RESTRICTED

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UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

TEAM OF SPECIALISTS ON PUBLIC-PRIVATE PARTNERSHIPS (TOS PPP)

Proposed Draft

UNECE PPP STANDARD FOR GRID-CONNECTED RENEWABLE ENERGY

SOURCE: Renewable Energy Project Team

ACTION: Interim draft

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Draft Standard for Grid-Connected Renewable Energy

Implementing the United Nations 2030 Agenda for Sustainable Development through effective
“People-First Public-Private Partnerships”

United Nations Economic Commission for Europe
Team of Specialists on Public-Private Partnerships (TOS PPP)

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1

Abbreviation and terms	Meaning
ATI	African Trade Insurance Agency
COD	Commercial operation date
Financial Close	The signing of the financing agreements
Financiers	occurs when all project and financing agreements have been signed and required conditions in documentation have been met. This enables the first disbursement of funds (loans, equity, grant capital) so project construction can start.
EMDE	Emerging markets and developing economies
EPC	Engineering Procurement and Construction.
GENCO	Generating company
IPP	Independent power producer
LD	Liquidated damages
Load	An electrical load is an electrical component or portion of a circuit that consumes electric power. A “load centre” is centre of concentrated electricity demand, such as town, city or industrial facility.
MIGA	Multilateral Investment Guarantee Agency
MW	megawatt (being 1,000,000 watts)
NDCs	Nationally Determined Contributions according to the Paris Agreement
Offtaker	Purchaser of electricity (in particular, in the context of energy (RE and non-RE) PPPs, the purchaser under the PPA)
PPA	Power purchase agreement
PPP	Public private partnership
PRG	Partial risk guarantee
PSA	Power sale / supply agreement
RE	Renewable energy
REFIT	Renewable energy feed in tariff
REIPPP	South Africa’s Renewable Energy Independent Power Producer Procurement program.

Abbreviation and terms	Meaning
SE4ALL	Sustainable energy for all
SPV	Special purpose vehicle
UNECE	United Nation´s Economic Commission for Europe
UN SDGs	United Nations' sustainable development goals
VfM	Value for Money

1. INTRODUCTION

1.1 The Importance of Renewable Energy ("RE") to Sustainable Development

1.1.1 "Energy is crucial for achieving almost all of the Sustainable Development Goals, from its role in the eradication of poverty through advancements in health, education, water supply and industrialization, to combating climate change."[1]

1.1.2 Furthermore, "climate change presents the single biggest threat to development, and its widespread, unprecedented impacts disproportionately burden the poorest and most vulnerable."[2]

1.1.3 Accordingly, access to sufficient, dependable and affordable RE is crucial to attaining the United Nations' Sustainable Development Goals ("**UN SDGs**").

1.1.4 In order to achieve an effective result, each PPP program must encompass a process developed to take into account the specific context, determined by (a) consistent and clear stakeholder engagement, participation and acceptance, (b) appropriate program scale, phasing and ramp-up, and (c) mitigation for any development risks that cannot be borne by the private sector.

1.2 The Role of PPPs in Sustainable Development

1.2.1 The UN SDGs cannot be realized unless the private sector is mobilized – and on a significant scale. SDG 17 (Revitalize global partnerships for sustainable development)[3] calls for partnerships between the public and the private sector as well as civic society. *Review and monitoring frameworks, regulations and incentive structures that enable such investments must be retooled to attract investments and reinforce sustainable development*.

1.2.2 Public Private Partnerships ("PPPs") are a mechanism for facilitating private sector participation in the delivery of RE infrastructure projects. PPPs can mobilize private sector capital, technological and operational know-how, and risk appetite to develop, design, finance, build, operate and maintain a RE infrastructure project.

1.2.3 In the field of Renewable Energy, relevant SDGs can conflict each other, in particular for large-scale RE projects.

1.2.4 PPPs as an alternative to 'traditional' public procurement

1.2.5 Whereas the public sector can choose to fulfill its service delivery mandate on the basis of procuring goods and services through direct contracting and financing for a specific good or service (traditional public procurement), it can also choose to deliver its mandate via a Public Private Partnership model.

1.2.6 The distinguishing features of a PPP are the contracting structure which provides for an enhanced allocation of risk between the private and public sector where performance and

1 Sustainable Development Goal 7, https://sustainabledevelopment.un.org/sdg7.

2 Sustainable Development Goal 13, https://sustainabledevelopment.un.org/sdg13.

3 Sustainable Development Goal 17, https://sustainabledevelopment.un.org/sdg17.

remuneration thereof are inextricably linked. Moreover, PPP are generally financed by the private sector with debt and equity serviced by revenues and where necessary supplementary revenues or support from the fiscus.

1.2.7 PPP are furthermore characterized by their capital intensive nature, longer term financing requirements which require operation and management on an on-going basis.

Private sector can choose to operate in the same market but would do so without the support of the framework of the PPP contractual structure yet be subjected to regulation of the country / sector concerned.

1.2.8 Viability

1.2.9 Following are various scenarios under which a PPP can be a viable option:

- **Technology:** where the service requires external expertise and government will not be able to provide it independently;
- **Quality:** where a private partnership would significantly enhance the quality of service compared to what the government could extend independently;
- **Time:** where a private partnership would expedite the project implementation significantly; and
- **Cost:** where there would be a considerable reduction in the project cost and also the service cost with the involvement of a private player.

1.2.10 Value for Money in a Project

1.2.11 Ensuring value for money ("**VfM**") should be at the core of the public sector's decision to engage in a PPP infrastructure project. A PPP is a considered a VfM transaction if it generates a net economic benefit for the public in terms of quantity, quality of the service or facility, cost and risk transfer over the project life, relative to the public procurement alternative. Hence, the VfM assessment of a PPP plays a fundamental role in the decision whether a public institution would be willing to enter into PPP agreement[4].

1.2.12 Selection of Appropriate Infrastructure Projects

1.2.13 One of the challenges faced by Governments is the ability to discern the suitability of an infrastructure project for the PPP model. This suggests that the notion of `one size fits all` is not applicable for infrastructure projects. Governments should acknowledge that PPPs are not the panacea for all infrastructure development initiatives. It is therefore crucial in the planning phase to select infrastructure projects that would be well suited to the PPP model as

[4] Any quantitative VfM assessment requires a large number of input assumptions, such as – for example – statistical data of time and cost overruns of publicly procured infrastructure projects. In most countries this information is not available and it is up to the analyst to come up with a realistic set of assumptions: the result of VfM assessments is therefore highly susceptible to selection and input bias.

it would be more likely to ensure the success of a project.

1.2.14 Legal and Regulatory Framework

1.2.15 In view of the nature and the lengthy timeframe to develop PPP projects, it is imperative that the interests of both the public and private sector are protected by law.

1.2.16 Before investing in a PPP project in a given country the private sector participants will complete a detailed due diligence on the legal and regulatory system to ascertain if to invest or not. The standard form of the due diligence questionnaire indicates the type of legal and regulatory framework concerns and considerations that are frequently raised on PPP projects. The standard form is included in Schedule 4.

1.3 People First PPPs

Historically, PPP models, in particular those originating in developed economies, have not been developed from the perspective of poverty alleviation. Accordingly, UNECE proposes a model of "**People First PPPs**" which are 'fit for purpose' for the UN SDGs.

2. OBJECTIVE AND SCOPE OF THIS STANDARD

2.1 Objective

This Standard sets out recommendations (expressed as "standards" throughout this document) as to how host Governments in emerging markets and developing economies ("**EMDE**") countries can, through relatively low cost interventions:

a) maximize the economic benefits of RE PPPs;

b) attract increased private sector participation in RE PPPs;

c) reduce the development time and costs for RE PPPs;

and thereby deliver a RE PPP at an affordable cost.

2.2 Scope

2.2.1 RE PPPs are complex transactions involving multiple private and public sector stakeholders. Furthermore, as discussed below, each generation technology raises significant technology-specific issues.

2.2.2 The Standard aims to provide:

(a) a set of high-level recommendations to assist host Governments in EMDE countries in structuring, procuring and carrying out 'People First PPPs' in their country; and

(b) brief rationale for each recommendation.

2.2.3 The scope of this Standard does not extend to detailed analysis, nor does it provide answers to every issue that may arise for host Governments.

3. METHODOLOGY

3.1 Team of Specialists

The PPP RE standards are drafted by specialists from the public and private sectors, including representatives from civil society and NGOs (the "**Project Team**"), reporting to the UNECE Team of Specialists on PPPs via the UNECE PPP Secretariat based in Geneva (the "**Secretariat**").

3.2 Support through LIFE Klimastiftung Liechtenstein and Endorsement by the Government of Liechtenstein

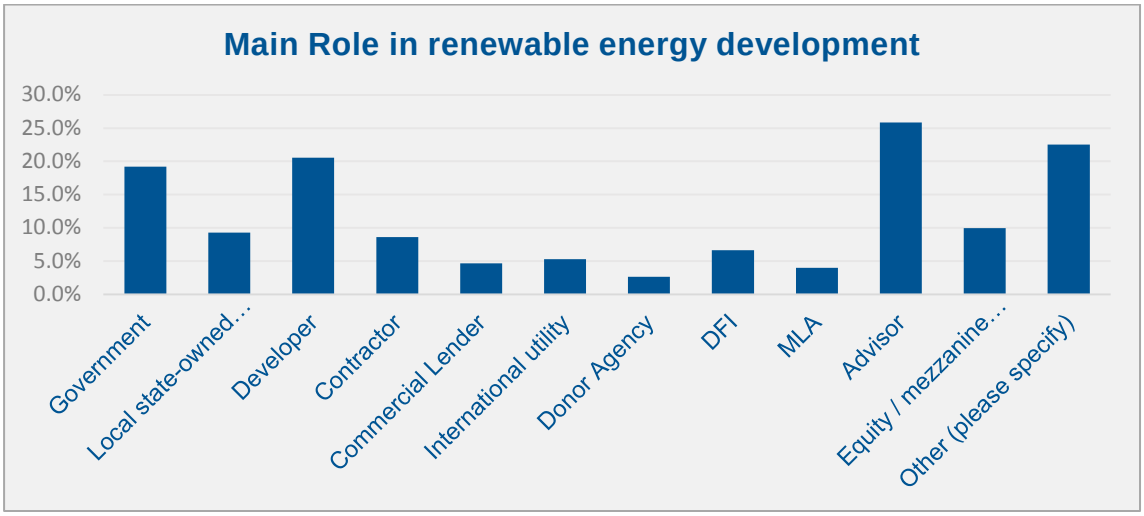
The Project Team was supported by LIFE Climate Foundation Liechtenstein based in Vaduz, Liechtenstein. The Government of Liechtenstein has endorsed the establishment of the UNECE PPP Excellence Centre for Renewable Energy in Vaduz, Liechtenstein, on October 25, 2016. The Centre will be hosted by LIFE Climate Foundation Liechtenstein.

3.3 Market Survey

3.3.1 The Standards are based on a detailed survey conducted in 2016. The survey was published in four UN languages (English, French, Spanish, Russian) and received responses from more than 200 PPP and RE experts worldwide.

