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Item 5 of the provisional agenda

**Review of the PPP work since the eighth and final session of the Team of Specialists on PPPs on 20-21 October 2016****Draft UNECE Standard on PPPs in Renewable Energy**Conference room paper submitted by the secretariat**Summary**

A project team led by Ms. Ana Hajduka prepared a draft standard on PPPs in renewable energy, which the secretariat is circulating as received from the project team leader for information only. The next step is for the draft to go to public review, where stakeholders, including the expert networks in the UNECE Sustainable Energy Division, are encouraged to provide their comments and feedback for consideration and inclusion in a revised version for consideration by the Bureau of the Working Party on PPPs.

The Working Party is requested to take note of the draft standard, which is subject to change. Participants are encouraged to provide comments on the draft directly to the secretariat at: [ppp@unece.org](mailto:ppp@unece.org).

# **Proposed Draft**

**DRAFT UNECE STANDARD ON PPPs IN RENEWABLE ENERGY**

**SOURCE:** Renewable Energy Project Team

**ACTION:** Interim draft

**STATUS:** Draft v3

**Draft UNECE Standard on PPPs in Renewable Energy**

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

<b>Abbreviation and terms</b>	<b>Meaning</b>
<b>COD</b>	Commercial operation date
<b>EMDE</b>	Emerging markets and developing economies
<b>EPC</b>	Engineering Procurement and Construction.
<b>GENCO</b>	Generating company
<b>IFI</b>	International Finance Institutions (multilateral and bilateral development banks)
<b>IPP</b>	Independent power producer
<b>LD</b>	Liquidated damages
<b>Load</b>	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.
<b>MIGA</b>	Multilateral Investment Guarantee Agency
<b>MW</b>	megawatt (being 1,000,000 watts)
<b>NDCs</b>	Nationally Determined Contributions according to the Paris Agreement
<b>Offtaker</b>	Purchaser of electricity (in particular, in the context of energy (RE and non-RE) PPPs, the purchaser under the PPA)
<b>PPA</b>	Power purchase agreement
<b>PPP</b>	Public private partnership
<b>PRG</b>	Partial risk guarantee
<b>PSA</b>	Power sale / supply agreement
<b>RE</b>	Renewable energy
<b>REFIT</b>	Renewable energy feed in tariff
<b>REIPPPP</b>	South Africa’s Renewable Energy Independent Power Producer Procurement Program.
<b>SE4ALL</b>	Sustainable energy for all
<b>SPV</b>	Special purpose vehicle
<b>UNECE</b>	United Nation’s Economic Commission for Europe
<b>UN SDGs</b>	United Nations’ Sustainable Development Goals
<b>VfM</b>	Value for Money

1 **I. Introduction**

2 **The Importance of Renewable Energy (“RE”) to Sustainable Development**

3 The United Nation’s commentary on the progress of **Sustainable Development Goal 7** in 2016  
4 states, *inter alia*, “Energy is crucial for achieving almost all of the Sustainable Development Goals,  
5 from its role in the eradication of poverty through advancements in health, education, water supply  
6 and industrialization, to combating climate change.”<sup>1</sup>

7 Furthermore, the United Nation’s commentary on the progress of **Sustainable Development Goal 13**  
8 in 2016 states, *inter alia*, “climate change presents the single biggest threat to development, and its  
9 widespread, unprecedented impacts disproportionately burden the poorest and most vulnerable.”<sup>2</sup>

10 Accordingly, access to sufficient, dependable and affordable RE is crucial to attaining the United  
11 Nations’ Sustainable Development Goals (“**UN SDGs**”).

12

13 **The Role of RE PPPs in Sustainable Development**

14 The UN SDGs cannot be realized unless the private sector is mobilized – and on a significant scale.  
15 SDG 17 (Revitalize global partnerships for sustainable development)<sup>3</sup> calls for partnerships between  
16 the public and the private sector as well as civic society.

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

21 For the purposes of this Standard, the International Energy Association’s definition of **Renewable**  
22 **Energy** is used: “Renewable energy is energy that is derived from natural processes and that are  
23 replenished at a higher rate than they are consumed. Solar, wind, geothermal, hydropower, bioenergy  
24 and ocean power are sources of renewable energy.”<sup>4</sup>

25

26 **PPPs as an alternative to ‘traditional’ public procurement**

27 Compared to traditional public procurement where a public entity finances and contracts for a specific  
28 good or service and retains much of the risk of public service delivery, a distinguishing feature of a  
29 PPP is the allocation of a significant portion of that risk to the private sector. They are particularly  
30 valuable in RE projects because the private sector is able to deliver:

- 31 > **Technology:** where the service requires external expertise and government will not be able to  
32 provide it independently;
- 33 > **Quality of Service:** where the private sector would significantly enhance the quality of service  
34 compared to what the government could extend independently;
- 35 > **Time:** where the private sector would expedite the project implementation significantly; and
- 36 > **Cost Savings:** where there would be a considerable reduction in the project cost and also the  
37 service cost with the involvement of the private sector.

