PPAs (Bajaj 2019). Utilisation of the state's power to upset the sanctity of the contract leads to a direct drop of investor confidence. The terms of the PPA must be based on a comprehensive mutual understanding between the parties and should not be used as a dictatorial instrument. Renegotiation of the terms of the PPA should occur only in case of mutual agreement for renegotiation, since revised contractual terms are bound to affect all project stakeholders.

At this stage in the development of the sector, the process for risk allocation needs to be nimble and receptive to the needs of the investors and other parties responsible for the construction, operation and maintenance of renewable energy projects. Rigidity in the contractual risk allocation mechanism provides very limited room for manoeuvring the concerns of the project financiers and the project developer. There are many lessons to be learned from developed markets and other sectors in terms of risk-alleviation provision that could render the PPA more investor-friendly and bankable.

The risks discussed in Sect. 9.3 above stretch across the nearly the entire lifetime of the project and, therefore, identifying explicit remedies for these risks in contractual terms is quite challenging. These are also important factors that affect the bankability of the PPA. The renewable energy sector could benefit significantly from the mechanisms utilised in other long-term infrastructure projects to deal with some of these risks that are common across all infrastructure projects. For example, limiting the extent of some of these risks by introducing thresholds or expanding the scope of some of the existing provisions to provide clarity on how the manifestation of these risks would be dealt with will reduce the extent of risk exposure for project stakeholders to some extent.

This section draws on lessons learnt from other infrastructure sectors and renewable energy sectors in developed markets to identify measures to deal with each of the operational phase risks and general risks effectively.

9.4.1 Setting Thresholds for Anticipated Risks

For certain anticipated risks such as that of change in law, technology enhancement, curtailment, etc., which are likely to arise during the course of project construction and operation (as applicable), the project financiers are better equipped to handle these risks when they occur, if they are able to build in a cost associated with these risks in their business models. One way to enable this is to set thresholds for each of these risks in the PPA.

For instance, the minimum offtake guarantee is one mechanism to build in a threshold for the risk of curtailment where the offtaker is contractually bound to offtake a minimum quantity of power generated by the project. This in turn guarantees a minimum monthly/annual revenue for the project, better equipping the project financiers to deal with losses associated with curtailment of power generated over and above the minimum offtake quantity. This provision cushions the risk of curtailment for the project financiers (Viswamohanan and Aggarwal 2018).

Similarly, prescribing a threshold for costs associated with a change in law or a technology enhancement risk in the PPA that the project developer must bear, provides comfort for both the project developer and the contracting authority. It will also ensure that only substantial change in law claims are raised (Gopal 2019). Certain Indian renewable energy project PPAs, such as those issued by Gujarat Urja Vikas Nigam Limited since 2017, have taken to specifying a threshold linked to a percentage of the project's estimated revenue.

The project developer is assured that costs associated with these risks that are beyond the prescribed threshold will either be passed on to the consumers or be absorbed by the offtaker or the contracting authority. On the other hand, this provision provides the contracting authority with guidance on the extent of these risks that can be borne by the project developer, without disrupting the functioning of the project and the project company (in terms of debt repayment). To ensure that this threshold provision is not misused by either party, the role of an independent consultant is predominant. The independent consultant verifies the reasonableness of the costs incurred in accordance with current market rates and measures.

The setting of these thresholds must be followed by specific provisions on the project developer's recourse in the event that the threshold is exceeded.

9.4.2 Upfront Determination of the Formula for Calculation of Termination Payment Due

Termination under the PPA may occur under the following circumstances:

(i) Due to a material breach by either party;
(ii) Due to the occurrence of an event that renders the performance of the contract impossible;
(iii) Due to the occurrence of an event, the risk of which is borne by either of the parties to the agreement.

Typically, the quantum of the termination amount payable will depend on the cause for termination. For example, if the termination is on account of breach by the project developer, the termination payment should at least amount to outstanding bank debt, with perhaps the return on equity being held back as a penalty for the breach. On the other hand, if the termination is on account of default by the offtaker or the contracting authority, the termination payment should include the agreed rate of return on equity, together with the outstanding bank debt for the project and any other costs associated with the termination process. Clear specification of the applicable termination payment formula for each event that could lead to termination is a key feature of a bankable PPA (IBRD and TWB 2016).

