

**RESTRICTED**  
**TOS PPP/ENERGY/01**  
**November 2016**

**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  
**STATUS:** Draft v1.0



# **Draft Standard for Grid-Connected Renewable Energy**

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

---

TABLE OF CONTENTS	
Paragraph	Page
<b>1. Introduction.....</b>	
1.1 The Importance of Renewable Energy (“RE”) to Sustainable Development .....	
1.2 The Role of PPPs in Sustainable Development.....	
1.3 People First PPPs.....	
<b>2. Objective And Scope of this Standard .....</b>	
2.1 Objective.....	
2.2 Scope.....	
<b>3. Methodology .....</b>	
3.1 Team of Specialists.....	
3.2 Support .....	
3.3 Market Survey.....	
3.4 Challenges Addressed.....	
<b>4. People First Public-Private Partnerships .....</b>	
4.1 Standard .....	
4.2 What are People First PPPs?.....	
4.3 Evaluation Criteria for People First PPPs .....	
4.4 People First PPPs in the RE Sector .....	
4.5 Good Governance and Corruption .....	
4.6 Definition of Renewable Energy .....	
<b>5. Features of a RE PPP Program.....</b>	
5.1 Public-Private Partnerships .....	
5.2 RE Specific Considerations .....	
5.3 Developing an Effective RE PPP Program .....	
5.4 Independent Power Projects.....	
5.5 Joint Venture as a model of RE PPP .....	
<b>6. Environmental and Social Governance Standards.....</b>	
6.1 Standards .....	
6.2 Developers and sponsors of RE PPP .....	
<b>7. Risk and Risk Allocation .....</b>	
7.1 Standards .....	
7.2 Cost of Capital .....	
7.3 Risk Perception .....	
7.4 Efficient Risk Allocation .....	
7.5 Risks Allocated to Investors.....	
7.6 Risks Allocated to Host Governments .....	
7.7 The Financial Viability of the Sector .....	

7.8	Vulnerability to climate change .....
<b>8.</b>	<b>Pro-Active Policy Intervention .....</b>
8.1	Standard .....
8.2	Suggested Measures.....
<b>9.</b>	<b>Role of the Regulator.....</b>
9.1	Standard .....
9.2	Background .....
9.3	Limitations Placed on the Regulator .....
9.4	Limited Role of the Regulator .....
9.5	Independence of the Regulator .....
<b>10.</b>	<b>Project Finance and Refinancing .....</b>
10.1	Standards .....
10.2	Material Features of Project Finance .....
10.3	Drawbacks of Project Finance.....
10.4	Refinancing.....
10.5	Appropriate Public Sector Oversight .....
<b>11.</b>	<b>Power Purchase Agreements – General Standards .....</b>
11.1	Standards .....
11.2	Cornerstone Project Document .....
11.3	Liquidity Support.....
11.4	Economic Stabilization .....
11.5	Project Performance Standards.....
11.6	End of (Natural) Term Provisions .....
<b>12.</b>	<b>Power Purchase Agreements - Payment for Capacity .....</b>
12.1	Standards .....
12.2	Compensation for Making Generation Capacity Available.....
12.3	RE Projects .....
12.4	Deemed Energy .....
12.5	Deemed Commissioning.....
12.6	Excused Grid Unavailability.....
<b>13.</b>	<b>Power Purchase Agreements - Dispatchability .....</b>
13.1	Standard .....
13.2	Developed Market Comparison .....
13.3	EMDE Countries .....
<b>14.</b>	<b>Technology specific standards.....</b>
14.1	Standards .....
14.2	General Comment .....
14.3	Solar PV .....

14.4	Hydro.....
14.5	Wind .....
14.6	Biomass (Sugar Cane Bagasse).....
14.7	Biomass (Agricultural Waste and Grown/Farmed Fuel).....
14.8	Geothermal.....
<b>15.</b>	<b>Other Project Agreements .....</b>
15.1	Standard .....
15.2	Recognition of Other Project Documents .....
15.3	Drafting Approach .....
<b>16.</b>	<b>Host Government Support and Fiscal Burden .....</b>
16.1	Standards .....
16.2	Suite of Project Agreements .....
16.3	Requirement for Host Government Support .....
16.4	Risks Typically Allocated to the Public Sector .....
16.5	Put and Call Options on Early Termination .....
16.6	Fiscal Burden .....
<b>17.</b>	<b>RE PPP Project Procurement .....</b>
17.1	Standard .....
17.2	Introduction.....
17.3	<i>Ad hoc</i> Negotiation .....
17.4	REFITs .....
17.5	Reverse Auctions.....
<b>18.</b>	<b>Impact of PPP Laws.....</b>
18.1	Standards .....
18.2	Introduction of PPP Laws .....
18.3	Necessity of PPP Laws .....
18.4	Treatment of Unsolicited Bids (Proposals).....
18.5	Conclusion .....
<b>19.</b>	<b>Market Innovations .....</b>
19.1	Standard .....
19.2	Limitations of Existing Project and Project Finance Structures .....
<b>20.</b>	<b>Resources .....</b>

<b>Abbreviation and terms</b>	<b>Meaning</b>
<b>ATI</b>	African Trade Insurance Agency
<b>COD</b>	Commercial operation date
<b>Financial Close</b>	The signing of the financing agreements
<b>Financiers</b>	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.
<b>EMDE</b>	Emerging markets and developing economies
<b>EPC</b>	Engineering Procurement and Construction.
<b>GENCO</b>	Generating company
<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>REIPPP</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    **1.    INTRODUCTION**

2    **1.1    The Importance of Renewable Energy (“RE”) to Sustainable Development**

3    1.1.1    “Energy is crucial for achieving almost all of the Sustainable Development Goals, from its role  
4            in the eradication of poverty through advancements in health, education, water supply and  
5            industrialization, to combating climate change.”<sup>1</sup>

6    1.1.2    Furthermore, “climate change presents the single biggest threat to development, and its  
7            widespread, unprecedented impacts disproportionately burden the poorest and most  
8            vulnerable.”<sup>2</sup>

9    1.1.3    Accordingly, access to sufficient, dependable and affordable RE is crucial to attaining the  
10            United Nations’ Sustainable Development Goals (“UN SDGs”).

11   1.1.4    In order to achieve an effective result, each PPP program must encompass a process  
12            developed to take into account the specific context, determined by (a) consistent and clear  
13            stakeholder engagement, participation and acceptance, (b) appropriate program scale,  
14            phasing and ramp-up, and (c) mitigation for any development risks that cannot be borne by  
15            the private sector.

16   **1.2    The Role of PPPs in Sustainable Development**

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

22   1.2.2    Public Private Partnerships (“PPPs”) are a mechanism for facilitating private sector  
23            participation in the delivery of RE infrastructure projects. PPPs can mobilize private sector  
24            capital, technological and operational know-how, and risk appetite to develop, design,  
25            finance, build, operate and maintain a RE infrastructure project.

26   1.2.3    In the field of Renewable Energy, relevant SDGs can conflict each other, in particular for  
27            large-scale RE projects.

28   1.2.4    PPPs as an alternative to ‘traditional’ public procurement

29   1.2.5    Whereas the public sector can choose to fulfill its service delivery mandate on the basis of  
30            procuring goods and services through direct contracting and financing for a specific good or  
31            service (traditional public procurement), it can also choose to deliver its mandate via a Public  
32            Private Partnership model.

33   1.2.6    The distinguishing features of a PPP are the contracting structure which provides for an  
34            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>.

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

38 1.2.7 PPP are furthermore characterized by their capital intensive nature, longer term financing  
39 requirements which require operation and management on an on-going basis.

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

43 1.2.8 Viability

44 1.2.9 Following are various scenarios under which a PPP can be a viable option:

45 > **Technology:** where the service requires external expertise and government will not be  
46 able to provide it independently;

47 > **Quality:** where a private partnership would significantly enhance the quality of service  
48 compared to what the government could extend independently;

49 > **Time:** where a private partnership would expedite the project implementation  
50 significantly; and

51 > **Cost:** where there would be a considerable reduction in the project cost and also the  
52 service cost with the involvement of a private player.

53 1.2.10 Value for Money in a Project

54 1.2.11 Ensuring value for money ("**VfM**") should be at the core of the public sector's decision to  
55 engage in a PPP infrastructure project. A PPP is a considered a VfM transaction if it generates  
56 a net economic benefit for the public in terms of quantity, quality of the service or facility,  
57 cost and risk transfer over the project life, relative to the public procurement alternative.  
58 Hence, the VfM assessment of a PPP plays a fundamental role in the decision whether a  
59 public institution would be willing to enter into PPP agreement<sup>4</sup>.

60 1.2.12 Selection of Appropriate Infrastructure Projects

61 **1.2.13** One of the challenges faced by Governments is the ability to discern the suitability of an  
62 infrastructure project for the PPP model. This suggests that the notion of `one size fits all` is  
63 not applicable for infrastructure projects. Governments should acknowledge that PPPs are not  
64 the panacea for all infrastructure development initiatives. It is therefore crucial in the  
65 planning phase to select infrastructure projects that would be well suited to the PPP model as

---

<sup>4</sup> 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.

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

67 1.2.14 Legal and Regulatory Framework

68 1.2.15 In view of the nature and the lengthy timeframe to develop PPP projects, it is imperative that  
69 the interests of both the public and private sector are protected by law.

70 1.2.16 Before investing in a PPP project in a given country the private sector participants will  
71 complete a detailed due diligence on the legal and regulatory system to ascertain if to invest  
72 or not. The standard form of the due diligence questionnaire indicates the type of legal and  
73 regulatory framework concerns and considerations that are frequently raised on PPP projects.  
74 The standard form is included in Schedule 4.

75 1.3 People First PPPs

76 Historically, PPP models, in particular those originating in developed economies, have not  
77 been developed from the perspective of poverty alleviation. Accordingly, UNECE proposes a  
78 model of “**People First PPPs**” which are ‘fit for purpose’ for the UN SDGs.  
79

80 2. **OBJECTIVE AND SCOPE OF THIS STANDARD**

81 2.1 **Objective**

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

85 a) maximize the economic benefits of RE PPPs;

86 b) attract increased private sector participation in RE PPPs;

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

88 and thereby deliver a RE PPP at an affordable cost.  
89

90 2.2 **Scope**

91 2.2.1 RE PPPs are complex transactions involving multiple private and public sector stakeholders.  
92 Furthermore, as discussed below, each generation technology raises significant technology-  
93 specific issues.

94 2.2.2 The Standard aims to provide:

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

98 (b) brief rationale for each recommendation.

99 2.2.3 The scope of this Standard does not extend to detailed analysis, nor does it provide answers  
100 to every issue that may arise for host Governments.