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1 Sustainable Development Goal 7, “Progress of Goal 7 in 2016”, <https://sustainabledevelopment.un.org/sdg7>.

2 Sustainable Development Goal 13, “Progress of Goal 13 in 2016”,  
<https://sustainabledevelopment.un.org/sdg13>.

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

4 <https://www.iea.org/about/faqs/renewableenergy/>

39 **People First PPPs**

40 People First PPPs are PPPs, which (a) are seen as synonymous with the purposes of the UN SDGs;  
41 (b) out of all the stakeholders, put people as the main beneficiaries of the projects; (c) increase  
42 access to water, energy, transport, and education especially to the socially and economically  
43 vulnerable members of society; (d) promote social cohesion, justice and disavow all forms of  
44 discrimination based on race, ethnicity, creed and culture; (e) focus on improving the quality of life of  
45 communities, fighting poverty and creating local and sustainable jobs; and (f) contribute to ending  
46 hunger and promote the empowerment of women.

47

48 **Implications for People First for RE PPPs**

49 In general terms, a host Government that undertakes ‘People First’ RE PPP projects would prioritize

- 50 • A sufficient amount of (clean) RE generation capacity is developed in its country to meet  
51 electricity demand or renewable energy targets;
- 52 • RE generation assets in its country are prudently operated and maintained over the useful life of  
53 those assets;
- 54 • Consumers are charged the lowest possible tariff, and the Government takes on the lowest  
55 possible fiscal burden and receives value for money;
- 56 • Local legislation and regulation – especially environmental laws – are fully complied with; and
- 57 • Negative social impacts are minimized, in particular in context of large-scale projects with  
58 resettlement and economic displacement.

59

60 **II. Objective of the Standard**

61 This Standard sets out recommendations as to how host Governments in emerging markets  
62 and developing economies (“EMDE”) can, through relatively low cost interventions:

- 63
- maximize the economic benefits of RE PPPs;
  - 64 • attract increased private sector participation in RE PPPs; and
  - 65 • reduce the development time and costs for RE PPPs;

66 and thereby deliver a RE PPP at an affordable cost. This Standard focuses on the facilitation  
67 and delivery models for new (“greenfield”) RE PPP projects. However, PPP options for  
68 existing RE assets are also presented in relevant sections.  
69

70

71 **III. Scope of the Standard**

72 This Standard provides introductory, high level guidance to policy makers as to some of the  
73 key issues related to People First PPPs in the RE Sector. With a focus on EDME countries, a  
74 number of guiding principles, key considerations and potential implementation tools for the  
75 design and implementation of People First RE PPPs are provided.

76

77 **IV. Central questions**

78 A. Selection of Appropriate RE PPP projects

79 One challenge faced by host Governments is determining whether a RE project is best suited to be  
80 delivered by a PPP. Governments should acknowledge that RE PPPs are not the panacea for all  
81 development initiatives, and it is therefore crucial in the planning phase to select RE projects that  
82 would be well suited to the PPP model. Classic public procurement and ownership can be a suitable  
83 option in cases in which, for instance, the host Government or utility fear that a PPP would be too  
84 expensive (and thus does not deliver value for money) or the utility desires to diversify its generation  
85 source base.

86 B. PPP types and examples in the RE PPP sector

87 RE PPPs for greenfield projects typically come in two distinct types of structural arrangements: (a)  
88 concession based agreements, which may be entered on a project-by-project basis, or under a co-  
89 ordinated procurement programme of multiple projects, where the private entity undertakes the  
90 delegated public energy service, and (b) Joint (Equity) Ventures where a mixed public and private  
91 entity is formed to undertake the provision of energy.