9.4.3 Linking of PPA Tariffs to Foreign Exchange Rates and Inflation

Currency fluctuation is largely an emerging market risk that lies with the project financiers. Most conventional power project PPAs link the PPA tariff to inflation and foreign exchange rates, in accordance with the needs of the investors. These benefits must be afforded to financiers of renewable energy projects as well. This is a necessity to ensure continued foreign investment into the renewable energy sector in Asia, considering the fact that many of the Asian emerging markets do not provide for adequate foreign exchange risk mitigation mechanisms at present.

9.4.4 Change in Scope of the Project Associated with Technology Enhancement

To ensure safety or efficiency in performance of infrastructure projects during the long lifetime of these projects, change in scope of these projects is a foreseeable risk, specifically for emerging technology projects. For instance, thermal power plants are required to comply with the addition of retrofitting control systems to reduce harmful emissions that emanate from these plants. However, this regulation is facing a significant backlash from the developers of these projects owing to the high costs associated with such retrofitting requirement.

Technology-related risk is best dealt with by specialised operators that are equipped to provide suitable low-cost remedies. One way to deal with the enhancement of the scope of the project (beyond a certain threshold) for inclusion of new technology that may improve performance of the project, is through a provision for submission of fresh bids for that specific purpose. In case of a change of scope of an infrastructure project, the contracting authority is typically provided with the right to award the contract for the expanded scope to the bidder that is able to provide the service at the cheapest cost. In these cases, the existing project developer is provided with the right to participate in such a bid. However, if the existing developer is unable to provide the service at the lowest cost available in the market, the contracting authority can award the bid to an alternate bidder. In such cases, the developer must be assured an adequate termination payment, covering the cost of capital of the project. This ensures that the change is scope requirement is carried out in the most cost-efficient

manner and also that the existing project developer is not coerced into taking on more risk than he is prepared to.

To provide more stability in the market and to the PPA, some portion of this risk may be retained by the public sector by guaranteeing a subsidy for these changes in scope of the project.

9.4.5 Restructuring the Minimum Offtake Obligation

The purpose of the minimum offtake guarantee provision is to provide the project developer and financiers with an assured revenue stream that commiserates with the required monthly or annual returns, which covers the debt service, operating costs and agreed equity return for the project. This provision states that the offtaker shall be obligated to offtake the agreed quantity of power from the project on a monthly/annual basis.

The quantum of minimum offtake is an important value that is considered by lenders in providing debt facility to the project company. This provision deals with the dual risks of demand and curtailment by forcing the offtaker to be responsible for the payment associated with the minimum offtake obligation, regardless of whether there is adequate market demand for the power generated or if there are grid issues associated with influx of variable renewable power. While the regulation associated with power offtake from renewable sources in India, prescribes that all power generated from these sources must be accepted by the distribution companies that enter into a PPA with the project company (termed as the 'must-run' status), this regulation is subject to an exception that concerns the safety and security of the grid. It is interesting to note that the Madhya Pradesh Commission, did away with the must-run status for renewable power plants and made procurement of power from renewable sources subject to scheduling and merit order dispatch principles. As a consequence, offtakers were legitimately in a position to refuse power under existing PPAs, as the merit order dispatch principles prioritise procurement of power from cheaper sources (ELP 2018).

Increased penetration of RE based sources have increased the balancing requirement for the grid. At present system operators at various level are empowered to finalise schedule and issue real time curtailment and ramp-up instruction to manage the grid. The risk of curtailment has been growing because there is no data or mechanism to determine whether there was an actual threat to the grid safety when the renewable power is being curtailed.

The minimum offtake obligation should be structured to guard against this risk, ensuring that the obligation is over and above any chance of curtailment due to concerns regarding the safety of the grid. Newer PPA structures provide for minimum offtake that is computed on an annual basis to guard against the risk of curtailment, which is often beyond the control of the offtaker. Curtailment is a function of both location and time period, and therefore it may be higher in some months and not others (CEEW 2018). By spreading the offtake obligation over the course of the year, the offtaker is able to balance the curtailment risk better by compensating for low offtake during certain months through higher offtake in other months.