101 3. **METHODOLOGY**

102 3.1 **Team of Specialists**

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

107  
108 3.2 **Support**

109 Support through LIFE Klimastiftung Liechtenstein and Endorsement by the Government of  
110 Liechtenstein.

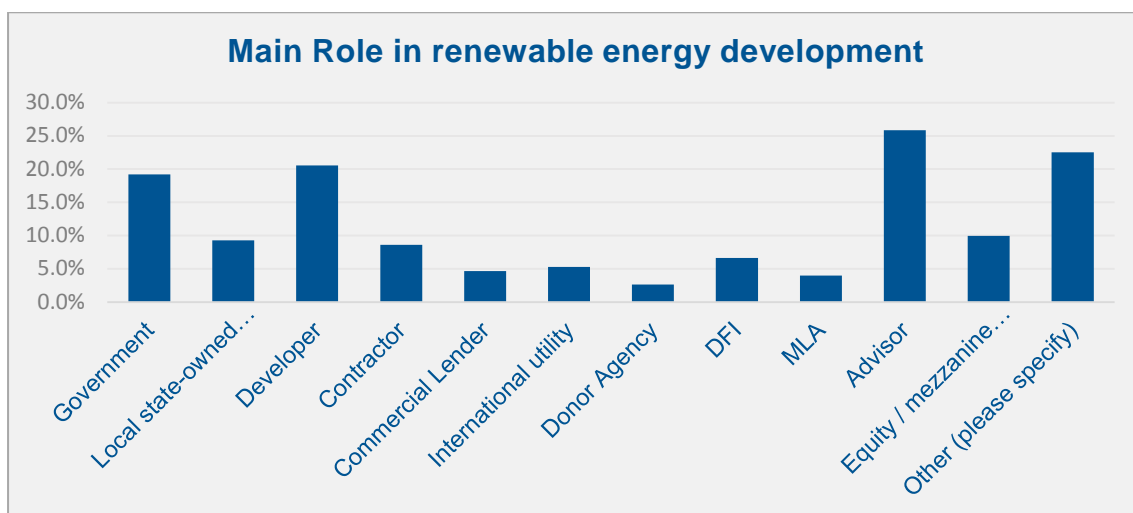
111 The Project Team was supported by LIFE Climate Foundation Liechtenstein based in Vaduz,  
112 Liechtenstein. The Government of Liechtenstein has endorsed the establishment of the  
113 UNECE PPP Excellence Centre for Renewable Energy in Vaduz, Liechtenstein, on October 25,  
114 2016. The Centre will be hosted by LIFE Climate Foundation Liechtenstein.  
115  
116

117 3.3 **Market Survey**

118 3.3.1 The Standards are based on a detailed survey conducted in 2016. The survey was published  
119 in four UN languages (English, French, Spanish, Russian) and received responses from more  
120 than 200 PPP and RE experts worldwide.

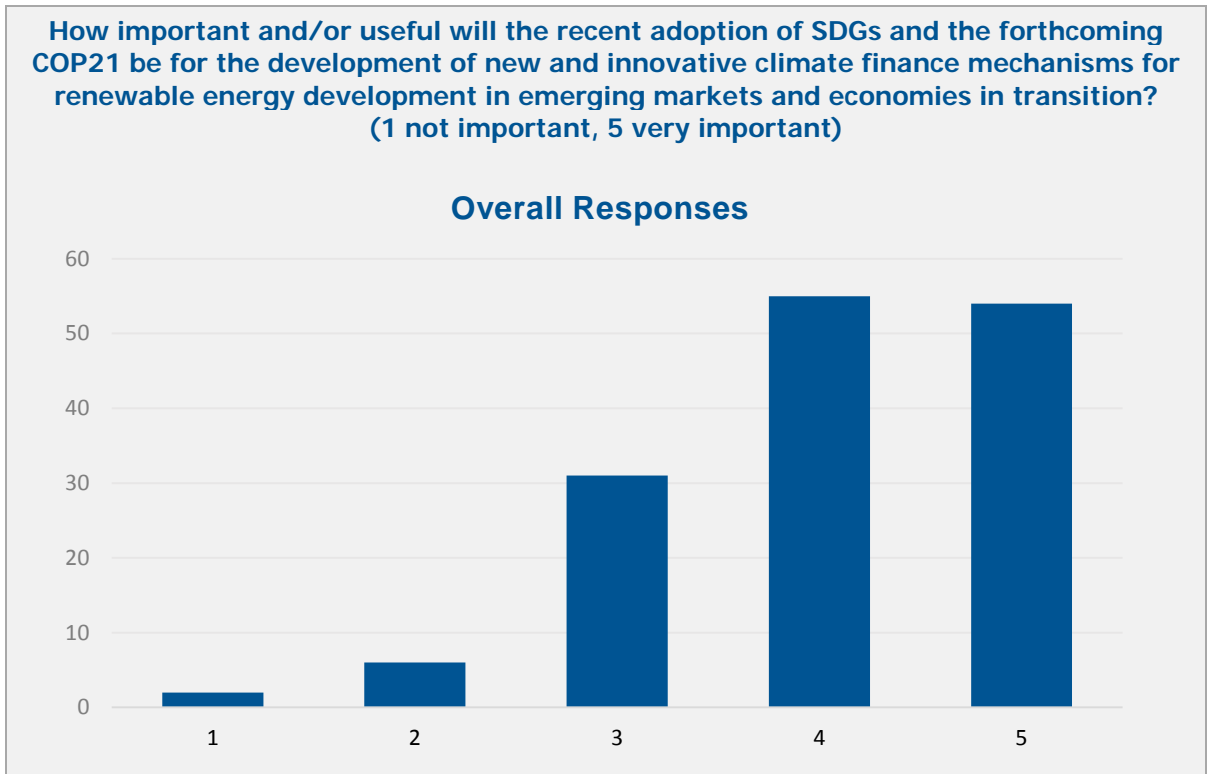
121 3.3.2 The intention of the survey was to support the development of market-sourced and market-  
122 tested recommendations and analysis, which will enable decision-makers to better  
123 understand and address views of the public sector, private sector, civic society, investors,  
124 commercial banks and development finance institutions and respective challenges and  
125 procedural requirements.

126 3.3.3 Public and private sector developers were represented equally (20%) and most advisors had  
127 rendered consulting services to both parties of a PPP project. Civic society was represented  
128 well with over 22% under others.

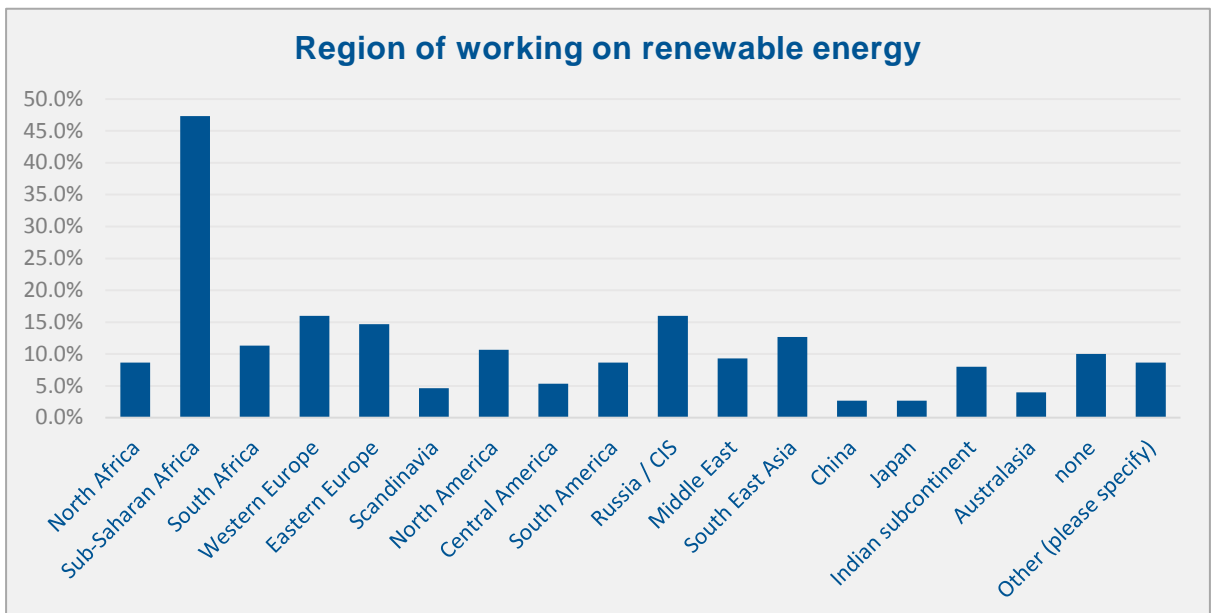


129  
130

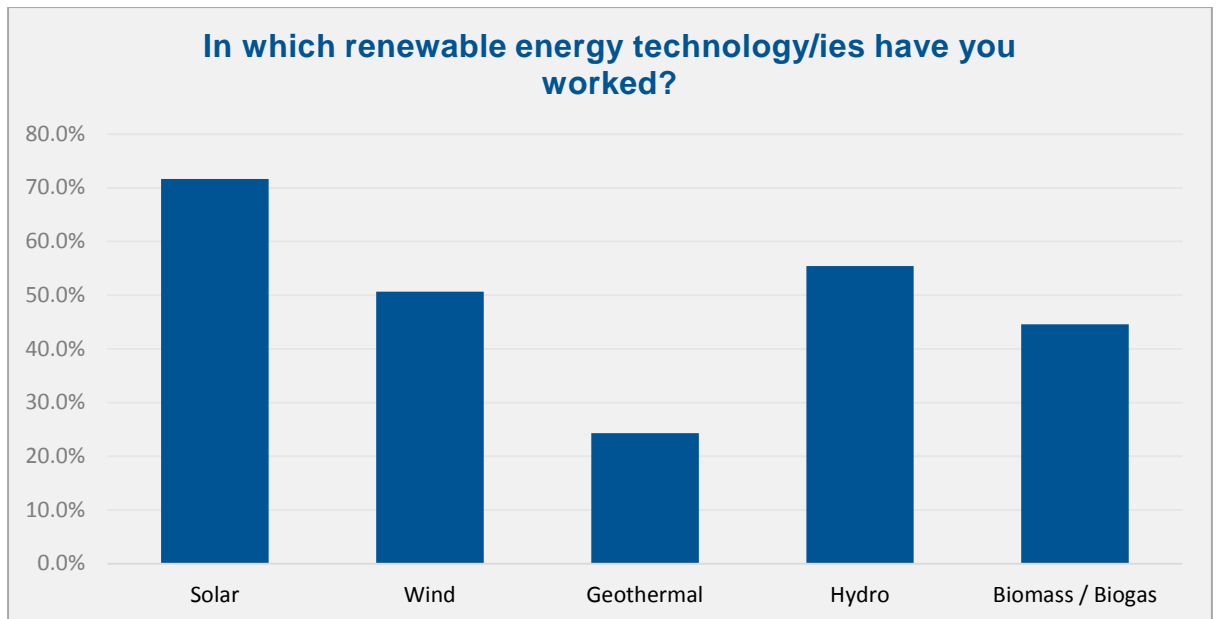
131 3.3.4 The largest share of participating developers and sponsors acknowledged that social  
 132 inclusiveness and sustainability was an integral part of the PPP structuring approach.



133  
 134  
 135 3.3.5 In terms of regional focus, the largest share of participants had experience with RE PPP  
 136 projects in Sub-Saharan Africa. However, other regions were overall well-represented:  
 137



138  
 139 3.3.6 Technology-wise, all currently viable technologies were well represented:



140

141 **3.4 Challenges Addressed**

142 3.4.1 The survey and proposed standards further acknowledge and incorporate varying challenges  
143 for PPP projects across different RE technology types.

144 3.4.2 Accordingly, the standards will offer technology-specific insights and recommendations, which  
145 will enable concerned practitioners to tailor their project in line with technology requirements.

146

147 **4. PEOPLE FIRST PUBLIC-PRIVATE PARTNERSHIPS**

148 **4.1 Standard**

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

150 **4.2 What are People First PPPs?**

151 'People First PPPs' are PPPs, which:

- 152 (a) are seen as synonymous with the purposes of the UN SDGs;
- 153 (b) out of all the stakeholders, put people as the main beneficiaries of the projects;
- 154 (c) increase access to water, energy, transport, and education especially to the socially  
155 and economically vulnerable members of society;
- 156 (d) promote social cohesion, justice and disavow all forms of discrimination based on  
157 race, ethnicity, creed and culture;
- 158 (e) focus on improving the quality of life of communities, fighting poverty and creating  
159 local and sustainable jobs; and
- 160 (f) contribute to ending hunger and promote the empowerment of women

161 **4.3 Evaluation Criteria for People First PPPs**

162 4.3.1 The criteria for evaluating People First PPPs are:

- 163 (a) "accessibility";
- 164 (b) "equity";
- 165 (c) "efficiency";
- 166 (d) "effectiveness",
- 167 (e) "sustainability"; and
- 168 (f) "replicability".