92 Common features of RE PPP Structures

93 A RE PPP project structure typically include most or all of the following features:

- 94 • a single-purpose project company (or “special purpose vehicle” (**SPV**) established and owned by  
95 shareholders (often referred to as “**Investors**” or “**Sponsors**”), which has typically the  
96 responsibility to design, finance, construct, operate and maintain the power generation facility  
97 throughout the project term;  
98 • a long term (typically 20-25 years) PPA between the SPV and the offtaker, which is often a  
99 Government owned utility;  
100 • an agreement between the SPV and the host Government (such agreement often referred to as  
101 an “**Implementation Agreement**”, “**Concession Agreement**”, “**Government Support**  
102 **Agreement**” or similar) which sets out various rights and obligations between the SPV and the  
103 host Government;  
104 • the PPA and Implementation Agreement sitting within a matrix of contracts entered into by SPV  
105 pursuant to which, *inter alia*, risk is allocated as between the immediate stakeholders to the  
106 project.

107 RE PPP programs

108 Under a RE PPP program, a multitude of RE PPP are procured through an often purpose-designed  
109 procurement structure with standardized transaction documentation and risk allocation between the  
110 host Government, the utility and the private sector. To utilize falling technology prices and align  
111 demand and supply, host Governments often opt for a number of tender windows and a repetitive  
112 process.

113 Many EMDE countries have successfully implemented co-ordinated RE PPP procurement  
114 programmes, including for example Brazil, Mexico, the Philippines and South Africa. Some smaller  
115 EMDE countries have also moved towards co-ordinated procurement programmes, often with  
116 targeted technical and financial support from IFI and development cooperation actors, for instance, in  
117 Uganda, Honduras and Zambia.

## **Delivery options for RE PPP**

Host Governments have several options to facilitate private investment into RE through implementation of RE PPPs:

### **REFITs**

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.

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

- which are too small to justify bespoke negotiations or procurement processes;
- 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
- 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.

### **Reverse Auctions**

Reverse auctions are procurement processes pursuant to which a procuring entity tenders for bids to carry out RE PPP projects. Common features of RE PPP reverse auctions to-date have been 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. 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. Typically (but not necessarily), a bidding process in an EMDE country would have two phases:

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

### **Direct Negotiations**

Negotiating a project with single or multiple developers without inviting other potentially interested private sector developers and implementing any form of competitive procurement process is termed direct negotiations. Typically, such direct negotiations occur in early stage of private sector involvement into the generation sub-sector and are result from unsolicited bids. Nowadays, a host Government should generally only consider direct negotiations for a RE PPP if it promises more affordable power, value for money or shorter development timelines. Large scale hydropower and geothermal projects are sometimes suitable for direct negotiations due to the predetermined locations of these projects as well as unique project characteristics and transaction requirements. Similarly, transactions for an expansion of existing PPP RE projects should be done by means of Direct Negotiation.

120 Joint Venture RE PPPs

121 An RE PPP in which the public and private sectors hold shares and jointly manage the project  
 122 generally follow the same principles as an IPP regarding the transaction and financing. However,  
 123 additional administrative and corporate governance challenges (for example conflict of interest and  
 124 interference) may arise as a consequence of the institutionalized partnership.

125 Concession models for existing assets projects (“brownfield”)

126 For operational RE assets, host Governments may choose to involve private sector in form of an  
 127 operation & maintenance concession. Against a concession fee and usually on basis of a lease  
 128 agreement, private sector companies are incentivized to operate and maintain the asset prudently  
 129 and also make investments into refurbishment or modernization of the asset. The ownership of the  
 130 asset usually remains with the utility. The concession fee is usually linked to performance or  
 131 availability requirements.

132 New innovative RE PPP models

133 Achieving financial close on RE PPPs in EMDE countries has proven difficult. Innovative financing  
 134 and risk mitigation structures have thus been embraced by host Governments, especially for smaller  
 135 projects where the overhead costs of implementing existing structures can be prohibitive. Currently  
 136 implemented innovative models include donor-subsidized RET investment programs or supranational  
 137 offtake initiatives.

138 C. Respective advantages and disadvantages for RE PPP types

139 The RE PPP sector is less characterized by different PPP structures or contract models, but rather by  
 140 diversity in PPP delivery approaches and varying structuring of risk within the transaction documents  
 141 (PPA, IA). Furthermore, the RE PPP sector is much more suitable to deliver a multitude of projects  
 142 through dedicated procurement programs. Until recently however, most RE PPP were delivered in  
 143 form of single concessions. In these cases, the host Government and/or the utility negotiated a single  
 144 transaction predominantly based on preceding unsolicited bids by the private sector. Falling  
 145 technology prices, standardized project delivery and financing models as well as the involvement of  
 146 external expertise for development of specialized procurement procedures have enabled host  
 147 Governments to structure iterative tender programs. Yet, such RE PPP programs are not suitable for  
 148 all market scenarios. Single Concession or Joint Venture RE PPP will continue to play a role for  
 149 particular project sizes and technologies.