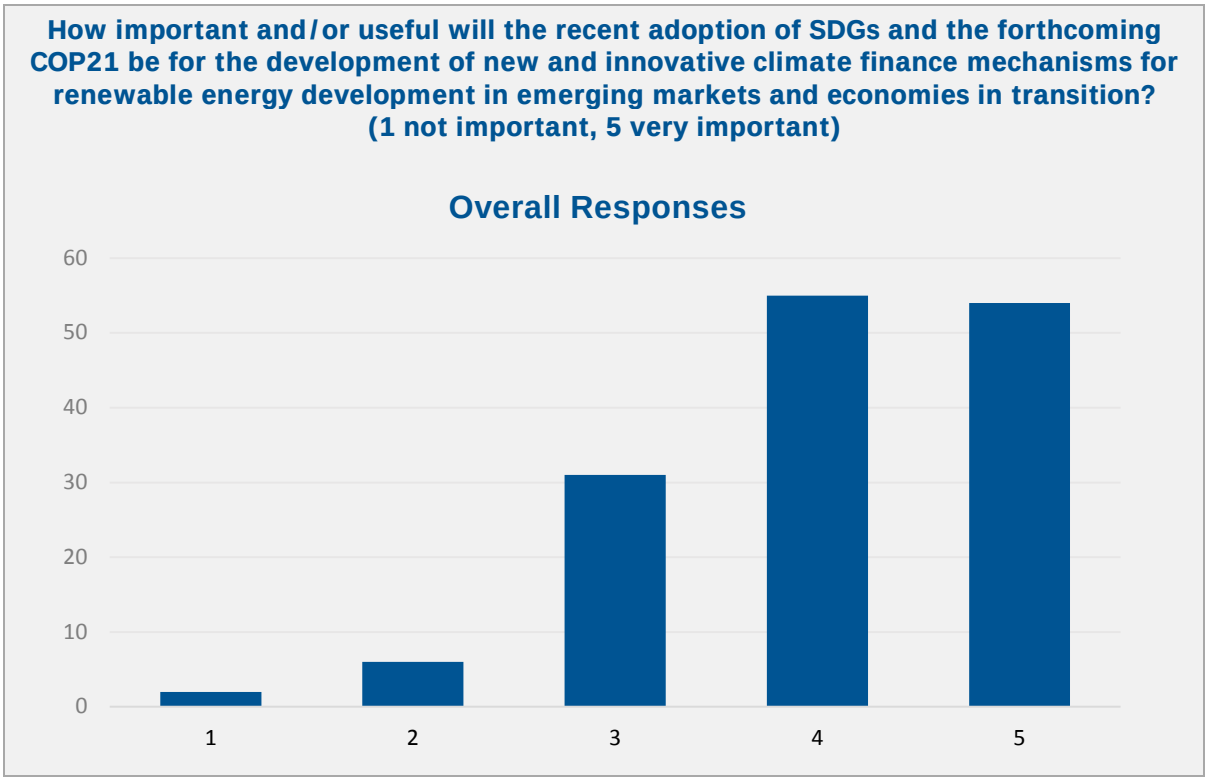
3.3.2 The intention of the survey was to support the development of market-sourced and market-tested recommendations and analysis, which will enable decision-makers to better understand and address views of the public sector, private sector, civic society, investors, commercial banks and development finance institutions and respective challenges and procedural requirements.

3.3.3 Public and private sector developers were represented equally (20%) and most advisors had rendered consulting services to both parties of a PPP project. Civic society was represented well with over 22% under others.

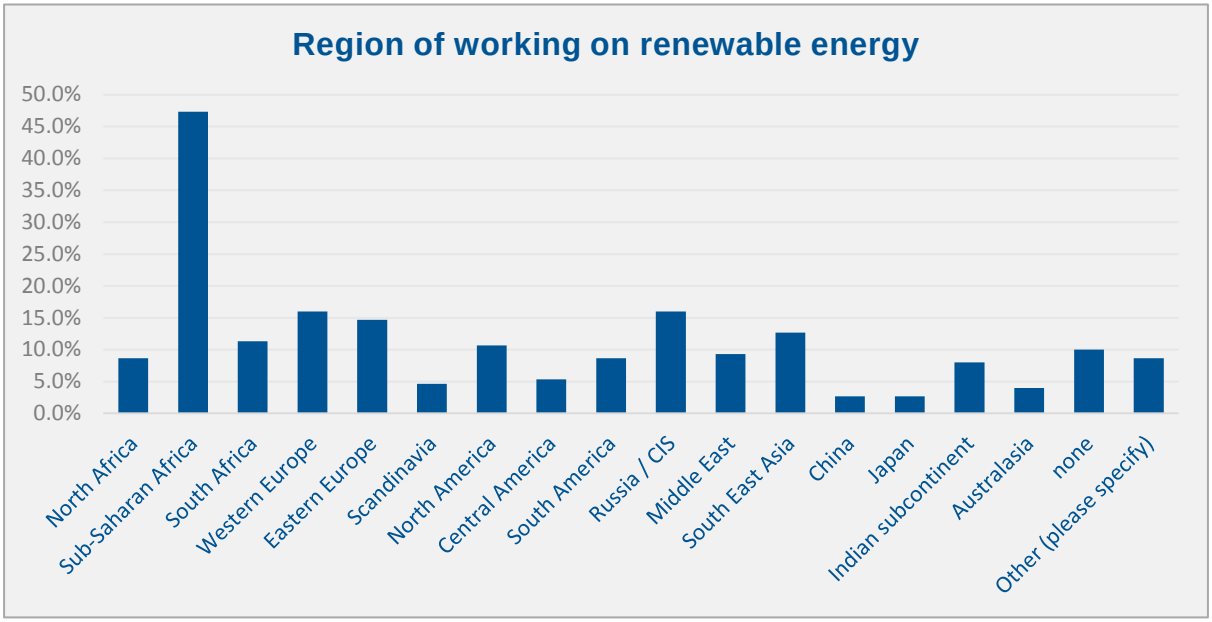


3.3.4 The largest share of participating developers and sponsors acknowledged that social

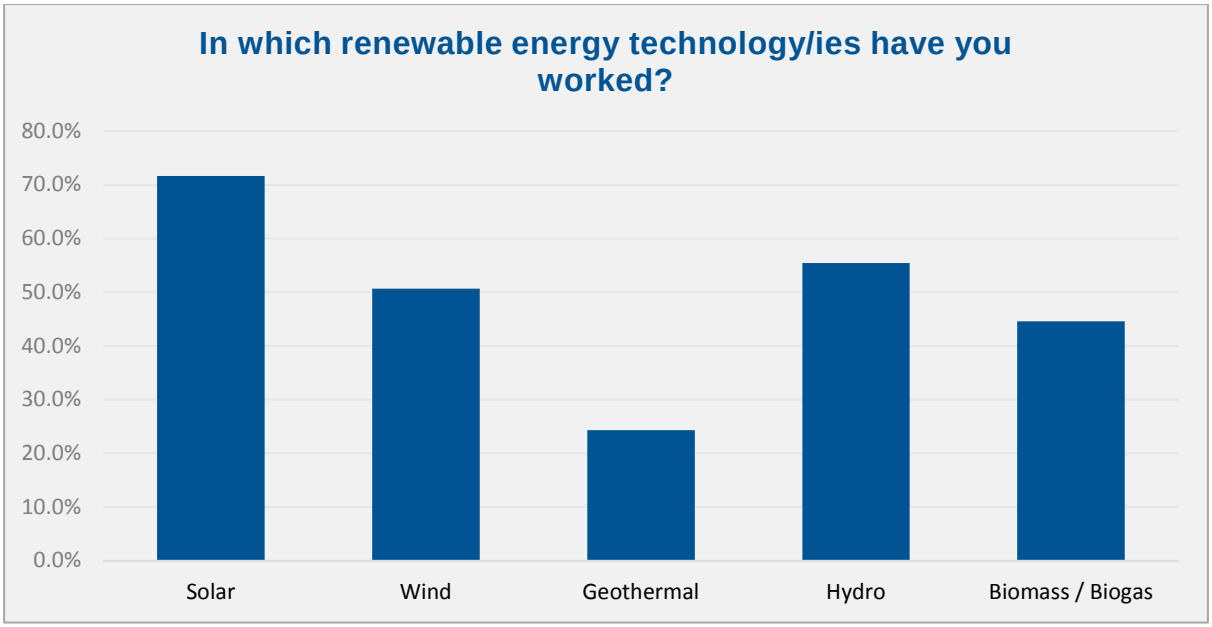
inclusiveness and sustainability was an integral part of the PPP structuring approach.



3.3.5 In terms of regional focus, the largest share of participants had experience with RE PPP projects in Sub-Saharan Africa. However, other regions were overall well-represented:



3.3.6 Technology-wise, all currently viable technologies were well represented:



3.4 Challenges Addressed

3.4.1 The survey and proposed standards further acknowledge and incorporate varying challenges for PPP projects across different RE technology types.

3.4.2 Accordingly, the standards will offer technology-specific insights and recommendations, which will enable concerned practitioners to tailor their project in line with technology requirements.

4. PEOPLE FIRST PUBLIC-PRIVATE PARTNERSHIPS

4.1 Standard

RE PPPs should be carried out and evaluated as 'People First PPPs'.

4.2 What are People First PPPs?

'People First PPPs' are PPPs, which:

(a) are seen as synonymous with the purposes of the UN SDGs;

(b) out of all the stakeholders, put people as the main beneficiaries of the projects;

(c) increase access to water, energy, transport, and education especially to the socially and economically vulnerable members of society;

(d) promote social cohesion, justice and disavow all forms of discrimination based on race, ethnicity, creed and culture;

(e) focus on improving the quality of life of communities, fighting poverty and creating local and sustainable jobs; and

(f) contribute to ending hunger and promote the empowerment of women

4.3 Evaluation Criteria for People First PPPs

4.3.1 The criteria for evaluating People First PPPs are:

(a) "accessibility";

(b) "equity";

(c) "efficiency";

(d) "effectiveness",

(e) "sustainability"; and

(f) "replicability".

4.4 People First PPPs in the RE Sector

4.4.1 People First PPPs in the RE sector seek to ensure that:

(a) sufficient RE infrastructure is delivered when and where necessary to enable the attainment of the UN SDGs;

(b) RE infrastructure is developed to design standards and build quality which will enable reliable delivery of RE over the long term; and

(c) RE infrastructure is delivered:

(i) at the lowest possible levelised cost of electricity (taking into account the objectives set out above); and

(ii) with the lowest possible fiscal burden to host Governments;

in each case while balancing the objectives set out in paragraphs (a) and (b) above.

4.4.2 Social inclusivity and financial viability are not conflicting interests in a RE PPP, but rather intertwined prerequisites for a successful operation of a project over its entire lifetime.

4.5 Good Governance and Corruption

4.5.1 This Standard for Renewable Energy PPP does not have a dedicated section on guidelines for good governance and anti-corruption measures for PPP as these are developed by a separate UNECE PPP Standard working group. It is further referred to UNECE´s Guidebook on Promoting Good Governance in Public-Private Partnerships.

4.6 Definition of Renewable Energy

4.6.1 For purposes of this Standard, the definition of IEA for Renewable Energy is utilized: "Renewable energy is energy that is derived from natural processes (e.g. sunlight and wind) that are replenished at a higher rate than they are consumed. Solar, wind, geothermal, hydropower, bioenergy and ocean power are sources of renewable energy. The role of renewables continues to increase in the electricity, heating and cooling and transport sectors."

4.6.2 As per UNECE´s mandate for this PPP Standard for Renewable Energy, the proposed

Standards only apply to grid-connected RE.

5. FEATURES OF A RE PPP PROGRAM

5.1 Public-Private Partnerships

There is no internationally acknowledged definition of PPP. The definition of PPP varies depending on the country or international institution.