169 **4.4 People First PPPs in the RE Sector**

170 4.4.1 People First PPPs in the RE sector seek to ensure that:

- 171 (a) sufficient RE infrastructure is delivered when and where necessary to enable the  
172 attainment of the UN SDGs;
- 173 (b) RE infrastructure is developed to design standards and build quality which will enable  
174 reliable delivery of RE over the long term; and
- 175 (c) RE infrastructure is delivered:
  - 176 (i) at the lowest possible levelised cost of electricity (taking into account the  
177 objectives set out above); and
  - 178 (ii) with the lowest possible fiscal burden to host Governments;

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

180 4.4.2 Social inclusivity and financial viability are not conflicting interests in a RE PPP, but rather  
181 intertwined prerequisites for a successful operation of a project over its entire lifetime.

182 **4.5 Good Governance and Corruption**

183 4.5.1 This Standard for Renewable Energy PPP does not have a dedicated section on guidelines for  
184 good governance and anti-corruption measures for PPP as these are developed by a separate  
185 UNECE PPP Standard working group. It is further referred to UNECE's Guidebook on  
186 Promoting Good Governance in Public-Private Partnerships.

187 **4.6 Definition of Renewable Energy**

188 4.6.1 For purposes of this Standard, the definition of IEA for Renewable Energy is utilized:  
189 "Renewable energy is energy that is derived from natural processes (e.g. sunlight and wind)  
190 that are replenished at a higher rate than they are consumed. Solar, wind, geothermal,  
191 hydropower, bioenergy and ocean power are sources of renewable energy. The role of  
192 renewables continues to increase in the electricity, heating and cooling and transport  
193 sectors."

194 4.6.2 As per UNECE's mandate for this PPP Standard for Renewable Energy, the proposed

195 Standards only apply to grid-connected RE.

## 196 5. FEATURES OF A RE PPP PROGRAM

### 197 5.1 Public-Private Partnerships

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

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

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

208  
209 The World Bank's PPP Knowledge Lab defines a PPP as:

210 "A public-private partnership (PPP) is a long-term contract between a private party and a  
211 government entity, for providing a public asset or service, in which the private party bears  
212 significant risk and management responsibility, and remuneration is linked to performance."<sup>5</sup>

213  
214 In this document, the term "RE PPP" is used to describe any types of RE projects involving:

- 215 (a) long-term (sometimes up to 20 – 25 years) partnership between the public and  
216 private sector;
- 217 (b) provision of infrastructure or service by an entity other than a public authority; and
- 218 (c) transfer of risk to the private sector.

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

### 222 5.2 RE Specific Considerations

223 5.2.1 PPP RE projects are generally characterized by the multitude of required transaction  
224 agreements and their contractual complexity.

225 5.2.2 Cross-sectorial and cross-institutional stakeholder coordination is key prior to launching a RE  
226 PPP program or transaction. This includes effective on-boarding of all involved ministries,  
227 government authorities and the utility. The establishment of an office and / or focal point  
228 with a clear mandate and authority would be advisable to ensure sustainability of the

---

<sup>5</sup> <https://pppknowledgelab.org/ppp-cycle/what-ppp>



229 partnership.

230 5.2.3 The power purchase agreement (“PPA”) - governing production, offtake and payment  
231 obligations – is the focal agreement, which must reflect the diverse set of challenges and  
232 risks involved in operating a power-generating facility viably.

233 5.2.4 In EMDE countries, investors and lenders often expect additional comfort beyond the legal  
234 protection provided in a standard PPA. PPP RE transactions in this environment thus usually  
235 involve a set of support agreements. The broad mix of financial, legal and operational risks  
236 intertwined across a number of legal agreements is a particular challenge of PPP RE projects.

237 **5.3 Developing an Effective RE PPP Program**

238 5.3.1 In situations where there is an interdependence between state and private sector in the  
239 implementation of renewable energy, a dedicated RE PPP program is very appropriate.

240 5.3.2 Efficient outcomes are achieved if a RE PPP program yields investment at scale, is repeatable,  
241 and delivers a high quality utility service to citizens at an affordable price. RE PPP programs  
242 should be developed through a phased approach to allow for price discovery and risk  
243 reduction for both the host Government and private sector for real value creation for the end  
244 user.

245 5.3.3 The success of a RE PPP program is a function not only what the host Government decides to  
246 do, but also how it goes about how to design the program. The ‘how’ aspect of PPP programs  
247 is about:

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

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

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

253 5.3.4 A RE PPP program should educate stakeholders about the ultimate project cost and its impact  
254 on the consumer over time case, the affordability of electricity for the population at large and  
255 other affected parties (departments of finance, utilities, private sector as an off-taker, energy  
256 intensive users etc.)

257 5.3.5 The size of projects or programs that could be considered for an RE PPP structure could place  
258 significant strain on the balance sheet of the country concerned especially where revenues  
259 are constrained by regulation and the ability of the consumer to pay. The impact of RE PPP  
260 projects and programs should therefore be subjected to the necessary due diligence in  
261 respect of a country’s ability to meet its obligations under the PPP.

262 5.3.6 An efficient RE PPP program should be embedded in a broader process or integrated plan  
263 which should include realistic supply & demand forecasts, least cost planning associated with  
264 the energy mix, resource assessments, transmission network development and broader  
265 power sector development trajectories. It incumbent upon a host Government in launching a  
266 PPP program for renewable energy to assess the building blocks of its program, for example,

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

269 5.3.7 RE PPP programs targeting intermittent power sources impose additional requirements to a  
 270 country’s grid absorption capacity and management.

271 5.3.8 Ignoring these principles usually leads to a higher cost of service and a risk mitigation  
 272 program which leaves the host Government with risk that should be borne by the private  
 273 investors<sup>6</sup>.

274 5.3.9 It should be noted that there are currently some prominent examples in EMDE countries with  
 275 highly developed RE PPP frameworks, yet, at least some of these frameworks do not  
 276 maximize public benefit and could be improved by optimizing.:

- 277 (a) allocate risk in the manner referred to in paragraph 7.1.1;
- 278 (b) offer the full suite of project documents required for project finance; and/or
- 279 (c) provide project financiers with sufficient certainty as to expected revenue stream  
 280 under the PPA.

281 **5.4 Independent Power Projects**

282 5.4.1 RE PPP under a broader RE PPP program are commonly referred to as independent power  
 283 projects (“**IPPs**”). Such PPP-IPP and regular, purely private sector-driven IPP are not  
 284 uniform. Although the typical IPP structure is understood as a privately sponsored project  
 285 with nonrecourse or limited recourse project financing, most IPPs in EMDE do not follow  
 286 this exact model. Instead, the government usually guarantees the offtake (and/or subsidizes  
 287 it as there are no cost/reflective tariffs) and/or may hold (directly or indirectly) some portion  
 288 of equity and/or debt, bringing PPP-IPPs closer to a model of a common PPP than that of a  
 289 traditionally conceived IPP.

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

---

<sup>6</sup> 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-Saharan 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
<b>Risks typically assumed by Public Sector</b>	None	Payment, Termination, Grid, Permitting
<b>Source of financing</b>	Purely commercial	Public, concessional, commercial

290

291 5.4.2 Common features of IPPs include:

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

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

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

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

305 5.4.3 A diagram of a typical RE IPP contractual structure is set out at Schedule 1 (RE PPP/IPP  
306 Structure Diagram).

## 307 5.5 Joint Venture as a model of RE PPP

308 5.5.1 A RE PPP in which the public and private sectors hold shares and jointly manage generally  
309 follow the same principles as an IPP. However, additional administrative and corporate  
310 governance challenges (for example conflict of interest and interference) may arise as a  
311 consequence of the institutionalized partnership.

312

## 313 6. ENVIRONMENTAL AND SOCIAL GOVERNANCE STANDARDS

### 314 6.1 Standards

315 6.1.1 **PPP RE projects are both environmentally and socially sensitive. Ensuring**  
316 **environmental and social sustainability requires a collaborative approach of public**  
317 **and private sector.**

318 6.1.2 **RE PPP projects must be designed, implemented and operated in full compliance**  
319 **with domestic environmental and social protection laws. In cases in which these**  
320 **laws do not offer the same legal protection as international best practice**  
321 **standards, such standards should be adopted at least for RE PPP programs.**

322 6.1.3 **Addressing environmental and social risks is not only in the interest of**  
323 **sustainability, but are also a core prerequisite for the project’s viability and**  
324 **chances of successful implementation and operation.**

325 6.2 Developers and sponsors of RE PPP

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

329  
330 6.2.1 If environmental and social laws do not offer the same protection levels as international  
331 environmental and social sustainability guidelines<sup>7</sup> and best practice, hosting Governments  
332 are encouraged to identify and address gaps and utilize benchmarks proposed by  
333 international standards. Hosting Governments should be realistic about the enforcement  
334 capacity through their concerned agencies.

335 6.2.2 For RE PPP projects financed through IFIs, DFIs and sustainable equity funds, the inclusion of  
336 international standards is mandatory.

337 6.2.3 It is critical that RE projects or programs undertaken as PPPs should encompass the following  
338 environmentally and socially sustainable features:

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

346 6.2.4 Gender aspects must be taken into account and should address equity, equality, security and  
347 gender balance in the structuring of the partnership.

348 6.2.5 To the extent possible, explore opportunities for local long-term job creation and skill  
349 building. If jobs are created, compliance with health, safety and international labor standards  
350 has to be ensured.

351 6.2.6 Cumulative impacts and associated infrastructure must be included in the scope of  
352 environmental assessments of large-scale RE PPPs projects, in particular hydropower  
353 projects. Such projects can have adverse effects on ecosystems, which sustain community  
354 livelihoods far beyond the vicinity of the project concerned. RE PPP stakeholders must avoid  
355 or mitigate irreversible impacts on biodiversity, natural habitats and protected areas at all  
356 cost and aim to minimize the environmental footprint of the project.

---

<sup>7</sup> Such as the IFC's Environmental and Social Performance Standards (2012) or the Hydropower Sustainability Assessment Protocol

357

358 **7. RISK AND RISK ALLOCATION**

359 **7.1 Standards**

360 **7.1.1** Each (and every) project risk should be allocated to the party best able to control  
361 / mitigate the risk.

362 **7.1.2** A realistic assessment of payment risk associated with the RE PPP is of utmost  
363 importance. Aspects of affordability should be transparently disclosed for  
364 informed risk mitigation given the potential impact on public finances.

365 **7.1.3** Markets should be tested periodically for available risk mitigation products and  
366 the quantum of any compensation which may become payable by the public sector  
367 upon certain risk events arising.

368 **7.1.4** Actual and perceived risks should be tackled wherever possible, including by  
369 taking a programmatic approach to RE PPP development and improving the  
370 financial condition of the offtaker.

371 **7.2 Cost of Capital**

372 **7.2.1** A project's cost of capital reflects the actual and perceived risks associated with carrying out  
373 the project: inflation risk, interbank interest rates risk, political and regulatory risk, project  
374 design, financing, construction, operation and maintenance risks, demand and regulatory  
375 risks.

376 **7.2.2** Public policy can influence many important determinants of the cost of capital of delivering  
377 RE PPPs .

378 **7.3 Risk Perception**

379 **7.3.1** RE PPPs in EMDE countries are considered by private sector financiers to be relatively high  
380 risk endeavours<sup>8</sup>, which often increases the cost of capital to unsustainable levels.

381 **7.3.2** There is ample evidence to suggest that RE PPP programs supported by DFIs and/or MFIs  
382 create a 'halo effect' of reduced risk perception, which increases investor and lender interest.  
383 However, these support instruments can come at significant cost for both host Governments  
384 and private sector.

385 **7.4 Efficient Risk Allocation**

386 **7.4.1** Risk is ideally allocated if it is allocated to the party who has the greatest ability to fully  
387 manage and/or mitigate that risk, despite the fact that it may not be fully controlled.

388 **7.4.2** It is inefficient to require a party to assume risks it cannot control and mitigate, in particular if  
389 a risk is at least partially under the control of the other party.

390 **7.5 Risks Allocated to Investors**

391 **7.5.1** Different classes of investors have different risk appetites. This reality should be

---

<sup>8</sup> As detailed in Schedule 2

392 acknowledged and embraced.