RE PPP Programmes		Single Concession		Joint Venture RE PPP	
Pros	Cons	Pros	Cons	Pros	Cons
Scalability Likely lower power tariffs Lower transaction costs per project Attract investors and financiers more efficiently	Require long-term dedicated governmental support and complex sectorial arrangements Long preparation time and costly	Potentially quicker to implement than a full RE PPP programme Suitable for large, site-dependent RE PPP projects such as hydropower or geothermal	One off transaction, so no scale and less added capacity Higher transaction and financing costs per MW, thus higher tariffs in most cases	Involvement of utility in JV may make RE PPP quicker implementable Dividends as revenue source Building technical capacity in public JV partner	No scalability Potential public interference and conflict of interest

150 While individual projects can bring great benefits, more efficient outcomes can be achieved with  
 151 procurement programmes which deliver economies of scale. RE PPP programs should be developed  
 152

153 through a phased approach to allow for institutional capacity development, price discovery and overall  
154 risk reduction for both the host Government and private sector.

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

- 157 • the process of programme development which a host Government implements from the start;
- 158 • constant and complete stakeholder engagement – including affected local communities, private  
159 investors, financiers, transmission system operator, off-taker, relevant ministries;
- 160 • the size and impact of the whole programme and of the individual projects within it; and
- 161 • the allocation of risk on the (ideally) standardized transaction documentation.

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166 A. PPPs Meeting People First Objectives – Replicability, Scalability, Equity, Efficiency,  
167 Sustainability, Effectiveness Demonstrated

168 In light of the 2030 Sustainable Agenda, and in place of a purely mathematical measure of VfM, the  
169 concept of “People First PPPs” provides a metric which seeks to measure whether PPPs are ‘fit for  
170 purpose’ for the UN SDGs, their ability to provide poverty alleviation, and the degree to which they  
171 bring transformational effect to the communities in which they serve.

172 Recommendation of a SDG compliant model

173 As in many other sectors, there is no “one size fits all” PPP model for RE. The multitude and diversity  
174 of inputs – including, but not limited to local context, financial markets, RE policy, regulatory and  
175 political aspects - make it impossible to recommend a standard approach to delivering a People First  
176 PPP in the RE sector. To use the positive effects of economic scale, evidently larger programs are  
177 more suited to deliver many of the desired outcomes than one-off RE PPP projects. However, many  
178 EMDE countries will not have the financial means to shoulder such programs and they might not even  
179 have the demand for larger RE-based electricity additions or ability for the grid to absorb such new  
180 capacity.

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

184 The size of the programme can place significant strain on the balance sheet of a country, especially  
185 where revenues are constrained by regulation or the ability of the consumer to pay. This is true for  
186 both the utility, which has to purchase additional RE capacity at potentially higher cost, as well as for  
187 host Governments who provide explicit or quasi-sovereign guarantees. The impact of RE PPP  
188 projects and programs should therefore be subjected to cautious due diligence and a comprehensive  
189 review of a country’s ability to meet its obligations under the RE PPP programme.

190 An efficient RE PPP procurement programme should also be embedded in a broader process or  
191 integrated plan which should include realistic supply and demand forecasts, least cost planning  
192 associated with the energy mix, resource assessments, transmission network development and  
193 broader power sector development. It is incumbent upon a host Government in launching an RE PPP  
194 procurement programme to assess the building blocks of its programme, for example, availability of  
195 data on resource assessments, transmission risks, and land titles, and design a process that takes its  
196 strengths and weaknesses into account.

197 RE PPP programmes targeting intermittent power sources impose additional requirements to a  
198 country’s grid absorption capacity and management. Ignoring these principles usually leads to a  
199 higher cost of service and a risk mitigation programme which leaves the host Government with risk  
200 that should be borne by the private investors.

201 Some additional key considerations and recommendations are provided below irrespective of the  
202 scale of the RE PPP programme:

203 Environmental and Social Sensitivity

204 Another important component of RE PPP projects that are SDG compliant and put people first is  
205 environmental and social sensitivity. People First RE PPP projects must be designed, implemented  
206 and operated in full compliance with domestic environmental and social protection laws as well as  
207 international best practice standards and include:

- 208 • policies to guide the partnership with respect to environmental and social impacts;
- 209 • a process to identify and assess those impacts;
- 210 • development of a management programme, including mitigation measures, which address the  
211 impacts throughout the life of the project; and
- 212 • communication and disclosure practices that identify and communicate with stakeholders who are  
213 affected by the project, and
- 214 • a grievance mechanism to resolve outstanding stakeholder issues, in particular for projects which  
215 involve resettlement.