Some PPP definitions are broad and involve any long-term cooperation between the public and private sectors, including contractual, as well as institutional (joint venture) forms (institutional PPPs, or "IPPPs"). However, most definitions are narrower and include strict requirements as to which projects may be considered as PPPs.

One example of a broader PPP definition is provided in the UNECE Guidebook on Promoting Good Governance in Public Private Partnerships. According to that definition, PPP is a form of cooperation between the public and private partner aimed at "*financing, designing, implementing and operating public sector facilities and services".*

The World Bank's PPP Knowledge Lab defines a PPP as:

"*A public-private partnership (PPP) is a long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance*."[5]

In this document, the term "RE PPP" is used to describe any types of RE projects involving:

(a) long-term (sometimes up to 20 – 25 years) partnership between the public and private sector;

(b) provision of infrastructure or service by an entity other than a public authority; and

(c) transfer of risk to the private sector.

PPP may be implemented by a PPP program (see special section below), investment agreement, concession agreement or similar, which constitute the legal basis for the relations between the parties.

5.2 RE Specific Considerations

5.2.1 PPP RE projects are generally characterized by the multitude of required transaction agreements and their contractual complexity.

5.2.2 Cross-sectorial and cross-institutional stakeholder coordination is key prior to launching a RE PPP program or transaction. This includes effective on-boarding of all involved ministries, government authorities and the utility. The establishment of an office and / or focal point with a clear mandate and authority would be advisable to ensure sustainability of the

[5] https://pppknowledgelab.org/ppp-cycle/what-ppp

partnership.

5.2.3 The power purchase agreement ("**PPA**") - governing production, offtake and payment obligations – is the focal agreement, which must reflect the diverse set of challenges and risks involved in operating a power-generating facility viably.

5.2.4 In EMDE countries, investors and lenders often expect additional comfort beyond the legal protection provided in a standard PPA. PPP RE transactions in this environment thus usually involve a set of support agreements. The broad mix of financial, legal and operational risks intertwined across a number of legal agreements is a particular challenge of PPP RE projects.

5.3 Developing an Effective RE PPP Program

5.3.1 In situations where there is an interdependence between state and private sector in the implementation of renewable energy, a dedicated RE PPP program is very appropriate.

5.3.2 Efficient outcomes are achieved if a RE PPP program yields investment at scale, is repeatable, and delivers a high quality utility service to citizens at an affordable price. RE PPP programs should be developed through a phased approach to allow for price discovery and risk reduction for both the host Government and private sector for real value creation for the end user.

5.3.3 The success of a RE PPP program is a function not only what the host Government decides to do, but also how it goes about how to design the program. The 'how' aspect of PPP programs is about:

(a) the process of development of the program that a host Government implements from the start;

(b) Constant and complete stakeholder engagement – including affected local communities, private investors, financiers, grid, off-taker, relevant ministries; and

(c) The size and impact of the whole program and of the individual projects within it.

5.3.4 A RE PPP program should educate stakeholders about the ultimate project cost and its impact on the consumer over time case, the affordability of electricity for the population at large and other affected parties (departments of finance, utilities, private sector as an off-taker, energy intensive users etc.)

5.3.5 The size of projects or programs that could be considered for an RE PPP structure could place significant strain on the balance sheet of the country concerned especially where revenues are constrained by regulation and the ability of the consumer to pay. The impact of RE PPP projects and programs should therefore be subjected to the necessary due diligence in respect of a country's ability to meet its obligations under the PPP.

5.3.6 An efficient RE PPP program should be embedded in a broader process or integrated plan which should include realistic supply & demand forecasts, least cost planning associated with the energy mix, resource assessments, transmission network development and broader power sector development trajectories. It incumbent upon a host Government in launching a PPP program for renewable energy to assess the building blocks of its program, for example,

availability of data on resource assessments, transmission risks, and land titles, and design a process that takes its strengths and weaknesses into account.

5.3.7 RE PPP programs targeting intermittent power sources impose additional requirements to a country´s grid absorption capacity and management.

5.3.8 Ignoring these principles usually leads to a higher cost of service and a risk mitigation program which leaves the host Government with risk that should be borne by the private investors[6].

5.3.9 It should be noted that there are currently some prominent examples in EMDE countries with highly developed RE PPP frameworks, yet, at least some of these frameworks do not maximize public benefit and could be improved by optimizing.:

(a) allocate risk in the manner referred to in paragraph 7.1.1;

(b) offer the full suite of project documents required for project finance; and/or

(c) provide project financiers with sufficient certainty as to expected revenue stream under the PPA.

5.4 Independent Power Projects

5.4.1 RE PPP under a broader RE PPP program are commonly referred to as independent power projects ("**IPPs**"). Such PPP-IPP and regular, purely private sector-driven IPP are not uniform. Although the typical IPP structure is understood as a privately sponsored project with nonrecourse or limited recourse project financing, most IPPs in EMDE do not follow this exact model. Instead, the government usually guarantees the offtake (and/or subsidizes it as there are no cost/reflective tariffs) and/or may hold (directly or indirectly) some portion of equity and/or debt, bringing PPP-IPPs closer to a model of a common PPP than that of a traditionally conceived IPP.

	Fully Private Sector	PPP
Offtaker	Private or open (spot) market	Public (fully or partially)
Contracts	(Various) Power Sales Contract(s)	Power Purchasing Agreement often flanked by Implementation / Support Agreement
Dedicated RE procurement program	Not necessary	Usually
Public support	Nothing beyond regulation of market	In form of guarantees and other

[6] For example a comparison of the outcomes of RE programs in India and Sub-Saharan Africa. As a result of the program initiated by the Indian Government, wind and solar projects in India regularly result in levelized tariffs in Rupees equivalent of $0.08/kWh, where 50% of the tariffs goes towards capex and O&M, and 50% to interest and equity return. In contrast, a Sub-Sarahan African project which did not follow such a process, would probably end-up with a tariff of US$ 0.12/kWh, where the level of capex and opex would be the same as with a project in India, with almost a 3.0x multiple going to equity return.

		support instruments
Risks typically assumed by Public Sector	None	Payment, Termination, Grid, Permitting
Source of financing	Purely commercial	Public, concessional, commercial

5.4.2 Common features of IPPs include:

(a) a single-purpose project company established and owned by shareholders (often referred to as "**Sponsors**"), which has the responsibility to design, finance, construct, operate and maintain the power generation facility throughout the project term of the agreement;

(b) a long term (typically 20-25 years) PPA between the SPV and the offtaker, which is often a Government owned utility;

(c) an agreement between the SPV and the host Government (such agreement often referred to as an "**Implementation Agreement**", "**Concession Agreement**", "**Government Support Agreement**" or similar) which sets out various rights and obligations as between SPV and the host Government;

(d) the PPA and Implementation Agreement sitting within a matrix of contracts entered into by SPV pursuant to which, *inter alia*, risk is allocated as between the immediate stakeholders to the project.

5.4.3 A diagram of a typical RE IPP contractual structure is set out at Schedule 1 (*RE PPP/IPP Structure Diagram*).

5.5 Joint Venture as a model of RE PPP

5.5.1 A RE PPP in which the public and private sectors hold shares and jointly manage generally follow the same principles as an IPP. However, additional administrative and corporate governance challenges (for example conflict of interest and interference) may arise as a consequence of the institutionalized partnership.

6. ENVIRONMENTAL AND SOCIAL GOVERNANCE STANDARDS

6.1 Standards

6.1.1 PPP RE projects are both environmentally and socially sensitive. Ensuring environmental and social sustainability requires a collaborative approach of public and private sector.

6.1.2 RE PPP projects must be designed, implemented and operated in full compliance with domestic environmental and social protection laws. In cases in which these laws do not offer the same legal protection as international best practice

standards, such standards should be adopted at least for RE PPP programs.

6.1.3 ***Addressing environmental and social risks is not only in the interest of sustainability, but are also a core prerequisite for the project´s viability and chances of successful implementation and operation.***

6.2 If developers and sponsors of RE PPP do not comply with sustainability requirements, PPP RE projects are at severe risk of causing conflicts which can impede financial close or interfere with uninterrupted operation.

6.2.1 If environmental and social laws do not offer the same protection levels as international environmental and social sustainability guidelines[7] and best practice, hosting Governments are encouraged to identify and address gaps and utilize benchmarks proposed by international standards. Hosting Governments should be realistic about the enforcement capacity through their concerned agencies.

6.2.2 For RE PPP projects financed through IFIs, DFIs and sustainable equity funds, the inclusion of international standards is mandatory.

6.2.3 It is critical that RE projects or programs undertaken as PPPs should encompass the following environmentally and socially sustainable features:

- Policies to guide the partnership with respect to environmental and social impacts
- A process to identify and assess the above impacts
- Development of a management program including mitigation measures which addresses the impacts throughout the life of the project
- Communication and disclosure to identify and communicate with project-affected people which should include a grievance mechanism to resolve outstanding issues, in particular in projects which involve resettlement

6.2.4 Gender aspects must be taken into account and should address equity, equality, security and gender balance in the structuring of the partnership.

6.2.5 To the extent possible, explore opportunities for local long-term job creation and skill building. If jobs are created, compliance with health, safety and international labor standards has to be ensured.

6.2.6 Cumulative impacts and associated infrastructure must be included in the scope of environmental assessments of large-scale RE PPPs projects, in particular hydropower projects. Such projects can have adverse effects on ecosystems, which sustain community livelihoods far beyond the vicinity of the project concerned. RE PPP stakeholders must avoid or mitigate irreversible impacts on biodiversity, natural habitats and protected areas at all cost and aim to minimize the environmental footprint of the project.

[7] Such as the IFC's Environmental and Social Performance Standards (2012) or the Hydropower Sustainability Assessment Protocol

7. RISK AND RISK ALLOCATION

7.1 Standards

7.1.1 Each (and every) project risk should be allocated to the party best able to control / mitigate the risk.

7.1.2 A realistic assessment of payment risk associated with the RE PPP is of utmost importance. Aspects of affordability should be transparently disclosed for informed risk mitigation given the potential impact on public finances.

7.1.3 Markets should be tested periodically for available risk mitigation products and the quantum of any compensation which may become payable by the public sector upon certain risk events arising.

7.1.4 Actual and perceived risks should be tackled wherever possible, including by taking a programmatic approach to RE PPP development and improving the financial condition of the offtaker.

7.2 Cost of Capital

7.2.1 A project's cost of capital reflects the actual and perceived risks associated with carrying out the project: inflation risk, interbank interest rates risk, political and regulatory risk, project design, financing, construction, operation and maintenance risks, demand and regulatory risks.

7.2.2 Public policy can influence many important determinants of the cost of capital of delivering RE PPPs .

7.3 Risk Perception

7.3.1 RE PPPs in EMDE countries are considered by private sector financiers to be relatively high risk endeavours[8], which often increases the cost of capital to unsustainable levels.

7.3.2 There is ample evidence to suggest that RE PPP programs supported by DFIs and/or MFIs create a 'halo effect' of reduced risk perception, which increases investor and lender interest. However, these support instruments can come at significant cost for both host Governments and private sector.

7.4 Efficient Risk Allocation

7.4.1 Risk is ideally allocated if it is allocated to the party who has the greatest ability to fully manage and/or mitigate that risk, despite the fact that it may not be fully controlled.

7.4.2 It is inefficient to require a party to assume risks it cannot control and mitigate, in particular if a risk is at least partially under the control of the other party.