393 7.5.2 Generally, the private sector is willing to take the following risks: project cost, construction,  
394 technology, operation and maintenance.

## 395 7.6 Risks Allocated to Host Governments

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

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

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

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

## 407 7.7 The Financial Viability of the Sector

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

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

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

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

## 417 7.8 Vulnerability to climate change

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

422

## 423 8. PRO-ACTIVE POLICY INTERVENTION

### 424 8.1 Standard

425 8.1.1 Host Governments should aim to develop a RE policy framework which drives down the cost  
426 of RE PPP transactions.

427 8.1.2 Host Government should take a pro-active lead in shaping its domestic RE market to comply  
428 with both their sector's electricity needs and NDCs.

---

429 **8.2 Suggested Measures**

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

- 433
- 434 (a) **policy guidelines** - identification by the public sector of priority technologies and  
435 regions for investment, as well as where possible lists of potential projects / project  
436 sites;
- 437 (b) **resource mapping** – mapping RE resource, collecting RE resource data (wind  
438 speed, irradiation, hydrology, etc.) on an ongoing basis and making this data  
439 available to the private sector;
- 440 (c) **investor guidelines** - development of detailed investor guidelines, which set out  
441 clearly all steps investors must take, including in particular permits and consents,  
442 etc., which must be obtained from Government authorities from project initiation  
443 through to commercial operations, as well as guides to the tax treatment of (and  
444 investment incentives (if any) available in respect of) RE PPPs and to unsolicited  
445 proposals for RE PPPs;
- 446 (d) **standardised project agreements** - development of a full suite of realistic,  
447 technology specific and bankable project documentation, which, however, should not  
448 be mandatory, but rather a recommendation subject to negotiations;
- 449 (e) **engagement of external advisors** – working with financial, legal and technical  
450 advisors can help designing an efficient RE PPP program or project in line with  
451 international best practice, attracting more prospective investors, driving the  
452 competition up and prices down. Associated costs can be sponsored through MFI  
453 support programs or recuperated through inclusion of a development fee in the cost  
454 structure for the financial proposal;
- 455 (f) **site selection, early project development** - site selection or alternatively at least  
456 identification of priority locations by the public sector, as well as carrying out  
457 preliminary legal and technical due diligence which can be shared with all shortlisted  
458 bidders;
- 459 (g) **RE appropriate grid code** – acknowledging RE, and the specific requirements and  
460 technical limitations of various RE technologies, in the grid code, and development of  
461 detailed RE grid connection guidelines; and
- 462 (h) **Interconnection and associated costs** – governments, utilities and / or  
463 regulators must provide uniform and transparent interconnection procedures,  
464 guidelines and application forms for RE generation connection. It is also important to  
465 provide transparency on how required grid network upgrades triggered by RE PPP  
466 are identified and associated cost responsibilities allocated to specific generation  
467 projects.

468 **9. ROLE OF THE REGULATOR**

469 **9.1 Standard**

470 9.1.1 Seek to tailor the role of independent regulators in electric power sector governance while  
471 acknowledging that financing a renewable-energy power plant requires the revenue certainty  
472 provided by long-term, contractually-agreed tariffs.

473 **9.2 Background**

474 9.2.1 In general, depending on the degree of development of the electricity sector in a given  
475 country, the electricity price at which RE PPP sell energy is, variously (i) fixed by bilateral  
476 contract, (ii) defined over multi-year cycles by a regulator in accordance with tariff  
477 regulations, or (iii) determined on a daily (or hourly) basis in the wholesale electricity market.

478 9.2.2 Financiers of RE PPPs in EMDE countries typically will not take the risk that regulated or  
479 market-determined wholesale electricity tariffs throughout the life of their project will stay at  
480 a level which will make the project economically viable. This may be due to perceived  
481 inexperience of the electricity regulator, perceived risk of political interference, or simply a  
482 'chicken and egg' issue of the electricity regulator not having a sufficient track record of tariff  
483 setting, and thus being precluded from gaining and demonstrating that experience.

484 **9.3 Limitations Placed on the Regulator**

485 9.3.1 In light of the above, a common feature of electric power RE PPP in EMDE countries is a  
486 requirement for a long-term (typically 20-25 year) contractually agreed tariff, together with  
487 contractually agreed mechanisms to adjust the tariff should various risk events arise.

488 9.3.2 In other words, RE PPP in EMDE countries typically relieve the electricity regulator of its role  
489 in supervising wholesale electricity tariffs, other than an ability to approve the contractually  
490 agreed tariff or tariff methodology at the outset.

491 **9.4 Limited Role of the Regulator**

492 9.4.1 Since financiers' requirement for contractual certainty allows limited scope for intervention by  
493 the independent energy regulator, that role should be to the extent possible tailored and  
494 limited, e.g., the regulator may exercise general oversight that the operation and  
495 maintenance of the generation facility is in accordance to the relevant conditions set in the  
496 generation license.

497 **9.5 Independence of the Regulator**

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

502



503 10. **PROJECT FINANCE AND REFINANCING**

504 10.1 **Standards**

505 10.1.1 Lenders should be 'at the table' during negotiations between the project Sponsors, the host  
506 Government and offtaker. Where a host Government envisages the participation of  
507 international lenders and multi-laterals development banks in financing specific projects or  
508 RE-PPP programs, they should take care to incorporate requirements of such lenders in their  
509 procurement process such as, for example, procurement rules and environment and social  
510 sustainability standards.

511 10.1.2 Taking into account changes in the project's risk profile refinancing should be considered  
512 provided that it results in reduced costs and the benefits of refinancing are shared with the  
513 public.

514 10.2 **Material Features of Project Finance**

515 10.2.1 RE PPP in EMDE countries with project costs above circa US\$20 million +/-<sup>9</sup> are typically  
516 project financed.

517 10.2.2 For the purpose of this document, material features of RE project finance in EMDE countries  
518 (much of which is common to all project finance transactions) include that:

- 519 (a) it seeks to maximize the ratio of debt finance to equity investment, as the interest  
520 rates required by lenders are typically much lower than the returns sought by equity  
521 investors;
- 522 (b) lenders lend against the expected long-term income stream flowing from the power  
523 purchase agreement ("PPA"), and **not** against the value of the underlying assets or  
524 a balance sheet;
- 525 (c) should the RE PPP project terminate early (i.e., before the expiry of the natural term  
526 of the PPA), the expected value to the equity investors and lenders of the underlying  
527 infrastructure (i.e., largely immobile infrastructure with no certainty of a customer or  
528 means of earning income) is minimal at best;
- 529 (d) typically project lenders will be more risk averse than investors/sponsors (as  
530 lenders expect a lower return than the project sponsors); and
- 531 (e) Minimum recourse to the investor's balance sheet.

532 10.2.3 Project finance is often the only financing structure that investors are willing to accept to fund  
533 capital investments in EMDE countries.

534 10.3 **Drawbacks of Project Finance**

535 10.3.1 Project finance requires cumbersome and expensive processes leading to high fixed upfront

---

<sup>9</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).

536 transaction costs and extended timelines.

537 10.3.2 One particular feature is that the due diligence requirements of project finance and  
538 incumbent overhead costs do not increase/decrease proportionally to increases/decreases in  
539 project size. Accordingly, on a per MW basis, project finance can become cost prohibitive for  
540 smaller projects which can be mitigated over a staged RE PPP program in those countries  
541 with sufficient scale of projects and where there is standardization of procurement.

542 10.3.3 As project lenders typically expect a much lower return than project equity sponsors, lenders  
543 typically have a significantly lower risk threshold than sponsors. Accordingly, where lenders  
544 have not been extensively involved in project agreement development and negotiation from  
545 an early stage, it is common for them to require extensive and costly re-negotiation of the  
546 PPA and host Government support agreement as a condition to the provision of finance.

547 10.3.4 Where appropriate, and especially for smaller RE PPPs, the creation and application of  
548 financial instruments tailored for the needs of this sub-sector (in particular removing the  
549 current distinction between debt and equity finance) should be encouraged.

550 10.3.5 Project finance in EMDE countries often requires hard currency offtake contracts enhanced by  
551 different government support arrangements. Local currency financing to back local currency  
552 offtake should be encouraged to make RE PPP projects more economically viable and  
553 sustainable. Where a country is unable to avoid hard currency financing and offtake, it  
554 should take action to encourage and to support the development of the local banking finance  
555 for PPPs. This is most applicable for those countries that are able to embark on a  
556 programmatic and scalable RE PPP process.

557 **10.4 Refinancing**

558 10.4.1 Throughout its lifecycle, an RE PPP goes through varying stages with different risk profiles.  
559 The highest risk is generally prior to financial close and during construction.

560 10.4.2 Investors have a monetary incentive to try to refinance their investments and loans post-  
561 COD, and then to reinvest in, or (as the case may be) re-lend to, new projects. On the other  
562 hand, lenders who are able to lend through the high-risk development and construction  
563 period are unlikely to agree to an early prepayment.

564 10.4.3 When projects enter their low risk phase, financiers with a lower risk appetite such as pension  
565 and other funds should be encouraged to take the place of early stage financiers, and to fulfill  
566 their role as the natural long-term owners of operating RE generation assets.

567 10.4.4 Governments should allow encourage refinancing. However, the Government should carefully  
568 weigh the benefits of such operations shared with the public, with the added risk (i.e. longer  
569 debt maturities).

570 **10.5 Appropriate Public Sector Oversight**

571 10.5.1 Host Governments, regulators and utilities should exercise appropriate oversight to ensure  
572 that a project's investors and lenders throughout the project's lifecycle have the requisite  
573 technical and managerial capacity to carry out their respective roles.

574 10.5.2 However, in principle the public sector should not stand in the way of changes in control and  
575 re-financings etc. of project companies to the extent that these simply reflect an efficient  
576 allocation of available capital as the project's risk profile changes throughout its lifecycle.

## 577 11. **POWER PURCHASE AGREEMENTS – GENERAL STANDARDS**

### 578 11.1 **Standards**

579 **11.1.1 Recognition should be given to the PPA's central role in raising finance from the**  
580 **private sector, in particular its role in creating the expected income stream**  
581 **against which financiers provide finance.**

582 **11.1.2 Expert advice should be taken to optimize various provisions including liquidity**  
583 **support, economic stabilization, required performance standards and end of term**  
584 **transfer obligations (if any).**

### 585 11.2 **Cornerstone Project Document**

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

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

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

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

### 593 11.3 **Liquidity Support**

594 11.3.1 Strong utility credit in the host country is key for underpinning a RE PPP program or project.  
595 The reality in most EMDE countries is that utilities struggle to keep up with cost recovery and  
596 have poor payment track record. The first effort of host Governments should be to map out a  
597 path for strengthening utility creditworthiness. As an interim measure liquidity support and  
598 other instruments for PPAs should be considered.

599 11.3.2 Unlike many commercial transactions, RE PPP are often highly leveraged project financed  
600 transactions. The project company does not have a balance sheet to 'ride out' any late  
601 payment from its customer, and has fixed debt service obligations as well as operation and  
602 maintenance costs to meet (including staff costs).

603 11.3.3 The consequence of the utility/offtaker paying e.g. a few months (or even a few  
604 weeks) late can be default under loan documentation and/or non-payment of staff.

605 11.3.4 Put another way, project lenders (in particular) are not paid to take the risk of late payment  
606 by the utility/offtaker. Accordingly, 'liquidity support' mechanisms are often put in place to  
607 ensure timely payment to the project company in the event that the utility/offtaker does not  
608 pay on time.

609 11.3.5 Liquidity support may be in the form of a bank guarantee, letter of credit, or a cash escrow  
610 account. In many instances the bank guarantee or letter of credit provider will in turn require

611 cash collateral or a partial risk guarantee provided by a credit worthy entity such as MIGA or  
612 some regional insurers, e.g. African Trade and Insurance Agency (ATI) in ATI member  
613 countries.