216 For example, large-scale RE PPPs, in particular hydropower projects, can have adverse effects on  
217 ecosystems which sustain community livelihoods far beyond the vicinity of the project. Accordingly,  
218 People First RE PPP stakeholders must avoid or mitigate irreversible impacts on biodiversity, natural  
219 habitats and protected areas and be aware of the breadth of potential stakeholders, however remote  
220 to the project.

221 Gender aspects also must be taken into account – in particular in cases of resettlement and  
222 compensation - and should address equity, equality, security and gender balance in the structuring of  
223 the partnership.

#### 224 Maximizing direct public benefits

225 To maximize public benefit, host Governments should explore opportunities for local long-term job  
226 creation and skill building. Mandatory requirements in the RE PPP programme however require  
227 diligent and realistic assessments of what the domestic workforce and suppliers can provide for an  
228 RE PPP. Making economic development criteria part of the project selection process can be a  
229 powerful tool; however, it might have an adverse impact on tariffs. Equally, community shareholding  
230 can contribute positively to public benefits, yet require an increased tariff in order to protect expected  
231 dividends for project investors.

#### 232 Improving the Baseline

233 To build an RE PPP programme which will have the transformational effect called for in the UN SDGs,  
234 host Governments should aim to develop an RE policy framework which will bring not only successive  
235 projects but drive down the cost of RE PPP transactions. This is especially imperative for low and  
236 middle income countries. Some practical, low cost measures include:

- 237 • **policy guidelines** - identification by the public sector of priority technologies and regions for  
238 investment, as well as lists of potential projects / project sites;
- 239 • **resource mapping** – mapping RE resource, collecting RE resource data (wind speed, irradiation,  
240 hydrology, etc.) on an ongoing basis and publishing this data;
- 241 • **investor guidelines** - development of detailed investor guidelines, which set out clearly all steps  
242 investors must take, including in particular permits and consents, etc., which must be obtained  
243 from Government authorities from project initiation through to commercial operations, as well as  
244 guides to the tax treatment and investment incentives available;
- 245 • **standardised project agreements** – development of a full suite of realistic, technology specific,  
246 bankable project documentation that is also customisable;
- 247 • **engagement of external advisors** – working with financial, legal and technical advisors can help  
248 designing an efficient RE PPP programme or project in line with international best practice,  
249 attracting more prospective investors, and driving the competition up and prices down. Associated  
250 costs can be sponsored through MFI support programs or recuperated through the project;
- 251 • **site selection, early project development** - site selection or identification of priority locations by  
252 the public sector, as well as carrying out preliminary legal and technical due diligence which can  
253 be shared with all shortlisted bidders;
- 254 • **RE appropriate grid code** – acknowledging RE, and the specific requirements and technical  
255 limitations of various RE technologies, in the grid code, and development of detailed RE grid  
256 connection guidelines; and
- 257 • **Interconnection and associated costs** – governments, utilities and / or regulators must provide  
258 uniform and transparent interconnection procedures, guidelines and application forms for RE  
259 generation connection. It is also important to provide transparency on how required grid network  
260 upgrades triggered by RE PPP are identified and associated cost responsibilities allocated to  
261 specific generation projects.

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## 265 **V. Delivering the Models**

266 Project Selection / Baseline requirements for Private interest (for the Sector)\_

### 267 **Baseline requirements for Private interest**

#### 268 Allocation of Risk

269 As presented under IV, each facilitation and delivery approach for RE PPP has its respective merits  
270 and disadvantages. The most suitable model for a specific project depends on a variety of input  
271 factors. Most of these input factors also feed into the risk profile of a project. A project's cost of capital  
272 reflects the actual and perceived risks by the investor with carrying out the project, including risk  
273 categories such as inflation risk, interest rates risk, political and regulatory risk, project design,  
274 financing, construction, operation and maintenance risks, demand and regulatory risks.

275 Such perception must then be incorporated in the risk allocation of the transaction documentation to  
276 achieve bankability of a RE PPP transaction. Host Governments should ensure that the "golden rule"  
277 of risk allocation - that a risk should be allocated to the party who is best able to manage and/or  
278 mitigate it - is enshrined by the transaction.