[8] As detailed in Schedule 2

7.5 Risks Allocated to Investors

7.5.1 Different classes of investors have different risk appetites. This reality should be acknowledged and embraced.

7.5.2 Generally, the private sector is willing to take the following risks: project cost, construction, technology, operation and maintenance.

7.6 Risks Allocated to Host Governments

The risk allocation principle referred to in paragraph 7.1.1 can be challenging for host Governments, in particular if these risks are by their nature very difficult to control. These include, for example:

(a) risks associated with matching electricity supply and demand. This is particularly relevant for large RE PPP programs or projects, whose installed capacity may sometimes exceed 100% of a host country's total peak demand (including the reserve capacity) at the time of inception. Timing differences resulting from the project development life cycle and demand are challenging to manage;

(b) exchange rate risks (capital and repayment); and

(c) 'political force majeure' risks, such as war, civil disturbance, terrorist attack, currency convertibility, etc., which are not within the direct control of the host Government.

7.7 The Financial Viability of the Sector

Lowering risk perceptions may also be achieved by improving the financial viability and performance of the electricity subsector as a whole through measures such as:

(a) implementing cost-reflective and adequate end-user tariffs, so that the Offtaker is not perceived to be structurally loss making and thus a high credit risk;

(b) improving the Offtaker's revenue collection performance, e.g. by promoting pre-paid metering, again so that the Offtaker is perceived to be on a sound(er) financial footing; and

(c) importantly, ensuring that the Offtaker develops a good track record of timely payment to its existing IPP suppliers.

7.8 Vulnerability to climate change

Risks resulting from climate change are often underestimated when host Governments and project sponsors analyze a RE PPP projects viability. It is important to diligently analyze and address such risks in early stages of a RE PPP project and agree on a fair share of subsequent revenue risks and eventually consider available insurance instruments.

8. PRO-ACTIVE POLICY INTERVENTION

8.1 Standard

8.1.1 Host Governments should aim to develop a RE policy framework which drives

down the cost of RE PPP transactions.

8.1.2 *Host Government should take a pro-active lead in shaping its domestic RE market to comply with both their sector´s electricity needs and NDCs.*

8.2 Suggested Measures

Measures which the Host Government (with DFI and/or MFI support where appropriate) may take to reduce RE PPP transaction costs, and actual and perceived risks associated with project development, include:

(a) **policy guidelines** - identification by the public sector of priority technologies and regions for investment, as well as where possible lists of potential projects / project sites;

(b) **resource mapping** – mapping RE resource, collecting RE resource data (wind speed, irradiation, hydrology, etc.) on an ongoing basis and making this data available to the private sector;

(c) **investor guidelines** - development of detailed investor guidelines, which set out clearly all steps investors must take, including in particular permits and consents, etc., which must be obtained from Government authorities from project initiation through to commercial operations, as well as guides to the tax treatment of (and investment incentives (if any) available in respect of) RE PPPs and to unsolicited proposals for RE PPPs;

(d) **standardised project agreements** - development of a full suite of realistic, technology specific and bankable project documentation, which, however, should not be mandatory, but rather a recommendation subject to negotiations;

(e) **engagement of external advisors** – working with financial, legal and technical advisors can help designing an efficient RE PPP program or project in line with international best practice, attracting more prospective investors, driving the competition up and prices down. Associated costs can be sponsored through MFI support programs or recuperated through inclusion of a development fee in the cost structure for the financial proposal;

(f) **site selection, early project development** - site selection or alternatively at least identification of priority locations by the public sector, as well as carrying out preliminary legal and technical due diligence which can be shared with all shortlisted bidders;

(g) **RE appropriate grid code** – acknowledging RE, and the specific requirements and technical limitations of various RE technologies, in the grid code, and development of detailed RE grid connection guidelines; and

(h) **Interconnection and associated costs** – governments, utilities and / or regulators must provide uniform and transparent interconnection procedures, guidelines and application forms for RE generation connection. It is also important to provide transparency on how required grid network upgrades triggered by RE PPP

are identified and associated cost responsibilities allocated to specific generation projects.

9. ROLE OF THE REGULATOR

9.1 Standard

9.1.1 Seek to tailor the role of independent regulators in electric power sector governance while acknowledging that financing a renewable-energy power plant requires the revenue certainty provided by long-term, contractually-agreed tariffs.

9.2 In general, depending on the degree of development of the electricity sector in a given country, the electricity price at which RE PPP sell energy is, variously (i) fixed by bilateral contract, (ii) defined over multi-year cycles by a regulator in accordance with tariff regulations, or (iii) determined on a daily (or hourly) basis in the wholesale electricity market.

9.3 Financiers of RE PPPs in EMDE countries typically will not take the risk that regulated or market-determined wholesale electricity tariffs throughout the life of their project will stay at a level which will make the project economically viable. This may be due to perceived inexperience of the electricity regulator, perceived risk of political interference, or simply a 'chicken and egg' issue of the electricity regulator not having a sufficient track record of tariff setting, and thus being precluded from gaining and demonstrating that experience.

9.4 Limitations Placed on the Regulator

9.4.1 In light of the above, a common feature of electric power RE PPP in EMDE countries is a requirement for a long-term (typically 20-25 year) contractually agreed tariff, together with contractually agreed mechanisms to adjust the tariff should various risk events arise.

9.4.2 In other words, RE PPP in EMDE countries typically relieve the electricity regulator of its role in supervising wholesale electricity tariffs, other than an ability to approve the contractually agreed tariff or tariff methodology at the outset.

9.5 Limited Role of the Regulator

9.5.1 Since financiers' requirement for contractual certainty allows limited scope for intervention by the independent energy regulator, that role should be to the extent possible tailored and limited, e.g., the regulator may exercise general oversight that the operation and maintenance of the generation facility is in accordance to the relevant conditions set in the generation license.

9.6 Independence of the Regulator

Building market acceptance of the regulator's role will result from the absence of actual or perceived political intervention in the performance, decisions and awards made by the regulator. Independent regulators staffed with strong professionals will be more successful in attracting international investment into RE PPP.

10. PROJECT FINANCE AND REFINANCING

10.1 Standards

10.1.1 Lenders should be 'at the table' during negotiations between the project Sponsors, the host Government and offtaker. Where a host Government envisages the participation of international lenders and multi-laterals development banks in financing specific projects or RE-PPP programs, they should take care to incorporate requirements of such lenders in their procurement process such as, for example, procurement rules and environment and social sustainability standards.

10.1.2 Taking into account changes in the project's risk profile refinancing should be considered provided that it results in reduced costs and the benefits of refinancing are shared with the public.

10.2 Material Features of Project Finance

10.2.1 RE PPP in EMDE countries with project costs above circa US$20 million +/-[9] are typically project financed.

10.2.2 For the purpose of this document, material features of RE project finance in EMDE countries (much of which is common to all project finance transactions) include that:

(a) it seeks to maximize the ratio of debt finance to equity investment, as the interest rates required by lenders are typically much lower than the returns sought by equity investors;

(b) lenders lend against the expected long-term income stream flowing from the power purchase agreement ("**PPA**"), and **not** against the value of the underlying assets or a balance sheet;

(c) should the RE PPP project terminate early (i.e., before the expiry of the natural term of the PPA), the expected value to the equity investors and lenders of the underlying infrastructure (i.e., largely immobile infrastructure with no certainty of a customer or means of earning income) is minimal at best;

(d) typically project lenders will be more risk averse that than investors/sponsors (as lenders expect a lower return than the project sponsors); and

(e) Minimum recourse to the investor's balance sheet.

10.2.3 Project finance is often the only financing structure that investors are willing to accept to fund capital investments in EMDE countries.

[9] There are no hard and fast rules; however, most project lenders have minimum deal sizes, below which they are not prepared to incur the significant time and expense require required in project preparation (which in turn is to a large extent fixed regardless of the project size).

10.3 Drawbacks of Project Finance

10.3.1 Project finance requires cumbersome and expensive processes leading to high fixed upfront transaction costs and extended timelines.

10.3.2 One particular feature is that the due diligence requirements of project finance and incumbent overhead costs do not increase/decrease proportionally to increases/decreases in project size. Accordingly, on a per MW basis, project finance can become cost prohibitive for smaller projects which can be mitigated over a staged RE PPP program in those countries with sufficient scale of projects and where there is standardization of procurement.

10.3.3 As project lenders typically expect a much lower return than project equity sponsors, lenders typically have a significantly lower risk threshold than sponsors. Accordingly, where lenders have not been extensively involved in project agreement development and negotiation from an early stage, it is common for them to require extensive and costly re-negotiation of the PPA and host Government support agreement as a condition to the provision of finance.

10.3.4 Where appropriate, and especially for smaller RE PPPs, the creation and application of financial instruments tailored for the needs of this sub-sector (in particular removing the current distinction between debt and equity finance) should be encouraged.

10.3.5 Project finance in EMDE countries often requires hard currency offtake contracts enhanced by different government support arrangements. Local currency financing to back local currency offtake should be encouraged to make RE PPP projects more economically viable and sustainable. Where a country is unable to avoid hard currency financing and offtake, it should take action to encourage and to support the development of the local banking finance for PPPs. This is most applicable for those countries that are able to embark on a programmatic and scalable RE PPP process.

10.4 Refinancing

10.4.1 Throughout its lifecycle, an RE PPP goes through varying stages with different risk profiles. The highest risk is generally prior to financial close and during construction.

10.4.2 Investors have a monetary incentive to try to refinance their investments and loans post-COD, and then to reinvest in, or (as the case may be) re-lend to, new projects. On the other hand, lenders who are able to lend through the high-risk development and construction period are unlikely to agree to an early prepayment.

10.4.3 When projects enter their low risk phase, financiers with a lower risk appetite such as pension and other funds should be encouraged to take the place of early stage financiers, and to fulfill their role as the natural long-term owners of operating RE generation assets.

10.4.4 Governments should allow encourage refinancing. However, the Government should carefully weigh the benefits of such operations shared with the public, with the added risk (i.e. longer debt maturities).

10.5 Appropriate Public Sector Oversight

10.5.1 Host Governments, regulators and utilities should exercise appropriate oversight to ensure

that a project's investors and lenders throughout the project's lifecycle have the requisite technical and managerial capacity to carry out their respective roles.

10.5.2 However, in principle the public sector should not stand in the way of changes in control and re-financings etc. of project companies to the extent that these simply reflect an efficient allocation of available capital as the project's risk profile changes throughout its lifecycle.

11. POWER PURCHASE AGREEMENTS – GENERAL STANDARDS

11.1 Standards

11.1.1 Recognition should be given to the PPA's central role in raising finance from the private sector, in particular its role in creating the expected income stream against which financiers provide finance.

11.1.2 Expert advice should be taken to optimize various provisions including liquidity support, economic stabilization, required performance standards and end of term transfer obligations (if any).

11.2 Cornerstone Project Document

In RE PPPs in EMDE countries, the PPA performs several important roles, including:

(a) providing the expectation of a long term income stream against which the project will be financed;

(b) providing the contractual mechanisms for the sale and purchase of electricity; and

(c) setting the contractual obligations of the project company, in particular in respect to attaining the project commercial operation date ("**COD**"), and post-COD performance standards.

11.3 Liquidity Support

11.3.1 Strong utility credit in the host country is key for underpinning a RE PPP program or project. The reality in most EMDE countries is that utilities struggle to keep up with cost recovery and have poor payment track record. The first effort of host Governments should be to map out a path for strengthening utility creditworthiness. As an interim measure liquidity support and other instruments for PPAs should be considered.