614 11.3.6 Liquidity support does not protect against long-term non-payment (it would only delay the  
615 inevitable in that case). It is also often disproportionately difficult and time consuming to put  
616 in place compared to the level of comfort which it provides.

617 11.3.7 In the meantime, host Governments and utilities should test market requirements; e.g., there  
618 is at least one prominent example of project lenders accepting a cash collateral account to be  
619 funded from a tariff surcharge until fully funded; i.e., the lenders allowed the project  
620 company to take late payment risk in an early phase after COD while the cash collateral  
621 account is expected to be funded.

#### 622 11.4 **Economic Stabilization**

623 11.4.1 Economic stabilization refers to a requirement on the 'host Government side' to make the  
624 project company whole if a change in law or tax or any other interference, action or omission  
625 committed by any public authority or official causes either an increase in costs (including tax  
626 costs) or a decrease in gross revenue of the project company.

627 11.4.2 Stabilization may be achieved e.g. either via direct compensation from the host Government  
628 and/or (more usually) a tariff increase.

629 11.4.3 Economic stabilization provisions should:

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

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

637 11.4.4 Economic stabilization provisions often take form of compensation events / government risk  
638 events clauses. If such an event occurs:

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

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

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

645 (d) the private partner will be entitled to demand the early termination of the project  
646 agreement(s), if its losses exceed a certain threshold and/or material adverse effect  
647 of such event lasts more than a certain period of time. In this case, the private

648 partner will receive the same compensation as the one in case of early termination  
649 due to public partner's default.

## 650 11.5 Project Performance Standards

651 11.5.1 Appropriate performance standards and requirements (both as to attaining COD in a timely  
652 fashion, and post-COD performance) should be placed on the private sector project company.  
653 Overall, the ability to deliver across the duration of the project's lifetime should be part of the  
654 evaluation of the bidder's technical competence and often there are clear operation and  
655 maintenance standards that will ensure such performance over the lifetime of the project.

656 11.5.2 RE PPP programs should focus on attracting high quality equipment suppliers and  
657 experienced operators for their projects, and performance thresholds for availability and  
658 performance curves are advised. Minimum annual generation in PPAs are warranted where  
659 the project and/or PPA program is intended to satisfy the host government's renewable  
660 energy generation target, or toward maximizing its carbon mitigation. Where the RE source  
661 energy is intermittent, annual (or other periodic) production targets should be avoided.

## 662 11.6 End of (Natural) Term Provisions

663 11.6.1 In general terms, a host Government's principal priorities should be (in order) to ensure that:

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

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

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

670 11.6.2 It is suggested that who owns the RE generation assets (both throughout the PPP term and  
671 thereafter) is a secondary concern to the priorities set out in paragraph 11.6.1 above.

672 11.6.3 If the RE PPP project agreements are silent as to end of term transfer, and the assets do not  
673 need to be transferred back to the public, the expectation is that the interests and natural  
674 incentives of the parties will be fairly well balanced at the end of the PPA term. E.g.:

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

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

680 11.6.4 While matters will obviously depend on the circumstances in existence towards the end of the  
681 PPA term, this sets up a reasonable expectation of a fairly balanced negotiation towards the  
682 end of the initial term as to a term extension, including inter alia a reasonable expectation of  
683 a significantly reduced tariff during any extension term to reflect the fact that the original  
684 capital costs of the generation facility will have been recovered by this time.

685 11.6.5 That said, ownership is understandably an emotive issue, and there is certainly an attractive  
686 proposition that as the public sector has 'paid' for the RE generation assets via the tariff  
687 throughout the PPA term, at the end of the term the assets should be transferred to the  
688 public sector. Moreover, some national PPP and concession laws directly provide that any PPP  
689 facility (including RE generation assets) shall be transferred to the public partner upon  
690 termination of the project agreement.

691 11.6.6 If the private sector owner is required to transfer the generation facility to the public sector  
692 at the end of the PPA term; the natural incentive to maintain the generation facility toward  
693 the end of the term is lost. In that case, this natural incentive should be re-created by  
694 contractual provisions including:

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

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

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

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

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

704 11.6.7 In summary, an end-of-term transfer regime (which does not give rise to unintended adverse  
705 consequences) is fairly detailed, can be difficult and expensive to negotiate, and is expected  
706 to be fairly expensive to operate as and when the relevant provision come into effect.

707 11.6.8 It is suggested that at least for fairly small RE PPP generation facilities (e.g. below 10MW,  
708 although there is no hard and fast rule in this regard), because of the natural incentives and  
709 balance of negotiating power which are expected to exist as between the parties, in the  
710 absence of express end-of-term transfer provisions can be preferable to lengthy, fairly  
711 complex transfer provisions which are expensive both to negotiate and to operate.

## 712 12. **POWER PURCHASE AGREEMENTS - PAYMENT FOR CAPACITY**

### 713 12.1 **Standards**

714 12.1.1 Ideally, sponsors and developers should assume locational responsibility for the project and  
715 assume project availability and transmission risk, where the PPA is based on payments per  
716 unit of energy generated (kWh) as this avoids the need for the PPA to have measures for  
717 capacity payments or deemed generation –However, many EMDE countries have under-  
718 developed grid systems and are required to specify locations, in which case forms of capacity  
719 payment and deemed energy may be necessary.

720 12.1.2 It should be recognized that the private sector incurs fixed costs associated with constructing,  
721 financing and operating RE infrastructure regardless of the extent to which the public sector  
722 utilizes that infrastructure. Accordingly, payment under the PPA should be based on

- 723 availability (including 'deemed availability') not on utilization.
- 724 12.1.3 Care and expert advice should be taken in formulating 'deemed energy' and associated  
725 'excused grid unavailability' regimes.
- 726 **12.2 Compensation for Making Generation Capacity Available**
- 727 12.2.1 The private sector incurs the capital, financing and fixed O&M costs of the infrastructure  
728 developed under the RE PPP regardless of whether, or the extent to which, that infrastructure  
729 is utilized.
- 730 12.2.2 Accordingly, the public sector is required to pay for the availability of that infrastructure,  
731 regardless of whether, or the extent to which, the infrastructure is utilized.
- 732 **12.3 RE Projects**
- 733 12.3.1 In contrast to thermal projects, in most cases the principal variable cost of dispatch of an RE  
734 generation facility (other than certain biomass technologies) is 'using up' operational hours  
735 after which maintenance expenses are incurred.
- 736 12.3.2 Accordingly, at least for wind, solar and hydro technologies, the marginal cost of dispatch is  
737 treated as being de minimis, and the tariff is calculated on an 'all available energy' or 'energy  
738 plus deemed energy' model'.
- 739 **12.4 Deemed Energy**
- 740 12.4.1 'Deemed energy' is energy which the RE generation facility made available (or could have  
741 made available if dispatched) but which was not dispatched by the utility/buyer.
- 742 12.4.2 Deemed energy can be calculated either on a 'look back' or 'measured source energy' basis,  
743 or conceivably a combination of the two.
- 744 12.4.3 **Look Back:** The look back approach simply involves looking back to a period prior to the  
745 event which caused the generation facility not to be dispatched (or not dispatched at full  
746 capacity), and calculating deemed energy based on the energy which was produced during  
747 the look back period.
- 748 12.4.4 The benefit of a look back approach is that it is relatively simple to draft and easy to  
749 understand. Drawbacks include:
- 750 (a) potential lack of accuracy, in particular, wind, solar and run-of-river hydro projects all  
751 have intermittent source energy, and the available source energy during the look  
752 back period may have been materially different to the available source energy during  
753 the period of constrained (or no) dispatch (the "**Interruption Period**"); and
- 754 (b) related to the above, if the grid is experiencing repeated constraints, it may be  
755 difficult to obtain a 'clean' look back period during which the generation facility was  
756 operating uninterrupted at full capacity.
- 757 12.4.5 **Measured Source Energy:** The measured source energy approach involves:
- 758 (a) measuring the available source energy during the Interruption Period (e.g., so-called

759 'spilled water' for a run-of-river project, wind for wind project, and for solar PV both  
760 site irradiation and temperature); and

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

763 12.4.6 The measured energy approach provides accuracy (provided that the contractually agreed  
764 methodology is itself accurate), and avoids the drawbacks of the look back approach.

765 12.4.7 However, the measured energy approach depends on:

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

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

## 771 12.5 Deemed Commissioning

772 12.5.1 It is possible that the host Government and/or the buyer/utility may cause a delay to the  
773 project company attaining COD; e.g., by (a) not completing a grid upgrade which is their  
774 responsibility on time, (b) unduly delaying the grant of a requisite permit or consent, (c)  
775 failing to evacuate energy generated during testing, and/or (d) otherwise failing to participate  
776 as required in the commissioning process.

777 12.5.2 In these circumstances, the principle referred to in paragraph 7.1.1 requires the resulting lost  
778 revenue to be compensated by the host Government and/or the buyer/utility as appropriate.  
779 This may be achieved via a 'deemed commissioning' regime with deemed energy (and an  
780 obligation to pay for deemed energy) arising during the period between a deemed COD and  
781 attainment of the actual COD.

## 782 12.6 Excused Grid Unavailability

783 12.6.1 Excused grid unavailability hours are hours during which (a) a RE PPP facility is not  
784 dispatched (or not dispatched at full capacity), but (b) the offtaker is not obliged to pay  
785 deemed energy charges.

786 12.6.2 Excused grid unavailability hours are conceptually attractive to offtakers, especially where it is  
787 expected that the grid will in fact be down and/or dispatch otherwise constrained for a  
788 number of hours each year, either due to planned grid maintenance and/or upgrades or  
789 unplanned grid outages.

790 12.6.3 It should be noted however, that financiers faced with an excused grid unavailability regime  
791 may well simply input the 'worst case' (i.e., no dispatch for the maximum number of excused  
792 grid unavailability hours) into their economic model, and the project will have to pass their  
793 economic thresholds for investment on that basis.

794 12.6.4 If the grid in fact performs better than the worst case scenario, sponsors will receive more  
795 than their threshold return required for investment.



796 12.6.5 In any event, at very least the excused grid unavailability regime should provide certainty to  
797 the generation company and its financiers as to the maximum loss of revenue each year.

798 12.6.6 In situations where partial dispatch is a material possibility, if there is an excused grid  
799 unavailability regime, consideration should be given to excused MWh (or GWh) as opposed to  
800 excused hours (during with a partial or total interruption of supply occurs). In other words, if  
801 a generation facility is constrained to e.g. 50% capacity for one hour, it should be specified  
802 as to whether this counts as using up one hour or only half an hour of the excused grid  
803 unavailability threshold.

## 804 13. **POWER PURCHASE AGREEMENTS - DISPATCHABILITY**

### 805 13.1 **Standard**

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

### 809 13.2 **Developed Market Comparison**

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

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

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

### 816 13.3 **EMDE Countries**

#### 817 13.3.1 In many EMDE countries:

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

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

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

#### 824 13.3.2 In these circumstances, if and when the grid is down and/or constrained:

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

828 (b) if the off-taker has a dispatch right subject to an obligation to pay for deemed energy  
829 to the extent that it does not dispatch, then:

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

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

## 835 14. TECHNOLOGY SPECIFIC STANDARDS

### 836 14.1 Standards

837 14.1.1 It should be recognized that (a) a single PPA will not be appropriate for multiple generation  
838 technologies, and (b) if the PPA has not been tailored to a specific technology, it is unlikely to  
839 be 'bankable' for any technology.

840 14.1.2 To the extent that RE PPPs are carried out across different generation technologies, a suite of  
841 technology specific PPAs should be developed.

842 14.1.3 Environment, social and biodiversity impacts considerations should be primary evaluation  
843 criteria for all projects and in particular large hydro and bagasse/biomass as further discussed  
844 in Standard 6 above.

### 845 14.2 General Comment

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

848 (a) commissioning test procedures;

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

851 (c) the methodology for calculating deemed energy;

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

### 854 14.3 Solar PV

855 14.3.1 The output of solar PV panels depends on (a) irradiation reaching the solar PV panels, (b) the  
856 panel temperature, and (c) the age of the panels (the performance of which degrades over  
857 time).