#### 279 Risks Typically Allocated to the Public Sector

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

286 Where risk events which have been allocated to the 'Government side' (i.e., the host Government  
287 and/or a national utility offtaker) arise and are sufficiently prolonged or have sufficiently severe effects  
288 such that an early termination of the contract arises, the Government side will typically be required to  
289 purchase the generation facility. The purchase price will almost certainly be one which (a) covers any  
290 termination and transfer costs, (b) repays outstanding debt, (c) returns equity invested, and (d)  
291 provides a return on equity.

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

- 294 • affect most if not all energy (RE and non-RE) PPPs in a host country (e.g. the applicable  
295 circumstance may be a prolonged civil war); and
- 296 • coincide with a period when the host Government is least able to pay (and many EMDE host  
297 Governments may be unable to pay the early termination buyout price at any time).

298 A wide disparity exists in current market practice as to the formulation of the early termination buyout  
299 price formula (and resulting quantum of that price) which applies if the host Government is obliged to  
300 buy the generation facility upon early termination. This can have far reaching fiscal impacts for host  
301 Governments. Accordingly, host Governments should take specialist advice to:

- 302 • ensure that all relevant host Government personnel understand the surrounding issues and risks  
303 involved; and
- 304 • ensure that contingent liabilities which crystalize upon early termination are kept to the minimum  
305 level required for project financing.

306 One particular risk worth highlighting is 'grid risk'; i.e., the risk that the electricity grid is not able to  
307 accept and/or evacuate electricity made available by the project company. Even when grid outages  
308 are caused by a force majeure event, project lenders in particular will require (as a condition to the  
309 provision of finance) that this risk is allocated either to the utility and/or to the host Government (i.e.,  
310 that they should be obliged to reimburse the RE PPP for the revenue which it would have otherwise  
311 lost), on the bases that (a) the RE PPP cannot realistically insure against events which may be  
312 caused or occur anywhere on the electricity grid, and (b) the utility has the dual duties of ensuring that

313 the grid is robust in the first place, and re-instating the grid promptly if for any reason it is knocked out  
314 of service.

315 Host Governments should acknowledge the fact that they – as the private sector – might need to  
316 shoulder risks which cannot be fully controlled. Such risks include:

- 317 • risks associated with matching electricity supply and demand. This is particularly relevant for  
318 large RE PPP programs or projects, whose installed capacity may sometimes exceed 100% of a  
319 host country's total peak demand (including the reserve capacity) at the time of inception;
- 320 • exchange rate risks (capital and repayment); and
- 321 • 'political force majeure' risks, such as war, civil disturbance, terrorist attack, currency  
322 convertibility, etc., which are not within the direct control of the host Government.

### 323 Risks Allocated to Investors

324 Different classes of investors have different risk appetites. This reality should be acknowledged and  
325 embraced. Generally, the private sector is willing to take the following risks: project cost,  
326 construction, technology, operation and maintenance risk.

### 327 Efficient Risk Allocation

328  
329 In turn this ensures that host Governments and utilities are not burdened with any risks which are  
330 better allocated to other stakeholders, and it typically adds a high degree of rigour to the project  
331 analysis. RE PPPs typically require a relatively large number of stakeholders to agree a complex,  
332 interconnected allocation of risk and return, and this can be incredibly difficult to manage. For  
333 example, risks which are not allocated to the host Government and/or utility will initially be allocated to  
334 the SPV, either explicitly in the PPA and/or Implementation Agreement (or similarly named  
335 document), or simply by omitting to expressly allocate those risks to the host Government and/or  
336 utility.

337 In turn, the SPV will divide these risks and allocate them to other stakeholders, e.g. the EPC  
338 contractor, equity investors, lenders, *et al.*, again either by an express contractual allocation and/or as  
339 a consequence of omitting to allocate certain risks to other stakeholders. One consequence is that  
340 the stakeholder who is ultimately expected to bear a certain risk may not be involved at the stage  
341 when that risk is defined and initially allocated to the SPV, in turn leading to a high propensity for  
342 renegotiation of principal project agreements, etc.

### 343 Legal and Regulatory Framework

344 Due to the high upfront investment costs, RE PPP projects generally require a significant degree of  
345 long-term investment certainty. A conducive legislative environment is one of the key contributors to  
346 investment security. In general, risk mitigation can be enhanced through a clear PPP framework, as  
347 well as public support commitments to the projects as part of the PPP framework. However, for the  
348 case of RE PPP procurements, potential procedural benefits of a general PPP framework can be  
349 conflicting with requirements for RE PPP procurement. Thus, any general PPP legislative framework  
350 needs to be aligned with other legal, regulatory or other enabling support measures for RE PPPs.