11.3.2 Unlike many commercial transactions, RE PPP are often highly leveraged project financed transactions. The project company does not have a balance sheet to 'ride out' any late payment from its customer, and has fixed debt service obligations as well as operation and maintenance costs to meet (including staff costs).

11.3.3 The consequence of the utility/offtaker paying e.g. a few months (or even a few weeks) late can be default under loan documentation and/or non-payment of staff.

11.3.4 Put another way, project lenders (in particular) are not paid to take the risk of late payment by the utility/offtaker. Accordingly, 'liquidity support' mechanisms are often put in place to ensure timely payment to the project company in the event that the utility/offtaker does not pay on time.

11.3.5 Liquidity support may be in the form of a bank guarantee, letter of credit, or a cash escrow account. In many instances the bank guarantee or letter of credit provider will in turn require cash collateral or a partial risk guarantee provided by a credit worthy entity such as MIGA or some regional insurers, e.g. African Trade and Insurance Agency (ATI) in ATI member countries.

11.3.6 Liquidity support does not protect against long-term non-payment (it would only delay the inevitable in that case). It is also often disproportionately difficult and time consuming to put in place compared to the level of comfort which it provides.

11.3.7 In the meantime, host Governments and utilities should test market requirements; e.g., there is at least one prominent example of project lenders accepting a cash collateral account to be funded from a tariff surcharge until fully funded; i.e., the lenders allowed the project company to take late payment risk in an early phase after COD while the cash collateral account is expected to be funded.

11.4 Economic Stabilization

11.4.1 Economic stabilization refers to a requirement on the 'host Government side' to make the project company whole if a change in law or tax or any other interference, action or omission committed by any public authority or official causes either an increase in costs (including tax costs) or a decrease in gross revenue of the project company.

11.4.2 Stabilization may be achieved e.g. either via direct compensation from the host Government and/or (more usually) a tariff increase.

11.4.3 Economic stabilization provisions should:

(a) be subject to a *de minimis* threshold (below which claims may not be made) and certain carve-outs, in particularly bringing domestic law up to international standards existing at the time of contract signature should not give rise to a stabilizing payment;

(b) provide for a role for the regulator in determining the appropriate stabilizing adjustment (without precluding appeal if the project company disagrees with a regulatory award).

11.4.4 Economic stabilization provisions often take form of compensation events / government risk events clauses. If such an event occurs:

(a) the above mentioned public partner's compensation obligations will arise;

(b) the private partner will not be subject to any sanctions, which would arise due to breach of its obligations resulting from such event;

(c) the terms of respective obligations of the private partner may be extended at its request proportionate to the delay caused by such event, or the term of the project agreement(s);

(d) the private partner will be entitled to demand the early termination of the project

agreement(s), if its losses exceed a certain threshold and/or material adverse effect of such event lasts more than a certain period of time. In this case, the private partner will receive the same compensation as the one in case of early termination due to public partner's default.

11.5 Project Performance Standards

11.5.1 Appropriate performance standards and requirements (both as to attaining COD in a timely fashion, and post-COD performance) should be placed on the private sector project company. Overall, the ability to deliver across the duration of the project's lifetime should be part of the evaluation of the bidder´s technical competence and often there are clear operation and maintenance standards that will ensure such performance over the lifetime of the project.

11.5.2 RE PPP programs should focus on attracting high quality equipment suppliers and experienced operators for their projects, and performance thresholds for availability and performance curves are advised. Minimum annual generation in PPAs are warranted where the project and/or PPA program is intended to satisfy the host government's renewable energy generation target, or toward maximizing its carbon mitigation. Where the RE source energy is intermittent, annual (or other periodic) production targets should be avoided.

11.6 End of (Natural) Term Provisions

11.6.1 In general terms, a host Government's principal priorities should be (in order) to ensure that:

(a) a sufficient amount of RE generation capacity is developed in its country to meet electricity demand;

(b) the RE generation assets in its country are prudently operated and maintained over the useful life of those assets; and

(c) consumers are charged the lowest possible tariff, and the Government takes on the lowest possible fiscal burden, in order to enable the above two objectives to be met.

11.6.2 It is suggested that who owns the RE generation assets (both throughout the PPP term and thereafter) is a secondary concern to the priorities set out in paragraph 12.6.1 above.

11.6.3 If the RE PPP project agreements are silent as to end of term transfer, and the assets do not need to be transferred back to the public, the expectation is that the interests and natural incentives of the parties will be fairly well balanced at the end of the PPA term. E.g.:

(a) the private sector owner(s) will likely feel a natural incentive to continue to maintain the assets which they own, and will continue to own following the natural expiry of the PPP project agreements; however,

(b) following the natural expiry of the PPP project agreements, the public sector will no longer be obliged to purchase power from RE PPP.

11.6.4 While matters will obviously depend on the circumstances in existence towards the end of the PPA term, this sets up a reasonable expectation of a fairly balanced negotiation towards the end of the initial term as to a term extension, including *inter alia* a reasonable expectation of

a significantly reduced tariff during any extension term to reflect the fact that the original capital costs of the generation facility will have been recovered by this time.

11.6.5 That said, ownership is understandably an emotive issue, and there is certainly an attractive proposition that as the public sector has 'paid' for the RE generation assets via the tariff throughout the PPA term, at the end of the term the assets should be transferred to the public sector. Moreover, some national PPP and concession laws directly provide that any PPP facility (including RE generation assets) shall be transferred to the public partner upon termination of the project agreement.

11.6.6 If the private sector owner is required to transfer the generation facility to the public sector at the end of the PPA term; the natural incentive to maintain the generation facility toward the end of the term is lost. In that case, this natural incentive should be re-created by contractual provisions including:

(a) an obligation to ensure that the generation facility has been maintained to a prescribed standard up to the time of transfer;

(b) an independent testing procedure to determine if the above obligation has been met;

(c) a procedure to be followed if one or other party disputes the test results;

(d) an obligation to remediate the generation facility if end-of-term maintenance obligations have not been met; and

(e) provisions to ensure that the RE PPP (i.e. a SPV with no other assets) builds up a financial reserve or takes other appropriate measures to ensure that it can meet a remediation obligation should it arise.

11.6.7 In summary, an end-of-term transfer regime (which does not give rise to unintended adverse consequences) is fairly detailed, can be difficult and expensive to negotiate, and is expected to be fairly expensive to operate as and when the relevant provision come into effect.

11.6.8 It is suggested that at least for fairly small RE PPP generation facilities (e.g. below 10MW, although there is no hard and fast rule in this regard), because of the natural incentives and balance of negotiating power which are expected to exist as between the parties, in the absence of express end-of-term transfer provisions can be preferable to lengthy, fairly complex transfer provisions which are expensive both to negotiate and to operate.

12. POWER PURCHASE AGREEMENTS - PAYMENT FOR CAPACITY

12.1 Standards

12.1.1 Ideally, sponsors and developers should assume locational responsibility for the project and assume project availability and transmission risk, where the PPA is based on payments per unit of energy generated (kWh) as this avoids the need for the PPA to have measures for capacity payments or deemed generation – However, many EMDE countries have under-developed grid systems and are required to specify locations, in which case forms of capacity payment and deemed energy may be necessary.

12.1.2 It should be recognized that the private sector incurs fixed costs associated with constructing, financing and operating RE infrastructure regardless of the extent to which the public sector utilizes that infrastructure. Accordingly, payment under the PPA should be based on availability (including 'deemed availability') not on utilization.

12.1.3 Care and expert advice should be taken in formulating 'deemed energy' and associated 'excused grid unavailability' regimes.

12.2 Compensation for Making Generation Capacity Available

12.2.1 The private sector incurs the capital, financing and fixed O&M costs of the infrastructure developed under the RE PPP regardless of whether, or the extent to which, that infrastructure is utilized.

12.2.2 Accordingly, the public sector is required to pay for the availability of that infrastructure, regardless of whether, or the extent to which, the infrastructure is utilized.

12.3 RE Projects

12.3.1 In contrast to thermal projects, in most cases the principal variable cost of dispatch of an RE generation facility (other than certain biomass technologies) is 'using up' operational hours after which maintenance expenses are incurred.

12.3.2 Accordingly, at least for wind, solar and hydro technologies, the marginal cost of dispatch is treated as being *de minimis*, and the tariff is calculated on an 'all available energy' or 'energy plus deemed energy' model'.

12.4 Deemed Energy

12.4.1 'Deemed energy' is energy which the RE generation facility made available (or could have made available if dispatched) but which was not dispatched by the utility/buyer.

12.4.2 Deemed energy can be calculated either on a 'look back' or 'measured source energy' basis, or conceivably a combination of the two.

12.4.3 **Look Back**: The look back approach simply involves looking back to a period prior to the event which caused the generation facility not to be dispatched (or not dispatched at full capacity), and calculating deemed energy based on the energy which was produced during the look back period.

12.4.4 The benefit of a look back approach is that it is relatively simple to draft and easy to understand. Drawbacks include:

(a) potential lack of accuracy, in particular, wind, solar and run-of-river hydro projects all have intermittent source energy, and the available source energy during the look back period may have been materially different to the available source energy during the period of constrained (or no) dispatch (the "**Interruption Period**"); and

(b) related to the above, if the grid is experiencing repeated constraints, it may be difficult to obtain a 'clean' look back period during which the generation facility was

operating uninterrupted at full capacity.

12.4.5 **Measured Source Energy**: The measured source energy approach involves:

(a) measuring the available source energy during the Interruption Period (e.g., so-called 'spilled water' for a run-of-river project, wind for wind project, and for solar PV both site irradiation and temperature); and

(b) calculating the expected output of the generation facility based on the measured available source energy during the Interruption Period.

12.4.6 The measured energy approach provides accuracy (provided that the contractually agreed methodology is itself accurate), and avoids the drawbacks of the look back approach.

12.4.7 However, the measured energy approach depends on:

(a) accurate measurement of source energy (and in particular in relation to run-of-hydro, it may involve an additional water meter which would not otherwise be required); and

(b) technical formulae / calculations which are not accessible to lay-people (although both the buyer and seller under the PPA ought to have technical personnel able to understand and agree the formulae and agree on the calculations).

12.5 Deemed Commissioning

12.5.1 It is possible that the host Government and/or the buyer/utility may cause a delay to the project company attaining COD; e.g., by (a) not completing a grid upgrade which is their responsibility on time, (b) unduly delaying the grant of a requisite permit or consent, (c) failing to evacuate energy generated during testing, and/or (d) otherwise failing to participate as required in the commissioning process.

12.5.2 In these circumstances, the principle referred to in paragraph 7.1.1 requires the resulting lost revenue to be compensated by the host Government and/or the buyer/utility as appropriate. This may be achieved via a 'deemed commissioning' regime with deemed energy (and an obligation to pay for deemed energy) arising during the period between a deemed COD and attainment of the actual COD.

12.6 Excused Grid Unavailability

12.6.1 Excused grid unavailability hours are hours during which (a) a RE PPP facility is not dispatched (or not dispatched at full capacity), but (b) the offtaker is not obliged to pay deemed energy charges.

12.6.2 Excused grid unavailability hours are conceptually attractive to offtakers, especially where it is expected that the grid will in fact be down and/or dispatch otherwise constrained for a number of hours each year, either due to planned grid maintenance and/or upgrades or unplanned grid outages.

12.6.3 It should be noted however, that financiers faced with an excused grid unavailability regime may well simply input the 'worst case' (i.e., no dispatch for the maximum number of excused grid unavailability hours) into their economic model, and the project will have to pass their

economic thresholds for investment on that basis.