858 14.3.2 In respect of solar PV, market practice has developed whereby project companies may be  
859 expected to guarantee prescribed performance ratios (adjusted for site irradiation and  
860 temperature as well as panel age).

861 14.3.3 In any event, as with all other technologies solar PV PPAs need to be tailored to the  
862 characteristics (and limitations) of the generation technology.

### 863 14.4 Hydro

864 14.4.1 Hydro projects may be either (a) hydro dams, which store source energy, or (b) run-of-river

865 projects which have little or no ability to store source energy.

866 14.4.2 Practical differences include, e.g. a hydro dam may be expected to provide dependable/firm  
867 capacity (except during times of low water levels), and therefore it may be appropriate for  
868 capacity charges to be payable against available capacity (which is tested/proven  
869 periodically).

870 14.4.3 The utility relying on the baseload power from a large hydro dam will also probably be more  
871 concerned about the scheduling of routine maintenance and the duration of unplanned  
872 downtime than it is about that for a small, intermittent, run-of-river plant, and the PPA may  
873 be tailored accordingly.

874 14.4.4 For the purposes of deemed energy calculations, it should be relatively simple to divert  
875 'spilled water' around the turbine(s) and to meter spilled water; however, engineering advice  
876 should be sought on this point. Also, in practice hydro engineers are able to agree a formula  
877 for converting the energy in spilled water into deemed electrical energy.

878 14.4.5 In the case of very large projects with incomplete geological or hydrological information,  
879 construction and production risks are sometimes shared with the public sector: in such case  
880 the PPA often contains tariff adjustment provisions.

881 14.4.6 The acceptability of any large-scale hydro project in particular should reflect an evaluation  
882 and balance of the of impacts with regard to SDGs 6 (water access), 7 (affordable and clean  
883 energy) and 15 (biodiversity).

884 **14.5 Wind**

885 14.5.1 As with solar and mini-hydro:

886 (a) source energy is intermittent; and

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

891 14.5.2 If a 'delivered energy plus deemed energy' model is chosen, then (a) the project will almost  
892 certainly have wind masts which can accurately measure source energy, and (b) accordingly,  
893 calculating deemed energy from measured source energy is at least a very feasible option;  
894 however, this remains subject to the preferences of the parties.

895 14.5.3 The location of wind power projects should pay critical attention to the impacts of the project  
896 with regard to SDGs 15 (biodiversity) in particular as it relates to the migration of birds.

897 **14.6 Biomass (Sugar Cane Bagasse)**

898 14.6.1 Bagasse power plants are an exception for a number of reasons, including:

899 (a) the power generation plant is likely to be intrinsically integrated into (and inseparable  
900 from) the sugar mill, both physically and operationally;

- 901 (b) the generation facility will be a co-generation plant; i.e., part for own-use, part for  
902 export to the grid;
- 903 (c) the generation facility will have ramp up and ramp down times which are much  
904 longer than some other RE technologies which can be ramped up and down very  
905 quickly;
- 906 (d) source energy is not necessarily 'free', in that it can be sold for other purposes;
- 907 (e) unlike wind, solar and run-of-river hydro, source energy can be stored, but only to a  
908 limited extent due to availability of storage facilities and degradation of the bagasse  
909 over time;
- 910 (f) depending on its geographic location, and hence the sugarcane growing season, the  
911 generation facility may not operate year-round, and in any event the generation  
912 facility will likely require significant annual downtime (e.g. 30 days) for boiler cleaning  
913 and maintenance; and
- 914 (g) in some countries the bagasse is supplemented with coal, and so is it is not a wholly  
915 RE source.

916 14.6.2 Bagasse PPAs need to be adapted to cater for the above observations, and will be  
917 significantly different in some respects even to PPAs for other forms of agricultural waste.

918 14.6.3 Also, bagasse power projects do not lend themselves to project-finance, as neither the  
919 lenders (upon exercise of security) nor the host Government (upon exercise of an early  
920 termination sale/purchase option, if there were one) can sensibly take the generation facility  
921 separately from the entire sugar mill operation of which it forms an integral part.

922 14.6.4 Accordingly, depending on how the power project is financed, the level of host Government  
923 support/obligations for a sugar cane bagasse project is likely to be significantly reduced  
924 compared to other generation technologies.

925 14.6.5 The location of bagasse power projects should pay critical attention to the impacts of the  
926 project with regard to SDGs 6 (water access), 7 (affordable and clean energy) and 15  
927 (biodiversity) and the wider land use issues.

## 928 14.7 Biomass (Agricultural Waste and Grown/Farmed Fuel)

929 14.7.1 Typically, these generation facilities will not be as intrinsically integrated into another  
930 industrial process as sugarcane bagasse generation facilities, although the developer may or  
931 may not use some or all of the power produced for 'own use'. In any event, typically biomass  
932 plants (other than sugarcane bagasse) can and often will be project financed.

933 14.7.2 Biomass generation facilities will have very different technical characteristics (which should be  
934 reflected in the applicable PPA) depending on whether the biomass is (a) burned in a boiler,  
935 or (b) gasified with the gas burned in a gas-fired generator.

936 14.7.3 Other variations applicable in particular to commercially grown fuel (e.g. trees), and to a  
937 lesser extent certain agricultural waste, is that the source energy (a) has a material cost, and

938 (b) can be stored, which is obviously the opposite to e.g. the sun, wind or a river flow which  
939 is not dammed.

940 14.7.4 The individual circumstances of the project and preferences of the parties will dictate whether  
941 a 'capacity charge plus energy charge' or 'delivered energy plus deemed energy' charge  
942 model is used; however, if the latter is used then the deemed energy charge should be at a  
943 reduced rate if and when the source energy has a material value and can be stored and used  
944 at a later date.

945 14.7.5 The location of biomass power projects should pay critical attention to the impacts of the  
946 project with regard to SDGs 6 (water access), 7 (affordable and clean energy) and 15  
947 (biodiversity) and the wider land use issues.

## 948 14.8 Geothermal

949 14.8.1 A geothermal resource differs from other energy sources in that it is both renewable and  
950 reliable. Geothermal generation facilities again utilize various different technologies  
951 depending on the nature of the source steam (or source hot water), and again very specific  
952 variations of the PPA, and often a related steam supply agreement, are required.

953 14.8.2 A geothermal power plant is normally a baseload provider of capacity in any dispatch order  
954 due to the virtually zero cost of fuel associated with it and the ability for the plant to be  
955 certain of meeting any dispatch instruction (unlike wind / solar which would be subject to  
956 the vagaries of that period of time). As a consequence, the PPA for a geothermal IPP is  
957 typically a capacity / energy PPA with all fixed costs being paid through a capacity tariff,  
958 with the small variable costs being paid for through an energy tariff linked to specific  
959 dispatch instructions.

960 14.8.3 PPAs often include off- ramp provisions that enable one or both parties to terminate the  
961 agreement without penalty (e.g. a party's inability to obtain a key agreement or permit).  
962 Termination rights require careful negotiation, and both parties will want to limit the other  
963 party's right to terminate. Furthermore, a PPA should carefully define a delivery point at  
964 which energy will be sold. The PPA may also require a seller to deliver energy to a specific  
965 point on the transmission system, in which case the seller will be responsible for obtaining  
966 transmission to the delivery point. Transmission ancillary services, which can be costly,  
967 should be specifically allocated in the PPA.

968 14.8.4 Geothermal plants differ from wind and other resources in that they may have significant  
969 station service requirements for extracting, re-injecting, processing, or otherwise using the  
970 geothermal resource. A PPA may further require a seller to guarantee that a project will  
971 meet certain performance standards. For instance, an output guarantee requires a seller to  
972 pay a buyer if the output during a specified period fails to meet a minimum level. A seller's  
973 data regarding the project's geothermal resource will be crucial in determining the right  
974 level for an output guarantee. If the resource is expected to degrade, the PPA may adjust  
975 performance standards downward during the term. If a guarantee is not met, the PPA  
976 calculates damages owed to a buyer as a result of this.

977 14.8.5 Since the cost of drilling of geothermal wells is so high<sup>10</sup>, and is susceptible to high risk of  
978 missing the specific geological formation suitable for geothermal production, this risk is  
979 often shared with the public side.

980  
981 **15. OTHER PROJECT AGREEMENTS**

982 **15.1 Standard**

983 15.1.1 The implementation of an RE PPP project or program is most effective when it is done in  
984 accordance with Standard 5 as then it ensures that there is strong political and cross ministry  
985 stakeholder support.

986 15.1.2 It should be recognised that the PPA is part of a package of documents which work together  
987 to allocate risk between RE PPP stakeholders (and which should therefore be drafted together  
988 as a package). Clear and standardized project documentation developed upfront to a high  
989 standard is critical to engender investor confidence and to attract least cost capital.

990  
991 **15.2 Recognition of Other Project Documents**

992 15.2.1 There are a number of RE PPP programmes in EMDE countries which publish a standard form  
993 PPA, sometimes together with various 'supporting cast' documents; however, these  
994 programmes do not encompass the full suite of project agreements with the host  
995 Government and offtaker/utility which are required for the purposes of project finance.

996 15.2.2 As well as the PPA, RE PPP programs should encompass host Government support  
997 agreements (which may have a variety of other names such as 'Public-Private Partnership  
998 Agreement', 'Concession Agreement', 'Investment Agreement', 'Implementation Agreement'  
999 or so on), potentially separate Grid Connection Agreements (if grid connection is not  
1000 addressed in the PPA), lenders' direct agreements, land lease contracts, the generation  
1001 license, other requisite permits and approvals, the grid code, and so on.

1002 15.2.3 The lenders, whose main security is the revenue generated by the project, are particularly  
1003 concerned about the risk of interruption or termination of the project prior to the repayment  
1004 of all loans. To avoid this risk, the lenders who are providing financing to the private partner  
1005 conclude a direct agreement with the public partner and the private partner. Under the direct  
1006 agreement, if the private partner is in breach of PPP agreement, the lenders gain the right to  
1007 select, subject to the public partner's consent, a new private partner to perform obligations  
1008 under the existing project agreements<sup>11</sup>.

1009 15.2.4 A direct agreement is recognized as one of the main contractual documents in a project<sup>12</sup>. Its  
1010 main purpose is to allow the lenders to avoid termination by the public partner when the

---

<sup>10</sup> 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.

<sup>11</sup> Paragraph 148, page 148 of the UNCITRAL Legislative Guide on Privately Financed Infrastructure Projects.

<sup>12</sup> Page 40 of the World Bank Guidelines for Successful Public-Private Partnerships.

1011 private one is in breach by substituting the private partner. The project is the basis by which  
1012 the lenders are repaid, therefore they are likely to ensure that the selected substitute private  
1013 partner has an opportunity to cure the default<sup>13</sup>. At the same time, a direct agreement  
1014 provides the public partner with an opportunity to avoid the disruption caused by terminating  
1015 the PPP agreement and PPA, thus maintaining the continuity of service.

1016 15.2.5 A direct agreement between the public partner, the private partner and the lenders should,  
1017 inter alia, specify the following: the circumstances in which the lenders are permitted to  
1018 substitute a new private partner; the procedures for its substitution; the grounds for refusal  
1019 by the public partner of a proposed substitute; and the obligations of the lenders to  
1020 construct/operate the RE facility at the same standards and on the same terms as required by  
1021 the project agreement.<sup>14</sup>

### 1022 15.3 Drafting Approach

1023 15.3.1 It is common in various EMDE countries for host Governments to require a sequential  
1024 approach to project document negotiation; e.g., initialing of the PPA is the 'trigger' for  
1025 commencement of negotiation of the PPP / Concession / Implementation / Host Government  
1026 Support Agreement.