351 The existence of PPP legislation is thus not a necessary factor in the success of RE PPP  
352 development, and there are examples of unintended consequences of such legislation posing a  
353 significant barrier to infrastructure development. In various countries, host Governments have  
354 actually exempted RE PPP programs from the provisions of the PPP Acts and allowed for a regulation  
355 of the procurement process through the tender documentation.

356 An important factor to the success of an RE project and programme is the existence of a clear and  
357 well thought out enabling framework. At a minimum, this should authorize specific public authorities  
358 to use PPPs in RE projects, be flexible enough to not impede or prevent RE PPP development, and  
359 empower officials to strike the appropriate balance.

### 360 Power Purchase Agreements

361 Recognition should be given to the PPA's central role in raising finance from the private sector, in  
362 particular its role in creating the expected income stream against which financiers provide finance. In  
363 RE PPPs in EMDE countries, the PPA performs several important roles, including:

- 364 • providing the expectation of a long-term income stream against which the project will be financed;
- 365 • providing the contractual mechanisms for the sale and purchase of electricity; and
- 366 • setting the contractual obligations of the project company, in particular in respect to attaining the  
367 project commercial operation date ("COD"), and post-COD performance standards.

368 Each PPA will also require project specific tailoring to address such issues as:

- 369 • commissioning test procedures;
- 370 • whether a 'capacity charge plus energy charge' tariff structure is appropriate, or 'delivered energy  
371 plus deemed energy' tariff structure is appropriate;
- 372 • the methodology for calculating deemed energy; and
- 373 • appropriate performance requirements and the methodology for calculating performance.

374 It should be recognized that (a) a single PPA will not be appropriate for multiple generation  
375 technologies, and (b) if the PPA has not been tailored to a specific technology, it is unlikely to be  
376 'bankable' for any technology. Expert advice should also be taken to optimize various provisions  
377 including liquidity support, economic stabilization, required performance standards and end of term  
378 transfer obligations (if any).

379 Finally, although the PPA is the cornerstone of RE PPP documentation, the PPA is part of suite of  
380 documentation which works together to allocate risk and responsibility between RE PPP  
381 stakeholders; even the best PPA is not a 'bankable' document without the package of documentation  
382 which surrounds it.

### 383 Host Government Support Agreements

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

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

390

### 391 Project Finance

392 RE PPP in EMDE countries with project costs above circa US\$20 million +/-<sup>5</sup> are typically project  
393 financed; however, project finance often requires cumbersome and expensive processes leading to  
394 high fixed upfront transaction costs and extended timelines. Investors will need to accommodate  
395 project lenders who will be more risk averse than investors (as lenders expect a lower return than the  
396 project investors).

397 Project finance in EMDE countries is structured to:

- 398 • maximize the ratio of debt finance to equity investment, as the interest rates required by  
399 lenders are typically much lower than the returns sought by equity investors;
- 400 • lend against the expected long-term income stream flowing from the power purchase  
401 agreement ("PPA"), and not against the value of the underlying assets or a balance sheet;
- 402 • compensate the parties should the RE PPP project terminate early (i.e., before the expiry of  
403 the natural term of the PPA), because the expected value to the equity investors and lenders  
404 of the underlying infrastructure (i.e., largely immobile infrastructure with no certainty of a  
405 customer or means of earning income) is minimal at best;

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<sup>5</sup> 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 required in project preparation (which in turn is to a large extent fixed regardless of the project size).

- 406 • accommodate project lenders who will be more risk averse than investors (as lenders expect  
407 a lower return than the project investors); and
- 408 • minimize recourse to the investor's balance sheet.

409

#### 410 Payment for capacity

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

#### 415 Liquidity Support

416 Although the typical RE PPP structure is understood as a privately sponsored project with non-  
417 recourse or limited recourse project financing, in EMDE countries the government usually also  
418 guarantees the utility's obligations, subsidizes the PPA tariff if end-user tariffs are not cost reflective,  
419 and/or may hold (directly or indirectly) some portion of the necessary equity and/or debt for the  
420 project.

421 A strong utility credit rating is usually key for underpinning a credible RE PPP programme or project.  
422 The reality in most EMDE countries is that utilities struggle to keep up with cost recovery and have  
423 poor payment track record. The first effort of host Governments therefore should be to map out a path  
424 for strengthening utility creditworthiness.