It is also important to ensure that the force majeure provision does not impinge on the minimum offtake obligation to replicate the fault with implementation of the must run status regulation. The force majeure provision's applicability to the offtake obligation should be restricted to instances of complete breakdown of the physical transmission infrastructure due to incidents that are beyond the scope of control of the offtaker, or the grid planners and operators. In case of such events, typically an extension of the term of the PPA is sought.

The risk of curtailment due to grid failure is applicable in most Asian markets currently. The model PPA for wind projects in Vietnam expands the scope of the offtaker's obligations to provide the project developer with prior notice regarding any interruption to the offtake of power from the project. The PPAs also restate the existing legal obligation of the offtaker and the grid manager to ensure that any interruption in the operation of the grid is in conformity with regulations (Baker McKenzie 2019).

9.4.6 Lenders' Substitution

In case of default in debt payment under the project financing documents, the lenders mandate that the control of the project be handed over to them in accordance with the terms of the financing documents. The project developer is required to replicate this provision in the project documents, including the PPA.

The PPA must explicitly recognise that the project developer has availed external financing for the construction, operation and maintenance of the project and must afford the project developer with the right to assign and substitute the rights and benefits of the project to the lenders. The project developer must also be entitled to create security over their rights in the

project in favour of the lenders. Most infrastructure project agreements provide for a form of a substitution agreement that is entered into with the offtaker as a guarantee to the lenders regarding their right of substitution. This increases the bankability of the project and should be incorporated into the structure of the project documents.

9.4.7 Change in Law

The project developer is obligated to comply with all applicable laws and regulations in the jurisdiction of the country where the project company has been incorporated and where the project has been constructed. The applicable laws and regulations are bound to change during the term of the PPA (which in most cases is around 25 years). Such changes could be in the form of either addition of new laws and regulations or modification of existing laws and regulations applicable to the project and the project company. Project companies are bound to take into account all costs associated with such compliance in determining the overall project cost. Some level of change in law risk is also anticipated over the course of the project lifetime. However, beyond a certain threshold, the project company may not be financially capable of absorbing the added costs associated with a change in law event. As identified in Sect. 9.4.1 above, setting a threshold for a change in law risk which is deemed to be reasonable by both parties to the PPA, would be beneficial for all project stakeholders.

The Tariff Guidelines as issued under the provisions of Section 63 of the Indian Electricity Act, 2003, clearly recognise that the project companies are required to be placed in the same financial position as it would have been had the Change in Law not occurred, which is essentially the principle of restitution (MoP Solar Power Projects Bidding Guidelines 2017). Accordingly, as long as the event qualifies as a 'change in law' under the terms of the PPA, resulting in an increase in the recurring or non-recurring expenditure incurred by the project developer, the project developer is entitled to seek approval for appropriate relief in the form of compensation for the additional expenditure.

However, it is interesting to note that the Central Electricity Regulatory Commission of India, in a recent order (CERC Petition 2018) has decided that if the PPA does not have a provision dealing with restitution, costs associated may not be granted (GMR Warora v. CERC 2017). This brings a new perspective to the drafting of the change in law provision in PPAs to provide this added cushion of the principle of restoration.

In several recent occasions, uncertainty regarding what events would qualify as a 'change in law' under the terms of the PPA has led to significant project delays. In 2018, the Directorate General of Safeguards in India (which has been recently renamed as the Directorate General of Anti-Profiteering), had recommended the imposition of a safeguards duty on the import of solar cells and modules to protect the domestic manufacturing industry, creating uncertainty in the sector with regard to projects that were in the bidding and construction stages. Filing a petition before the Regulatory Commission to ascertain revised tariff (in case of significant change in capital cost of the project due to the imposition of the safeguard duties) is a long-drawn process. Due to this risk, banks were reluctant to fund new projects. It was clarified later that the such safeguard duty imposition would be covered as an event of 'change in law' under the granted compensation (CERC Petition 2018). Clarity regarding coverage of policy changes by the PPA provisions at the time of issuance, would facilitate smoother implementation of the PPA terms. There is also a need to ensure that the definition of what constitutes a change in law is comprehensive and unambiguous to avoid confusion on applicability.