1027 15.3.2 It is important that the project documents work together as a package and are consistent  
1028 with each other in their role of allocating risk and return between stakeholders to an RE PPP.  
1029 Accordingly, these documents should be drafted together as a package and not piecemeal or  
1030 sequentially. The main project agreement should include numerous references to PPA and  
1031 other project documents (for example, in clauses related to the support obligations of the  
1032 public partner, performance standards of the private partner, guarantees provided to the  
1033 private partner, compensation and early termination events).

1034 15.3.3 Excessive approval requirements for project documents through the regulator and / or  
1035 solicitor general can lead to substantial delays for projects if these procedures are not  
1036 managed efficiently. Redundancies and inefficiencies should be avoided.

## 1037 16. HOST GOVERNMENT SUPPORT AND FISCAL BURDEN

### 1038 16.1 Standards

1039 16.1.1 The public sector should accept risks and burdens which are allocated to it under standard  
1040 project finance principles.

1041 16.1.2 However, Host Governments should have assessed and be fully aware of the contingent  
1042 liabilities of each project and consider how to account for it.

1043 16.1.3 Specialist advice should be taken in relation to the 'early termination put and call' option  
1044 provisions, and the formulation of the 'early termination buyout prices'.

---

<sup>13</sup> Page 32 of the UNECE Guidebook on Promoting Good Governance in Public Private Partnerships.

<sup>14</sup> Paragraph 150, page 149 of the UNCITRAL Legislative Guide on Privately Financed Infrastructure Projects.

1045 **16.2 Suite of Project Agreements**

1046 Although the PPA is the cornerstone of RE PPP documentation, the PPA is part of suite of  
1047 documentation which works together to allocate risk and responsibility between RE PPP  
1048 stakeholders; i.e., even the best PPA is not a 'bankable' document without the package of  
1049 documentation which surrounds it.

1050  
1051 **16.3 Requirement for Host Government Support**

1052 16.3.1 RE PPPs in EMDE countries will almost invariably require host Government support in the  
1053 form of a contract between the host Government and the project company.

1054 16.3.2 This contract is given a variety of names in different countries, e.g. a 'PPP Agreement',  
1055 'Concession Agreement', 'Implementation Agreement', 'Government Support Agreement' etc.;  
1056 however, its principal purpose is to allocate to the host Government those project risks which  
1057 (as between the project stakeholders) the host Government is best able to manage.

1058 **16.4 Risks Typically Allocated to the Public Sector**

1059 16.4.1 Risks allocated to the host Government include change in law, change in tax, failure of  
1060 Government authorities to issue requisite permits and consents (which have been properly  
1061 applied for and diligently pursued by the project company), or provide other assistance to the  
1062 private partner, undue interference by public authorities / officials, war, civil  
1063 commotion/unrest, strikes, in some cases unforeseeable ground conditions. In countries with  
1064 weak FX spot and forward markets – the risk of currency convertibility and of macroeconomic  
1065 crisis, Projects are made viable by involving supranational Political Risk Guarantee products.

1066 16.4.2 One particular risk worth mentioning is 'grid risk'; i.e., the risk that the electricity grid is not  
1067 able to accept and/or evacuate electricity made available by the project company.

1068 16.4.3 Even when grid outages are caused by a force majeure event, project lenders in particular  
1069 will require (as a condition to the provision of finance) that this risk is allocated either to the  
1070 utility and/or to the host Government (i.e., that they should be obliged to reimburse the RE  
1071 PPP for the revenue which it would have otherwise lost), on the bases that (a) the RE PPP  
1072 cannot realistically insure against events which may be caused or occur anywhere on the  
1073 electricity grid, and (b) the utility has the dual duties of ensuring that the grid is robust in the  
1074 first place, and re-instating the grid promptly if for any reason it is knocked out of service.

1075 **16.5 Put and Call Options on Early Termination**

1076 16.5.1 Where risk events which have been allocated to the 'Government side' (i.e., the host  
1077 Government and/or a national utility offtaker) arise and are sufficiently prolonged or have  
1078 sufficiently severe effects such that an early termination of the contract arises:

- 1079 (a) the Government side will typically be required to purchase the generation facility; and  
1080 (b) the purchase price will almost certainly be one which (a) covers any termination and  
1081 transfer costs, (b) repays outstanding debt, (c) returns equity invested, and (d)  
1082 provides a return on equity.



1083 16.5.2 Conversely, where the risk event giving rise to early termination has been allocated to the  
1084 private sector, the Government side will typically have the right (but not the obligation) to  
1085 purchase the generation facility. In this case, typically the purchase price is an amount  
1086 sufficient to ensure that lenders (only) are repaid.

1087 Governments should be able to recover the cost of unmitigated environmental damages  
1088 (realized or potential) from the termination payment and / or to demand remedy of the  
1089 facilities handed over in poor condition.

1090 16.5.3 It is worth noting that if circumstances giving rise to the exercise of a 'put option' requiring  
1091 the host Government to purchase a project's assets were to arise, it very possible that those  
1092 circumstances may:

1093 (a) affect most if not all energy (RE and non-RE) PPPs in a host country (e.g. the  
1094 applicable circumstance may be a prolonged civil war); and

1095 (b) coincide with a period when the host Government is least able to pay (and many  
1096 EMDE host Governments may be unable to pay the early termination buyout price at  
1097 any time).

1098 16.5.4 A fairly wide disparity exists in current market practice as to the formulation of the early  
1099 termination buyout price formula (and resulting quantum of that price) which applies if the  
1100 host Government is obliged to buy the generation facility upon early termination.

1101 16.5.5 This is a specialist area, and one which has far reaching fiscal impacts for host Governments.  
1102 Accordingly, host Governments should take specialist advice to:

1103 (a) ensure that all relevant host Government personnel understand the surrounding  
1104 issues and risks involved (see also paragraph 17.6.4 below); and

1105 (b) ensure that contingent liabilities which crystalize upon early termination are kept to  
1106 the minimum level required for project financing.

## 1107 16.6 Fiscal Burden

1108 16.6.1 As mentioned earlier, risks allocated to the public sector (and the consequences of those risk  
1109 events arising) are particularly difficult for host Governments where the public sector has only  
1110 partial (and possibly quite limited) control.

1111 16.6.2 The fiscal burden on host Governments is immense. In some EMDE countries, it is clear that  
1112 if certain classes of events which could trigger an early-termination 'put option' and the  
1113 exercise thereof arose, this could quite plausibly bankrupt the host country.

1114 16.6.3 Already in some EMDE countries we see stand-offs developing between host Governments  
1115 resisting the fiscal burden, and project lenders (including not least DFI and MFI lenders)  
1116 requiring host Governments to take it on in order that the underlying project is 'bankable'.

1117 16.6.4 While there is no 'magic bullet', host Governments should at least:

1118 (a) address the issues surrounding fiscal burden openly with all stakeholders;

- 1119 (b) ensure that the Ministry of Finance (or equivalent), and where appropriate the  
1120 Government Cabinet (or equivalent), (i) is fully apprised of the contingent liabilities  
1121 which the host Government will take on in connection with an RE PPP, and (ii)  
1122 formally approves the Government taking on those contingent liabilities;
- 1123 (c) consider how it accounts for contingent liabilities which arise under 'put and call  
1124 option' arrangements (or explicit sovereign guarantees if these are used); and
- 1125 (d) embrace the other policy standards recommended in this document as a means of  
1126 reducing the cost of project delivery, which in turn has a direct impact on fiscal  
1127 burden.

## 1128 17. RE PPP PROJECT PROCUREMENT

### 1129 17.1 Standard

1130 17.1.1 A pro-active, yet pragmatic approach should be adopted in choosing between different  
1131 available approaches to project procurement.

1132 17.1.2 For all types of procurement, the general procurement principles of transparency, non-  
1133 discrimination and fair competition (if applicable) should be upheld as these facilitate  
1134 sustainable procurement outcomes at least cost. This being said, it has proven beneficial for  
1135 the sustainability of RE PPP programs to include other than financial parameter in the final  
1136 stage evaluation criteria.

### 1137 17.2 Introduction

1138 17.2.1 Procurement can take place on the basis of (a) ad hoc negotiations, (b) a REFIT regime, (c)  
1139 reverse auctions, (either on the basis of PPP laws or not), (d) unsolicited proposals (either on  
1140 the basis of PPP laws or not); (e) tender procedures or other procedures on the basis of PPP  
1141 laws; or (e) some combination of the foregoing.

1142 17.2.2 The optimal approach to procurement will likely depend on the (a) the underlying  
1143 circumstances of each country, (b) the generation technology in question, and (c) project size  
1144 and scope.

### 1145 17.3 *Ad hoc* Negotiation

1146 17.3.1 In many EMDE countries, the first energy (RE and non-RE) PPPs were individually negotiated  
1147 on an ad hoc basis. In some countries one or more lead projects set de facto market  
1148 standards, and in some cases over successive projects, host Governments have been able to  
1149 wind back at the margins the support provided to the initial/lead projects in their country.

1150 17.3.2 Historically ad hoc negotiations of energy (RE and non-RE) PPPs in EMDE countries have  
1151 been extremely lengthy, often last several years at least. Those negotiations were of course  
1152 extremely expensive in terms of professional time and costs, and the financiers who provided  
1153 the fully 'at risk' development capital to finance the private sector participation in those  
1154 negotiations expected to cover those development costs as well as a high return on them due  
1155 to the risks involved.

1156 17.3.3 In current market practice, ad hoc negotiations are likely to be suited to projects which are

1157 unique (such as a large regional hydropower plant), and / or which require a tailor-made  
1158 structure which would not be acceptable for a large pool of potential investors<sup>15</sup>.

1159 17.3.4 Where tariffs are negotiated (rather than prescribed under a REFIT or determined by market  
1160 price discovery via a reverse auction) tariff negotiations should take a 'regulation by contract'  
1161 approach; i.e., focus on (a) whether costs have been prudently incurred, and (b) if so, the  
1162 appropriate internal rate of return on the equity investment made in order to finance those  
1163 costs.

## 1164 17.4 REFITs

1165 17.4.1 Renewable energy feed in tariff ("REFIT") regimes typically:

1166 (a) provide for a prescribed feed in tariff (i.e., wholesale electricity tariff for sale of  
1167 electricity under the PPA between the generation company and the buyer/offtaker,  
1168 which is typically a Government owned utility) for different generation technologies  
1169 and classes of generation capacity, often also providing different tariffs for different  
1170 sizes of projects; and

1171 (b) prescribe standard form PPAs (and perhaps other project documents) and set out  
1172 standard procedures for carrying out qualifying projects.

1173 17.4.2 Among other things, REFIT regimes are:

1174 (a) an attempt to reduce the development times, costs and risks associated with RE  
1175 PPPs;

1176 (b) typically focused on 'small' RE projects; however e.g. the Kenyan REFIT regime  
1177 extends to projects of up to 50 MW (wind) and 70 MW installed capacity  
1178 (geothermal), which would be expected to easily exceed US\$100 million for certain  
1179 generation technologies; and

1180 (c) a policy response to the practical reality that, especially in relation to smaller projects,  
1181 the development times, costs and risks associated with *ad hoc* negotiations are not  
1182 sustainable for either the public or the private sector.

1183 17.4.3 One necessary consequence of a REFIT regime is that the prescribed tariff for a particular  
1184 project will almost certainly either be:

1185 (a) too high, i.e. more than what would be required in order to attract the private sector  
1186 investment required to carry out the project. In this case the project's private  
1187 investors may be thought of as being over-compensated at the expense of electricity  
1188 consumers (and/or host Governments to the extent of any subsidy of the tariff); or

---

<sup>15</sup> 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)

1189 (b) too low, i.e., less than what would be required in order to attract the capital  
1190 investment required to carry out the project, in which case certain projects which  
1191 may well be very worthy for any number of reasons will not be financed by the  
1192 private sector.