12.6.4 If the grid in fact performs better than the worst case scenario, sponsors will receive more than their threshold return required for investment.

12.6.5 In any event, at very least the excused grid unavailability regime should provide certainty to the generation company and its financiers as to the maximum loss of revenue each year.

12.6.6 In situations where partial dispatch is a material possibility, if there is an excused grid unavailability regime, consideration should be given to excused MWh (or GWh) as opposed to excused hours (during with a partial or total interruption of supply occurs). In other words, if a generation facility is constrained to e.g. 50% capacity for one hour, it should be specified as to whether this counts as using up one hour or only half an hour of the excused grid unavailability threshold.

13. POWER PURCHASE AGREEMENTS - DISPATCHABLITY

13.1 Standard

PPAs should allow for dispatch (with deemed energy charges for non-dispatch) rather than be characterized as 'non-dispatchable' or 'must take facilities'.

13.2 Developed Market Comparison

In some developed markets (which typically expect to have a stable grid), in particular very small RE projects are developed as 'must take' facilities. I.e., the grid operator is obliged to:

(a) accept into the grid whatever output the RE generation facility is able to produce (as and when the RE generation facility is able to produce that output); and

(b) adjust supply from other generation facilities to ensure that supply and demand across the grid are balanced at all times.

13.3 EMDE Countries

13.3.1 In many EMDE countries:

(a) the grid can realistically be expected to trip from time to time, in some case many times each month;

(b) the grid is more likely to be prone both to constraints and to downtime during upgrades; and

(c) even 'small' projects can account for a small yet material percentage of overall generation capacity.

13.3.2 In these circumstances, if and when the grid is down and/or constrained:

(a) if the off-taker has a true 'must take' obligation, the offtaker will be in breach of contract, giving rise to an obligation to pay damages and potentially triggering cross-default provisions in other contracts; however

(b) if the offtaker has a dispatch right subject to an obligation to pay for deemed energy

to the extent that it does not dispatch, then:

(i) the deemed energy charges which arise should (conceptually) be identical to the damages which would have been payable for breach of contract under a 'must take' contract; but

(ii) the offtaker will be in default or risk of potentially triggering 'cross-default' provisions in other contracts.

14. TECHNOLOGY SPECIFIC STANDARDS

14.1 Standards

14.1.1 It should be recognized that (a) a single PPA will <u>not</u> be appropriate for multiple generation technologies, and (b) if the PPA has not been tailored to a specific technology, it is unlikely to be 'bankable' for any technology.

14.1.2 To the extent that RE PPPs are carried out across different generation technologies, a suite of technology specific PPAs should be developed.

14.1.3 Environment, social and biodiversity impacts considerations should be primary evaluation criteria for all projects and in particular large hydro and bagasse/biomass as further discussed in Standard 6 above.

14.2 General Comment

PPAs in particular must be tailored to the specific generation technology. Issues which require tailoring include in particular:

(a) commissioning test procedures;

(b) whether a 'capacity charge plus energy charge', or 'delivered energy plus deemed energy' tariff structure is appropriate;

(c) the methodology for calculating deemed energy;

(d) appropriate performance requirements and the methodology for calculating performance.

14.3 Solar PV

14.3.1 The output of solar PV panels depends on (a) irradiation reaching the solar PV panels, (b) the panel temperature, and (c) the age of the panels (the performance of which degrades over time).

14.3.2 In respect of solar PV, market practice has developed whereby project companies may be expected to guarantee prescribed performance ratios (adjusted for site irradiation and temperature as well as panel age).

14.3.3 In any event, as with all other technologies solar PV PPAs need to be tailored to the characteristics (and limitations) of the generation technology.

14.4 Hydro

14.4.1 Hydro projects may be either (a) hydro dams, which store source energy, or (b) run-of-river projects which have little or no ability to store source energy.

14.4.2 Practical differences include, e.g. a hydro dam may be expected to provide dependable/firm capacity (except during times of low water levels), and therefore it may be appropriate for capacity charges to be payable against available capacity (which is tested/proven periodically).

14.4.3 The utility relying on the baseload power from a large hydro dam will also probably be more concerned about the scheduling of routine maintenance and the duration of unplanned downtime than it is about that for a small, intermittent, run-of-river plant, and the PPA may be tailored accordingly.

14.4.4 For the purposes of deemed energy calculations, it should be relatively simple to divert 'spilled water' around the turbine(s) and to meter spilled water; however, engineering advice should be sought on this point. Also, in practice hydro engineers are able to agree a formula for converting the energy in spilled water into deemed electrical energy.

14.4.5 In the case of very large projects with incomplete geological or hydrological information, construction and production risks are sometimes shared with the public sector: in such case the PPA often contains tariff adjustment provisions.

14.4.6 The acceptability of any large-scale hydro project in particular should reflect an evaluation and balance of the of impacts with regard to SDGs 6 (water access), 7 (affordable and clean energy) and 15 (biodiversity).

14.5 Wind

14.5.1 As with solar and mini-hydro:

(a) source energy is intermittent; and

(b) in one sense 'source energy risk' is shared, in that if there is no wind and consequently no energy produced, then typically the project company does not earn revenue, however, conversely the utility must have access to (and utilise) alternative generation facilities.

14.5.2 If a 'delivered energy plus deemed energy' model is chosen, then (a) the project will almost certainly have wind masts which can accurately measure source energy, and (b) accordingly, calculating deemed energy from measured source energy is at least a very feasible option; however, this remains subject to the preferences of the parties.

14.5.3 The location of wind power projects should pay critical attention to the impacts of the project with regard to SDGs 15 (biodiversity) in particular as it relates to the migration of birds.

14.6 Biomass (Sugar Cane Bagasse)

14.6.1 Bagasse power plants are an exception for a number of reasons, including:

(a) the power generation plant is likely to be intrinsically integrated into (and inseparable

from) the sugar mill, both physically and operationally;

(b) the generation facility will be a co-generation plant; i.e., part for own-use, part for export to the grid;

(c) the generation facility will have ramp up and ramp down times which are much longer than some other RE technologies which can be ramped up and down very quickly;

(d) source energy is not necessarily 'free', in that it can be sold for other purposes;

(e) unlike wind, solar and run-of-river hydro, source energy can be stored, but only to a limited extent due to availability of storage facilities and degradation of the bagasse over time;

(f) depending on its geographic location, and hence the sugarcane growing season, the generation facility may not operate year-round, and in any event the generation facility will likely require significant annual downtime (e.g. 30 days) for boiler cleaning and maintenance; and

(g) in some countries the bagasse is supplemented with coal, and so is it is not a wholly RE source.

14.6.2 Bagasse PPAs need to be adapted to cater for the above observations, and will be significantly different in some respects even to PPAs for other forms of agricultural waste.

14.6.3 Also, bagasse power projects do not lend themselves to project-finance, as neither the lenders (upon exercise of security) nor the host Government (upon exercise of an early termination sale/purchase option, if there were one) can sensibly take the generation facility separately from the entire sugar mill operation of which it forms an integral part.

14.6.4 Accordingly, depending on how the power project is financed, the level of host Government support/obligations for a sugar cane bagasse project is likely to be significantly reduced compared to other generation technologies.

14.6.5 The location of bagasse power projects should pay critical attention to the impacts of the project with regard to SDGs 6 (water access), 7 (affordable and clean energy) and 15 (biodiversity) and the wider land use issues.

14.7 Biomass (Agricultural Waste and Grown/Farmed Fuel)

14.7.1 Typically, these generation facilities will not be as intrinsically integrated into another industrial process as sugarcane bagasse generation facilities, although the developer may or may not use some or all of the power produced for 'own use'. In any event, typically biomass plants (other than sugarcane bagasse) can and often will be project financed.

14.7.2 Biomass generation facilities will have very different technical characteristics (which should be reflected in the applicable PPA) depending on whether the biomass is (a) burned in a boiler, or (b) gasified with the gas burned in a gas-fired generator.

14.7.3 Other variations applicable in particular to commercially grown fuel (e.g. trees), and to a lesser extent certain agricultural waste, is that the source energy (a) has a material cost, and (b) can be stored, which is obviously the opposite to e.g. the sun, wind or a river flow which is not dammed.

14.7.4 The individual circumstances of the project and preferences of the parties will dictate whether a 'capacity charge plus energy charge' or 'delivered energy plus deemed energy' charge model is used; however, if the latter is used then the deemed energy charge should be at a reduced rate if and when the source energy has a material value and can be stored and used at a later date.

14.7.5 The location of biomass power projects should pay critical attention to the impacts of the project with regard to SDGs 6 (water access), 7 (affordable and clean energy) and 15 (biodiversity) and the wider land use issues.

14.8 Geothermal

14.8.1 A geothermal resource differs from other energy sources in that it is both renewable and reliable. Geothermal generation facilities again utilize various different technologies depending on the nature of the source steam (or source hot water), and again very specific variations of the PPA, and often a related steam supply agreement, are required.

14.8.2 A geothermal power plant is normally a baseload provider of capacity in any dispatch order due to the virtually zero cost of fuel associated with it and the ability for the plant to be certain of meeting any dispatch instruction (unlike wind / solar which would be subject to the vagaries of that period of time). As a consequence, the PPA for a geothermal IPP is typically a capacity / energy PPA with all fixed costs being paid through a capacity tariff, with the small variable costs being paid for through an energy tariff linked to specific dispatch instructions.

14.8.3 PPAs often include off- ramp provisions that enable one or both parties to terminate the agreement without penalty (e.g. a party's inability to obtain a key agreement or permit). Termination rights require careful negotiation, and both parties will want to limit the other party's right to terminate. Furthermore, a PPA should carefully define a delivery point at which energy will be sold. The PPA may also require a seller to deliver energy to a specific point on the transmission system, in which case the seller will be responsible for obtaining transmission to the delivery point. Transmission ancillary services, which can be costly, should be specifically allocated in the PPA.

14.8.4 Geothermal plants differ from wind and other resources in that they may have significant station service requirements for extracting, re-injecting, processing, or otherwise using the geothermal resource. A PPA may further require a seller to guarantee that a project will meet certain performance standards. For instance, an output guarantee requires a seller to pay a buyer if the output during a specified period fails to meet a minimum level. A seller's data regarding the project's geothermal resource will be crucial in determining the right level for an output guarantee. If the resource is expected to degrade, the PPA may adjust performance standards downward during the term. If a guarantee is not met, the PPA

calculates damages owed to a buyer as a result of this.

14.8.5 Since the cost of drilling of geothermal wells is so high[10], and is susceptible to high risk of missing the specific geological formation suitable for geothermal production, this risk is often shared with the public side.

15. OTHER PROJECT AGREEMENTS

15.1 Standard

15.1.1 The implementation of an RE PPP project or program is most effective when it is done in accordance with Standard 5 as then it ensures that there is strong political and cross ministry stakeholder support.

15.1.2 ***It should be recognised that the PPA is part of a package of documents which work together to allocate risk between RE PPP stakeholders (and which should therefore be drafted together as a package). Clear and standardized project documentation developed upfront to a high standard is critical to engender investor confidence and to attract least cost capital.***

15.2 Recognition of Other Project Documents

15.2.1 There are a number of RE PPP programmes in EMDE countries which publish a standard form PPA, sometimes together with various 'supporting cast' documents; however, these programmes do not encompass the full suite of project agreements with the host Government and offtaker/utility which are required for the purposes of project finance.