425 'Liquidity support' mechanisms to ensure timely payment to the project company include bank  
426 guarantees, letters of credit, or a cash escrow account. In many instances the bank guarantee or  
427 letter of credit provider will in turn require further backstopping with, for example, cash collateral or a  
428 partial risk guarantee provided by another credit worthy entity such as MIGA or some regional  
429 insurers, e.g. African Trade and Insurance Agency (ATI) in ATI member countries.

430

### 431 **Feasibility for low and middle income countries**

#### 432 Electricity tariff

433 Electricity tariffs are an important socio-economic factor in EMDE countries. Low electricity prices may  
434 not only facilitate industrial development, but also decrease the financial burden on the poor. Thus,  
435 achieving lowest possible cost of electricity production must be a focus of People First PPPs in the  
436 RE sector. Host Governments should explore possibilities to lower project development and financing  
437 costs through appropriate regulatory and fiscal measures.

438

#### 439 Lowering Risk Perceptions

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

- 442 • implementing cost-reflective and adequate end-user tariffs, so that the Offtaker is not perceived to  
443 be structurally loss making and thus a high credit risk;
- 444 • improving the Offtaker's revenue collection performance, e.g. by promoting pre-paid metering,  
445 again so that the Offtaker is perceived to be on a sound(er) financial footing; and
- 446 • importantly, ensuring that the Offtaker develops a good track record of timely payment to its  
447 existing IPP suppliers.

#### 448 Fiscal burden

449 Host Governments have only partial (and sometimes quite limited) control over some of the risks  
450 typically allocated to them. However, in some EMDE countries, it is clear that if certain classes of  
451 events trigger an early-termination 'put option', accumulated claims could bankrupt the host country  
452 or, at least, significantly curtail public expenditure available for other public services. While there is no  
453 'magic bullet', host Governments should at least:

- 454 • address the issues surrounding fiscal burden openly with all stakeholders;  
455 • ensure that the Ministry of Finance (or equivalent), and where appropriate the Government  
456 Cabinet (or equivalent), (i) is fully apprised of the contingent liabilities which the host  
457 Government will take on in connection with an RE PPP, and (ii) formally approves the  
458 Government taking on those contingent liabilities;  
459 • consider how it accounts for contingent liabilities which arise under 'put and call option'  
460 arrangements (or explicit sovereign guarantees if these are used); and  
461 • embrace the other policy standards recommended in this document as a means of reducing the  
462 cost of project delivery, which in turn has a direct impact on fiscal burden.

463

## 464 **Other Issues**

### 465 Role of the Regulator

466 Financiers of RE PPPs in EMDE countries typically will not take the risk that regulated or market-  
467 determined wholesale electricity tariffs throughout the life of their project will stay at a level which will  
468 make the project economically viable. This may be due to perceived inexperience of the electricity  
469 regulator, perceived risk of political interference, or simply a 'chicken and egg' issue of the electricity  
470 regulator not having a sufficient track record of tariff setting, and thus being precluded from gaining  
471 and demonstrating that experience. It is thus common feature of electric power RE PPP in EMDE  
472 countries is a requirement for a long-term (20-25 year) contractually agreed tariff, together with  
473 contractually agreed mechanisms to adjust the tariff should various risk events arise.

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

### 478 Dispatchability of RE

479 In many EMDE countries the grid can be less reliable and 'trip' from time to time, in some case many  
480 times each month. The grid is also more likely to be prone both to constraints and to downtime during  
481 upgrades and even 'small' projects even though small can account for a material percentage of  
482 overall generation capacity. As a result, in these circumstances, if and when the grid is down and/or  
483 constrained, and the off-taker has a true 'must take' obligation, the off-taker can be in breach of  
484 contract, giving rise to an obligation to pay damages and potentially triggering cross-default provisions  
485 in other contracts.

486 In the alternative if there is a dispatch right (with an obligation to pay for deemed energy if it does not  
487 dispatch), then the deemed energy charges which arise would typically be identical to the damages  
488 which would have been payable for breach of contract under a 'must take' contract but the off-taker  
489 could also be in default and/or trigger 'cross-default' provisions in other contracts

### 490 Climate Change

491 Risks resulting from climate change are often underestimated when host Governments and project  
492 investors analyse an RE PPP projects viability. It is important to diligently analyse and address such  
493 risks in early stages of an RE PPP project and agree on a fair share of subsequent revenue risks and  
494 eventually consider available mitigation instruments.