9.4.8 Force Majeure

Force majeure relates to an event that is outside the control of the parties to the PPA, that renders impossible the performance of the parties' obligations under the PPA. The term force majeure would not include any event or circumstances which are within the reasonable control of the parties and would not normally be construed to apply where the contract provides for an alternative mode of performance (Cowell and Wetherill 2019). Abundant case laws on the matter have settled the position that a more onerous method of performance by itself would not amount to a force majeure event (APML v. MERC 2019). For example, parties generally cannot hope to invoke force majeure to escape the burden of a contract that remains physically and legally possible to perform, albeit unprofitable or less profitable.

On invocation of the force majeure clause, the concerned party is required to prove that the relevant circumstances lay outside of their reasonable control and that appropriate steps were taken to mitigate these circumstances to the best possible extent (Cowell and Wetherill 2019). Further, during the affected time, both parties are required to ensure that all efforts were made to keep costs associated with dealing with the event,

at a minimum. Occurrence of a force majeure event during the operations stage will affect the project revenue stream. These risks are typically shared between the parties, as per conditions prescribed in the PPA. For example, in the UK Project Finance Initiative guidance (HM Treasury 2007), there is a distinction between Compensation Events (where authority takes responsibility and contractor is compensated), Relief Events (which relieve the contractor from termination for failure to perform but not of the financial effects of delays) and Force Majeure Events (which relieve the affected party from liability for breach and where the parties share the financial effects of delays).

Availing insurance products to protect against the occurrence of force majeure events is in the interest of all project stakeholders. To the extent that the project developer is compensated through insurance, the risk is typically not shared between the parties. For most infrastructure projects, the project companies are required to take out insurance policies to guard against force majeure events that can be insured. In these cases, the costs associated with the occurrence of those events will lie with the project developer. Further, political force majeure events lie within the ambit of the contracting authority and therefore, the contracting authority may agree to bear risks associated with these events. For uninsurable events, costs are typically split evenly between the parties.

Parties are entitled to resort to termination of the agreement only in case of occurrence of a force majeure event for an extended period.

9.5 Conclusion

There are many moving pieces that need to align to ensure the success of a sector. While there has been significant policy push and government support to attract investment into the growing renewable energy sector across the world, the evolution of the structure of the PPA to meet the needs of investors in terms of risk allocation in emerging economies has been lacking. This chapter sets out some of the more established mechanisms that have been utilised in long-term contracts to alleviate investor concerns, in response to some emerging issues in developing country markets. There is also room to experiment with mechanisms that are more attuned to address sector-specific issues.

Several countries in Asia are either considering or have already implemented the transition from feed-in tariff policy to the bidding policy for awarding renewable energy projects. This transition brings the PPA into

the limelight owing to the increased autonomy over risks and tariff price under the bidding policy. Further, with several initiatives to strengthen continental co-operation over renewable energy finance, generation, transmission and purchase, Asian countries will benefit from standardised PPA models.

The models of the PPA that have been used in the sector over the past several years in many Asian countries have been largely stagnant, apart from a few exceptions. The balancing of risks in these model PPAs has been stacked against the interests and concerns of investors, on a number of key issues. When there is a clear intent to promote investment into the sector, incorporating simple measures and mechanisms that have been tested though implementation, will make the PPA more bankable. Benefits of bankable projects include facilitation of loans with long loan tenors, high debt-to-equity ratios (ranging between 70% and 86%), and low interest rates. The intended takeaway from this chapter is that the process of arriving at a standardised model for a PPA is an evolving one, taking into account the concerns of all project stakeholders, and this evolution needs to be constant.

It is crucial to have a balanced understanding of the risks in the market, the provisions contained in the PPA to address these risks, and an insight into the practical reality of how these provisions may be interpreted in a court of law. The key to a successful PPA is to adopt a strategy of cooperation and coordination amongst the parties that will be bound by the terms of the PPA. It is only through this balanced approach that the risks can be mitigated and the rewards of a long-term PPA be realised for all parties involved.

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