15.2.2 As well as the PPA, RE PPP programs should encompass host Government support agreements (which may have a variety of other names such as 'Public-Private Partnership Agreement', 'Concession Agreement', 'Investment Agreement'. 'Implementation Agreement' or so on), potentially separate Grid Connection Agreements (if grid connection is not addressed in the PPA), lenders' direct agreements, land lease contracts, the generation license, other requisite permits and approvals, the grid code, and so on.

15.2.3 The lenders, whose main security is the revenue generated by the project, are particularly concerned about the risk of interruption or termination of the project prior to the repayment of all loans. To avoid this risk, the lenders who are providing financing to the private partner conclude a direct agreement with the public partner and the private partner. Under the direct agreement, if the private partner is in breach of PPP agreement, the lenders gain the right to select, subject to the public partner's consent, a new private partner to perform obligations

[10] A recent example of where host Governments have attempted to mitigate this risk and facilitate the development of more geothermal projects is the creation of the Geothermal Development Company (GDC) in Kenya and the Geothermal Fund in Indonesia. On a regional level, BMZ/KfW, DFID and the EU ITF support the Geothermal Risk Mitigation Facility (GRMF) in East Africa.

under the existing project agreements[11].

15.2.4 A direct agreement is recognized as one of the main contractual documents in a project[12]. Its main purpose is to allow the lenders to avoid termination by the public partner when the private one is in breach by substituting the private partner. The project is the basis by which the lenders are repaid, therefore they are likely to ensure that the selected substitute private partner has an opportunity to cure the default[13]. At the same time, a direct agreement provides the public partner with an opportunity to avoid the disruption caused by terminating the PPP agreement and PPA, thus maintaining the continuity of service.

15.2.5 A direct agreement between the public partner, the private partner and the lenders should, inter alia, specify the following: the circumstances in which the lenders are permitted to substitute a new private partner; the procedures for its substitution; the grounds for refusal by the public partner of a proposed substitute; and the obligations of the lenders to construct/operate the RE facility at the same standards and on the same terms as required by the project agreement.[14]

15.3 Drafting Approach

15.3.1 It is common in various EMDE countries for host Governments to require a sequential approach to project document negotiation; e.g., initialing of the PPA is the 'trigger' for commencement of negotiation of the PPP / Concession / Implementation / Host Government Support Agreement.

15.3.2 It is important that the project documents work together as a package and are consistent with each other in their role of allocating risk and return between stakeholders to an RE PPP. Accordingly, these documents should be drafted together as a package and not piecemeal or sequentially. The main project agreement should include numerous references to PPA and other project documents (for example, in clauses related to the support obligations of the public partner, performance standards of the private partner, guarantees provided to the private partner, compensation and early termination events).

15.3.3 Excessive approval requirements for project documents through the regulator and / or solicitor general can lead to substantial delays for projects if these procedures are not managed efficiently. Redundancies and inefficiencies should be avoided.

16. HOST GOVERNMENT SUPPORT AND FISCAL BURDEN

16.1 Standards

16.1.1 The public sector should accept risks and burdens which are allocated to it under standard project finance principles.

[11] Paragraph 148, page 148 of the UNCITRAL Legislative Guide on Privately Financed Infrastructure Projects.
[12] Page 40 of the World Bank Guidelines for Successful Public-Private Partnerships.
[13] Page 32 of the UNECE Guidebook on Promoting Good Governance in Public Private Partnerships.
[14] Paragraph 150, page 149 of the UNCITRAL Legislative Guide on Privately Financed Infrastructure Projects.

16.1.2 However, Host Governments should have assessed and be fully aware of the contingent liabilities of each project and consider how to account for it.

16.1.3 Specialist advice should be taken in relation to the 'early termination put and call' option provisions, and the formulation of the 'early termination buyout prices'.

16.2 Suite of Project Agreements

Although the PPA is the cornerstone of RE PPP documentation, the PPA is part of suite of documentation which works together to allocate risk and responsibility between RE PPP stakeholders; i.e., even the best PPA is not a 'bankable' document without the package of documentation which surrounds it.

16.3 Requirement for Host Government Support

16.3.1 RE PPPs in EMDE countries will almost invariably require host Government support in the form of a contract between the host Government and the project company.

16.3.2 This contract is given a variety of names in different countries, e.g. a 'PPP Agreement', 'Concession Agreement', 'Implementation Agreement', 'Government Support Agreement' etc.; however, its principal purpose is to allocate to the host Government those project risks which (as between the project stakeholders) the host Government is best able to manage.

16.4 Risks Typically Allocated to the Public Sector

16.4.1 Risks allocated to the host Government include change in law, change in tax, failure of Government authorities to issue requisite permits and consents (which have been properly applied for and diligently pursued by the project company), or provide other assistance to the private partner, undue interference by public authorities / officials, war, civil commotion/unrest, strikes, in some cases unforeseeable ground conditions. In countries with weak FX spot and forward markets – the risk of currency convertibility and of macroeconomic crisis, Projects are made viable by involving supranational Political Risk Guarantee products.

16.4.2 One particular risk worth mentioning is 'grid risk'; i.e., the risk that the electricity grid is not able to accept and/or evacuate electricity made available by the project company.

16.4.3 Even when grid outages are caused by a *force majeure event*, project lenders in particular will require (as a condition to the provision of finance) that this risk is allocated either to the utility and/or to the host Government (i.e., that they should be obliged to reimburse the RE PPP for the revenue which it would have otherwise lost), on the bases that (a) the RE PPP cannot realistically insure against events which may be caused or occur anywhere on the electricity grid, and (b) the utility has the dual duties of ensuring that the grid is robust in the first place, and re-instating the grid promptly if for any reason it is knocked out of service.

16.5 Put and Call Options on Early Termination

16.5.1 Where risk events which have been allocated to the 'Government side' (i.e., the host Government and/or a national utility offtaker) arise and are sufficiently prolonged or have sufficiently severe effects such that an early termination of the contract arises:

(a) the Government side will typically be required to purchase the generation facility; and

(b) the purchase price will almost certainly be one which (a) covers any termination and transfer costs, (b) repays outstanding debt, (c) returns equity invested, and (d) provides a return on equity.

16.5.2 Conversely, where the risk event giving rise to early termination has been allocated to the private sector, the Government side will typically have the right (but not the obligation) to purchase the generation facility. In this case, typically the purchase price is an amount sufficient to ensure that lenders (only) are repaid.

Governments should be able to recover the cost of unmitigated environmental damages (realized or potential) from the termination payment and / or to demand remedy of the facilities handed over in poor condition.

16.5.3 It is worth noting that if circumstances giving rise to the exercise of a 'put option' requiring the host Government to purchase a project's assets were to arise, it very possible that those circumstances may:

(a) affect most if not all energy (RE and non-RE) PPPs in a host country (e.g. the applicable circumstance may be a prolonged civil war); and

(b) coincide with a period when the host Government is least able to pay (and many EMDE host Governments may be unable to pay the early termination buyout price at any time).

16.5.4 A fairly wide disparity exists in current market practice as to the formulation of the early termination buyout price formula (and resulting quantum of that price) which applies if the host Government is obliged to buy the generation facility upon early termination.

16.5.5 This is a specialist area, and one which has far reaching fiscal impacts for host Governments. Accordingly, host Governments should take specialist advice to:

(a) ensure that all relevant host Government personnel understand the surrounding issues and risks involved (see also paragraph 17.6.4 below); and

(b) ensure that contingent liabilities which crystalize upon early termination are kept to the minimum level required for project financing.

16.6 Fiscal Burden

16.6.1 As mentioned earlier, risks allocated to the public sector (and the consequences of those risk events arising) are particularly difficult for host Governments where the public sector has only partial (and possibly quite limited) control.

16.6.2 The fiscal burden on host Governments is immense. In some EMDE countries, it is clear that if certain classes of events which could trigger an early-termination 'put option' and the exercise thereof arose, this could quite plausibly bankrupt the host country.

16.6.3 Already in some EMDE countries we see stand-offs developing between host Governments

resisting the fiscal burden, and project lenders (including not least DFI and MFI lenders) requiring host Governments to take it on in order that the underlying project is 'bankable'.

16.6.4 While there is no 'magic bullet', host Governments should at least:

(a) address the issues surrounding fiscal burden openly with all stakeholders;

(b) ensure that the Ministry of Finance (or equivalent), and where appropriate the Government Cabinet (or equivalent), (i) is fully apprised of the contingent liabilities which the host Government will take on in connection with an RE PPP, and (ii) formally approves the Government taking on those contingent liabilities;

(c) consider how it accounts for contingent liabilities which arise under 'put and call option' arrangements (or explicit sovereign guarantees if these are used); and

(d) embrace the other policy standards recommended in this document as a means of reducing the cost of project delivery, which in turn has a direct impact on fiscal burden.

17. RE PPP PROJECT PROCUREMENT

17.1 Standard

17.1.1 A pro-active, yet pragmatic approach should be adopted in choosing between different available approaches to project procurement.

17.1.2 For all types of procurement, the general procurement principles of transparency, non-discrimination and fair competition (if applicable) should be upheld as these facilitate sustainable procurement outcomes at least cost. This being said, it has proven beneficial for the sustainability of RE PPP programs to include other than financial parameter in the final stage evaluation criteria.

17.2 Introduction

17.2.1 Procurement can take place on the basis of (a) *ad hoc* negotiations, (b) a REFIT regime, (c) reverse auctions, (either on the basis of PPP laws or not), (d) unsolicited proposals (either on the basis of PPP laws or not); (e) tender procedures or other procedures on the basis of PPP laws; or (e) some combination of the foregoing.

17.2.2 The optimal approach to procurement will likely depend on the (a) the underlying circumstances of each country, (b) the generation technology in question, and (c) project size and scope.

17.3 *Ad hoc* Negotiation

17.3.1 In many EMDE countries, the first energy (RE and non-RE) PPPs were individually negotiated on an *ad hoc* basis. In some countries one or more lead projects set *de facto* market standards, and in some cases over successive projects, host Governments have been able to wind back at the margins the support provided to the initial/lead projects in their country.

17.3.2 Historically *ad hoc* negotiations of energy (RE and non-RE) PPPs in EMDE countries have been extremely lengthy, often last several years at least. Those negotiations were of course

extremely expensive in terms of professional time and costs, and the financiers who provided the fully 'at risk' development capital to finance the private sector participation in those negotiations expected to cover those development costs as well as a high return on them due to the risks involved.

17.3.3 In current market practice, *ad hoc* negotiations are likely to be suited to projects which are unique (such as a large regional hydropower plant), and / or which require a tailor-made structure which would not be acceptable for a large pool of potential investors[15].

17.3.4 Where tariffs are negotiated (rather than prescribed under a REFIT or determined by market price discovery via a reverse auction) tariff negotiations should take a 'regulation by contract' approach; i.e., focus on (a) whether costs have been prudently incurred, and (b) if so, the appropriate internal rate of return on the equity investment made in order to finance those costs.

17.4 REFITs

17.4.1 Renewable energy feed in tariff ("**REFIT**") regimes typically:

(a) provide for a prescribed feed in tariff (i.e., wholesale electricity tariff for sale of electricity under the PPA between the generation company and the buyer/offtaker, which is typically a Government owned utility) for different generation technologies and classes of generation capacity, often also providing different tariffs for different sizes of projects; and

(b) prescribe standard form PPAs (and perhaps other project documents) and set out standard procedures for carrying out qualifying projects.

17.4.2 Among other things, REFIT regimes are:

(a) an attempt to reduce the development times, costs and risks associated with RE PPPs;

(b) typically focused on 'small' RE projects; however e.g. the Kenyan REFIT regime extends to projects of up to 50 MW (wind) and 70 MW installed capacity (geothermal), which would be expected to easily exceed US$100 million for certain generation technologies; and

(c) a policy response to the practical reality that, especially in relation to smaller projects, the development times, costs and risks associated with *ad hoc* negotiations are not sustainable for either the public or the private sector.

17.4.3 One necessary consequence of a REFIT regime is that the prescribed tariff for a particular

[15] Recent research on Sub-Saharan power markets and procurement evidences that ad-hoc negotiations generally lead to higher offtake tariffs than competitive procurements (World Bank Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries)

project will almost certainly either be:

(a) too high, i.e. more than what would be required in order to attract the private sector investment required to carry out the project. In this case the project's private investors may be thought of as being over-compensated at the expense of electricity consumers (and/or host Governments to the extent of any subsidy of the tariff); or

(b) too low, i.e., less than what would be required in order to attract the capital investment required to carry out the project, in which case certain projects which may well be very worthy for any number of reasons will not be financed by the private sector.

17.4.4 To-date, REFIT regimes in at least several EMDE countries have not been particularly particular successful (or in some cases not successful at all) in attracting private sector investment to RE PPPs. This has largely been due to issues with the REFIT regime design rather than the prescribed tariffs, e.g. it may be that:

(a) the REFIT PPA does not provide sufficient certainty as to the future income stream, and is therefore not considered to be 'bankable';

(b) the REFIT documentation is incomplete for the purposes of 'bankability. In particular, in some cases only a standard form PPA is provided, whereas project finance typically requires a complete suite of project documentation including also an agreement with the host Government and direct agreements between the project lenders and (i) the buyer/offtaker under the PPA in respect of the PPA, and (ii) the host Government in respect of the Government support agreement; and/or

(c) the surrounding regime for carrying out an RE PPP is either unclear and/or uncertain.

17.4.5 In current market practice, REFITs are likely to be suited to RE projects:

(a) which are too small to justify bespoke negotiations or procurement processes;

(b) where the benefit of certainty outweighs (i) the cost of some projects being over-compensated, and (ii) the risk that other projects will not be carried out as the REFIT tariff is too low for those particular projects; and

(c) where the generation technology and costs associated with it are well established and fairly stable, e.g. not in the case of solar PV over recent years, where reverse auctions have discovered rapidly reducing costs.

17.5 Reverse Auctions

17.5.1 Reverse auctions are procurement processes pursuant to which a procuring entity tenders for bids to carry out RE PPP projects. Typically, the bidding process has two phases:

(a) a first phase pursuant to which a short list of bidders may qualify based on technical and financial competence criteria; and

(b) a second (final) phase during which shortlisted bidders compete on a variety of

criteria; however, as shortlisted bidders have already pre-qualified as being technically and financially competent, the lowest price will typically carry a very high weight in the scoring process. I.e., typically 'lowest price wins'.

17.5.2 Common features of RE PPP reverse auctions to-date have been:

(a) they have allowed up-to-date price discovery in the market, ensuring that RE PPPs are carried out by financially and technically competent private sector participants at the lowest available price in the market at the time of carrying out the reverse auction process, i.e., they allow real-time price discovery in the market;

(b) they have relied on providing bidders with a highly developed and bankable suite of project documentation against which to bid; and

(c) they have proven to be particularly successful in relation to solar PV, where fast moving improvements in the generation technology coupled with reductions in technology costs have been reflected directly in the winning tariffs.

17.5.3 Reverse auctions may occur:

(a) on the basis of general procurement laws (plus, if applicable, special RE procurement requirements); or

(b) on the basis of PPP laws. Generally, PPP (or concession) laws also provide that a two-stage tender shall be held in most cases for the determination of winning bidder (the private partner).

17.5.4 Two particular features of reverse auction processes worth mentioning are site selection and the impact of technical and financial competence criteria.

17.5.5 **Site Selection**: In relation to site selection, reverse auctions may either:

(a) have the public sector choose sites(s) in advance, with the private sector bidding to carry out the project at a given site;

(b) ask the private sector to nominate sites; or

(c) as a hybrid between the two options, the public sector may nominate priority areas for RE (or a particular RE technology), and the private sector is then given the task of identifying and acquiring specific sites.

17.5.6 The benefits of advance site selection by the public sector include:

(a) the public sector, in particular the electricity utility, may select exactly the site(s) where it wants particular projects to be carried out, taking into account availability of source energy, locations of load centres, grid constraints, intermittency of RE, etc.; and

(b) project development costs and risks are significantly reduced for the private sector, and this may reasonably be expected to be reflected in bid tariffs.

17.5.7 Disadvantages of advance site selection by the public sector include that it:

(a) requires the public sector to incur up-front site selection and acquisition costs; and

(b) does not take advantage of private sector knowledge of, and enterprise in finding, available source energy and potential sites.

17.5.8 **Technical and Financial Competence Criteria**: Reverse auctions require a process to ensure that 'too good to be true' bids from bidders which lack the financial and/or technical competence required to see projects through to COD are weeded out.

17.5.9 This is achieved either by:

(a) a two stage process, where the first stage is a process under which a shortlist of bidders is chosen against nominated and objective (or 'arbitrary') financial and technical competence criteria, e.g. a balance sheet of at least X, and experience of carrying out at least Y similar projects; and/or

(b) giving a relatively high weight to technical and financial competence criteria in a single stage scoring process.

17.5.10 Issues which can arise include:

(a) smaller and/or less experienced bidders who are nonetheless credible are excluded for failure to meet one or more arbitrary criteria; and

(b) there can be an inherent and self-perpetuating bias in favour of large incumbent players, as e.g. smaller and/or newer market participants who don't meet a 'prior experience' criterion are precluded from gaining the experience required to meet a similar criterion on future rounds.

17.5.11 Notwithstanding the above, reverse auctions are likely to be particularly suited to:

(a) solar PV generation technology; and

(b) known large projects, e.g. a particular hydro dam or a particular large run-of-river hydro project.

18. IMPACT OF PPP LAWS

18.1 Standards

18.1.1 In implementation of RE-PPP Standards, Governments should consider including RE specific provisions in any existing PPP (concession) legislation.

18.1.2 Avoid suppression of private sector interest in early stage project promotion of RE projects.

18.2 Introduction of PPP Laws

18.2.1 A number of EMDE countries have introduced Public-Private Partnership Acts in recent years. For present purposes, these typically:

(a) differentiate between solicited and un-solicited PPP proposals;

(b) prescribe a process for soliciting PPP proposals; and

(c) prescribe a process for ensuring that unsolicited bids are in the public sector's best interest, e.g. by introducing a 'Swiss challenge system' of seeking competing bids.

18.3 Necessity of PPP Laws

The existence of PPP legislation is not considered to be a necessary factor in the success of RE PPP development. Instead, the important factor is the existence of a clear and well thought out enabling framework, which does not impede or prevent RE PPP development.

18.4 Treatment of Unsolicited Bids (Proposals)

18.4.1 Sometimes with exceptions or caveats, PPP laws can require unsolicited PPP proposals to be advertised for the purposes of seeking competing proposals (or to be submitted to the process for soliciting PPP proposals). For example:

18.4.2 In order to submit a meaningful unsolicited proposal for an RE PPP, a private sector party will typically incur very significant fully 'at risk' development costs including the preparation of pre-feasibility studies and possibly a full feasibility study. The work required to submit the proposal can of course be replicated, so to paraphrase the UNCITRAL model law, "the project ***can*** be achieved without the use of intellectual property … owned or possessed by the proponent" (***emphasis added***); however, it would take any competing bidder significant time and expense to replicate that intellectual property.

18.4.3 This gives rise to practical issues in that, in order to submit a meaningful counter-proposal, competing parties will need to either (i) have the time and incur the expense to carry out their own feasibility studies etc., or (ii) have access to (and legal reliance upon) the original party's proprietary feasibility studies.

18.4.4 These laws can impose a deterrent to private sector parties initiating project proposals.

18.4.5 This deterrent can be minimized with respect to some generation technologies, in particular solar PV, if the public sector defines areas, and ideally specific sites, where generation is pre-approved for addition to the grid.

18.4.6 The recommendation for jurisdictions where there are no incentives for private initiators of PPPs or where such incentives are insufficient is to amend the PPP laws or enabling framework for RE PPPs accordingly. Such incentives may include the following:

(a) if the project initiator does not win the ensuing tender, the winning bidder / public partner shall remunerate the project initiator in full or in certain part for its expenses in connection with project preparation;

(b) the project initiator shall not be obliged to provide security for its bid in case of the ensuing tender;

(c) Swiss challenge: if another entity becomes the winning bidder, the project initiator

may match the winning bid and enter into the project agreement;

(d) bid bonus: an additional percentage may be added to the evaluation score of the project initiator; and/or

(e) best and final offer (BAFO): the initiator may pass to the final stage of tender automatically.

18.5 Conclusion

18.5.1 A host Governments should at least make clear whether an IPP falls into the scope of PPP / concession law, or otherwise if a specific RE enabling framework shall apply.

18.5.2 If (a) an IPP is a PPP for the purposes of PPP law, and (b) the PPP law requires unsolicited bids to be advertised, then either (i) the requirements for the underlying proposal should be limited, and thus not expensive for the original bidder, or (ii) mechanisms should be developed to fully compensate the original bidder for its time and effort in early project identification, development and promotion should it lose the project to a competing bidder, and ideally provide the original bidder with other incentives mentioned above.

19. MARKET INNOVATIONS

19.1 Standard

Innovations in the RE PPP market should be sought out and embraced.

19.2 Limitations of Existing Project and Project Finance Structures

19.2.1 To say that getting RE PPPs in EMDE countries to financial close is hard work is usually a gross understatement. In other words, the project structures employed in the market today are only the best available as the market hasn't yet devised better ones!

19.2.2 Change should be embraced, especially for smaller projects where the overhead costs of implementing existing structures can be crushing.

20. RESOURCES

- Survey conducted by the UNECE RE PPP team in early 2016
- The "*PPP Certification Program Guide"* published by the World Bank Group 2016 and part of the APMG PPP Certification Program. The APMG PPP Certification Program is an innovation of the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the Inter-American Development Bank through its Multilateral Investment Fund (IADB through its MIF), the Islamic Development Bank (IsDB) and the World Bank Group (WBG) funded by the Public-Private Infrastructure Advisory Facility (PPIAF).
- The "*Understanding Power Purchase Agreements*" Handbook funded by Power Africa and developed by the African Legal Support Facility and the U.S. Department of Commerce Commercial Law Development Program may be downloaded free here: http://cldp.doc.gov/programs/cldp-in-action/details/1378.
- The "*Understanding Power Project Finance*" Handbook funded by Power Africa and developed by the African Legal Support Facility and the U.S. Department of Commerce Commercial Law Development Program may be downloaded free here: http://cldp.doc.gov/programs/cldp-in-action/details/1603
- "*Building Public-Private Partnerships for Climate-Friendly Investment in Africa*" by UNECA (2012)
- *"Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries*" by Eberhard, Anton, Katharine Gratwick, Elvira Morella, and Pedro Antmann (World Bank 2016)
- *"Attracting Investors to African Public-Private Partnerships: A project preparation guide"* commissioned by the Infrastructure Consortium for Africa (ICA) and funded by a grant from the Public-Private Infrastructure Advisory Facility (PPIAF) (World Bank 2009)
- *"Public-Private Partnership (PPP) Handbook"* (Asian Development Bank 2008)