1193 17.4.4 To-date, REFIT regimes in at least several EMDE countries have not been particularly  
1194 particular successful (or in some cases not successful at all) in attracting private sector  
1195 investment to RE PPPs. This has largely been due to issues with the REFIT regime design  
1196 rather than the prescribed tariffs, e.g. it may be that:

1197 (a) the REFIT PPA does not provide sufficient certainty as to the future income stream,  
1198 and is therefore not considered to be 'bankable';

1199 (b) the REFIT documentation is incomplete for the purposes of 'bankability. In particular,  
1200 in some cases only a standard form PPA is provided, whereas project finance typically  
1201 requires a complete suite of project documentation including also an agreement with  
1202 the host Government and direct agreements between the project lenders and (i) the  
1203 buyer/offtaker under the PPA in respect of the PPA, and (ii) the host Government in  
1204 respect of the Government support agreement; and/or

1205 (c) the surrounding regime for carrying out an RE PPP is either unclear and/or uncertain.

1206 17.4.5 In current market practice, REFITs are likely to be suited to RE projects:

1207 (a) which are too small to justify bespoke negotiations or procurement processes;

1208 (b) where the benefit of certainty outweighs (i) the cost of some projects being over-  
1209 compensated, and (ii) the risk that other projects will not be carried out as the REFIT  
1210 tariff is too low for those particular projects; and

1211 (c) where the generation technology and costs associated with it are well established and  
1212 fairly stable, e.g. not in the case of solar PV over recent years, where reverse  
1213 auctions have discovered rapidly reducing costs.

## 1214 17.5 Reverse Auctions

1215 17.5.1 Reverse auctions are procurement processes pursuant to which a procuring entity tenders for  
1216 bids to carry out RE PPP projects. Typically, the bidding process has two phases:

1217 (a) a first phase pursuant to which a short list of bidders may qualify based on technical  
1218 and financial competence criteria; and

1219 (b) a second (final) phase during which shortlisted bidders compete on a variety of  
1220 criteria; however, as shortlisted bidders have already pre-qualified as being  
1221 technically and financially competent, the lowest price will typically carry a very high  
1222 weight in the scoring process. I.e., typically 'lowest price wins'.

1223 17.5.2 Common features of RE PPP reverse auctions to-date have been:

1224 (a) they have allowed up-to-date price discovery in the market, ensuring that RE PPPs

1225 are carried out by financially and technically competent private sector participants at  
1226 the lowest available price in the market at the time of carrying out the reverse  
1227 auction process, i.e., they allow real-time price discovery in the market;

1228 (b) they have relied on providing bidders with a highly developed and bankable suite of  
1229 project documentation against which to bid; and

1230 (c) they have proven to be particularly successful in relation to solar PV, where fast  
1231 moving improvements in the generation technology coupled with reductions in  
1232 technology costs have been reflected directly in the winning tariffs.

1233 **17.5.3 Reverse auctions may occur:**

1234 (a) on the basis of general procurement laws (plus, if applicable, special RE procurement  
1235 requirements); or

1236 (b) on the basis of PPP laws. Generally, PPP (or concession) laws also provide that a two-  
1237 stage tender shall be held in most cases for the determination of winning bidder (the  
1238 private partner).

1239 **17.5.4 Two particular features of reverse auction processes worth mentioning are site selection and**  
1240 **the impact of technical and financial competence criteria.**

1241 **17.5.5 Site Selection:** In relation to site selection, reverse auctions may either:

1242 (a) have the public sector choose sites(s) in advance, with the private sector bidding to  
1243 carry out the project at a given site;

1244 (b) ask the private sector to nominate sites; or

1245 (c) as a hybrid between the two options, the public sector may nominate priority areas  
1246 for RE (or a particular RE technology), and the private sector is then given the task of  
1247 identifying and acquiring specific sites.

1248 **17.5.6 The benefits of advance site selection by the public sector include:**

1249 (a) the public sector, in particular the electricity utility, may select exactly the site(s)  
1250 where it wants particular projects to be carried out, taking into account availability of  
1251 source energy, locations of load centres, grid constraints, intermittency of RE, etc.;  
1252 and

1253 (b) project development costs and risks are significantly reduced for the private sector,  
1254 and this may reasonably be expected to be reflected in bid tariffs.

1255 **17.5.7 Disadvantages of advance site selection by the public sector include that it:**

1256 (a) requires the public sector to incur up-front site selection and acquisition costs; and

1257 (b) does not take advantage of private sector knowledge of, and enterprise in finding,  
1258 available source energy and potential sites.

1259 17.5.8 **Technical and Financial Competence Criteria:** Reverse auctions require a process to  
1260 ensure that 'too good to be true' bids from bidders which lack the financial and/or technical  
1261 competence required to see projects through to COD are weeded out.

1262 17.5.9 This is achieved either by:

1263 (a) a two stage process, where the first stage is a process under which a shortlist of  
1264 bidders is chosen against nominated and objective (or 'arbitrary') financial and  
1265 technical competence criteria, e.g. a balance sheet of at least X, and experience of  
1266 carrying out at least Y similar projects; and/or

1267 (b) giving a relatively high weight to technical and financial competence criteria in a  
1268 single stage scoring process.

1269 17.5.10 Issues which can arise include:

1270 (a) smaller and/or less experienced bidders who are nonetheless credible are excluded  
1271 for failure to meet one or more arbitrary criteria; and

1272 (b) there can be an inherent and self-perpetuating bias in favour of large incumbent  
1273 players, as e.g. smaller and/or newer market participants who don't meet a 'prior  
1274 experience' criterion are precluded from gaining the experience required to meet a  
1275 similar criterion on future rounds.

1276 17.5.11 Notwithstanding the above, reverse auctions are likely to be particularly suited to:

1277 (a) solar PV generation technology; and

1278 (b) known large projects, e.g. a particular hydro dam or a particular large run-of-river  
1279 hydro project.

## 1280 18. **IMPACT OF PPP LAWS**

### 1281 18.1 **Standards**

1282 18.1.1 In implementation of RE-PPP Standards, Governments should consider including RE specific  
1283 provisions in any existing PPP (concession) legislation.

1284 18.1.2 Avoid suppression of private sector interest in early stage project promotion of RE projects.

### 1285 18.2 **Introduction of PPP Laws**

1286 18.2.1 A number of EMDE countries have introduced Public-Private Partnership Acts in recent years.  
1287 For present purposes, these typically:

1288 (a) differentiate between solicited and un-solicited PPP proposals;

1289 (b) prescribe a process for soliciting PPP proposals; and

1290 (c) prescribe a process for ensuring that unsolicited bids are in the public sector's best  
1291 interest, e.g. by introducing a 'Swiss challenge system' of seeking competing bids.

- 1292 **18.3 Necessity of PPP Laws**
- 1293 The existence of PPP legislation is not considered to be a necessary factor in the success of
- 1294 RE PPP development. Instead, the important factor is the existence of a clear and well
- 1295 thought out enabling framework, which does not impede or prevent RE PPP development.
- 1296
- 1297 **18.4 Treatment of Unsolicited Bids (Proposals)**
- 1298 18.4.1 Sometimes with exceptions or caveats, PPP laws can require unsolicited PPP proposals to be
- 1299 advertised for the purposes of seeking competing proposals (or to be submitted to the
- 1300 process for soliciting PPP proposals). For example:
- 1301 18.4.2 In order to submit a meaningful unsolicited proposal for an RE PPP, a private sector party will
- 1302 typically incur very significant fully 'at risk' development costs including the preparation of
- 1303 pre-feasibility studies and possibly a full feasibility study. The work required to submit the
- 1304 proposal can of course be replicated, so to paraphrase the UNCITRAL model law, "the project
- 1305 **can** be achieved without the use of intellectual property ... owned or possessed by the
- 1306 proponent" (**emphasis added**); however, it would take any competing bidder significant
- 1307 time and expense to replicate that intellectual property.
- 1308 18.4.3 This gives rise to practical issues in that, in order to submit a meaningful counter-proposal,
- 1309 competing parties will need to either (i) have the time and incur the expense to carry out
- 1310 their own feasibility studies etc., or (ii) have access to (and legal reliance upon) the original
- 1311 party's proprietary feasibility studies.
- 1312 18.4.4 These laws can impose a deterrent to private sector parties initiating project proposals.
- 1313 18.4.5 This deterrent can be minimized with respect to some generation technologies, in particular
- 1314 solar PV, if the public sector defines areas, and ideally specific sites, where generation is pre-
- 1315 approved for addition to the grid.
- 1316 18.4.6 The recommendation for jurisdictions where there are no incentives for private initiators of
- 1317 PPPs or where such incentives are insufficient is to amend the PPP laws or enabling
- 1318 framework for RE PPPs accordingly. Such incentives may include the following:
- 1319 (a) if the project initiator does not win the ensuing tender, the winning bidder / public
- 1320 partner shall remunerate the project initiator in full or in certain part for its expenses
- 1321 in connection with project preparation;
- 1322 (b) the project initiator shall not be obliged to provide security for its bid in case of the
- 1323 ensuing tender;
- 1324 (c) Swiss challenge: if another entity becomes the winning bidder, the project initiator
- 1325 may match the winning bid and enter into the project agreement;
- 1326 (d) bid bonus: an additional percentage may be added to the evaluation score of the
- 1327 project initiator; and/or
- 1328 (e) best and final offer (BAFO): the initiator may pass to the final stage of tender
- 1329 automatically.
-

- 1330 **18.5 Conclusion**
- 1331 18.5.1 A host Governments should at least make clear whether an IPP falls into the scope of PPP /
- 1332 concession law, or otherwise if a specific RE enabling framework shall apply.
- 1333 18.5.2 If (a) an IPP is a PPP for the purposes of PPP law, and (b) the PPP law requires unsolicited
- 1334 bids to be advertised, then either (i) the requirements for the underlying proposal should be
- 1335 limited, and thus not expensive for the original bidder, or (ii) mechanisms should be
- 1336 developed to fully compensate the original bidder for its time and effort in early project
- 1337 identification, development and promotion should it lose the project to a competing bidder,
- 1338 and ideally provide the original bidder with other incentives mentioned above.
- 1339
- 1340 **19. MARKET INNOVATIONS**
- 1341 **19.1 Standard**
- 1342 *Innovations in the RE PPP market should be sought out and embraced.*
- 1343
- 1344 **19.2 Limitations of Existing Project and Project Finance Structures**
- 1345 19.2.1 To say that getting RE PPPs in EMDE countries to financial close is hard work is usually a
- 1346 gross understatement. In other words, the project structures employed in the market today
- 1347 are only the best available as the market hasn't yet devised better ones!
- 1348 19.2.2 Change should be embraced, especially for smaller projects where the overhead costs of
- 1349 implementing existing structures can be crushing.
- 1350



1351 20. **RESOURCES**

- 1352
- Survey conducted by the UNECE RE PPP team in early 2016
- 1353
- The "*PPP Certification Program Guide*" published by the World Bank Group 2016 and part
- 1354 of the APMG PPP Certification Program. The APMG PPP Certification Program is an
- 1355 innovation of the Asian Development Bank (ADB), the European Bank for Reconstruction
- 1356 and Development (EBRD), the Inter-American Development Bank through its Multilateral
- 1357 Investment Fund (IADB through its MIF), the Islamic Development Bank (IsDB) and the
- 1358 World Bank Group (WBG) funded by the Public-Private Infrastructure Advisory Facility
- 1359 (PPIAF).

1360

  - The "*Understanding Power Purchase Agreements*" Handbook funded by Power Africa and

1361 developed by the African Legal Support Facility and the U.S. Department of Commerce

1362 Commercial Law Development Program may be downloaded free here:

1363 <http://cldp.doc.gov/programs/cldp-in-action/details/1378>.

1364

  - The "*Understanding Power Project Finance*" Handbook funded by Power Africa and

1365 developed by the African Legal Support Facility and the U.S. Department of Commerce

1366 Commercial Law Development Program may be downloaded free here:

1367 <http://cldp.doc.gov/programs/cldp-in-action/details/1603>

1368

  - "*Building Public-Private Partnerships for Climate-Friendly Investment in Africa*" by UNECA

1369 (2012)

1370

  - "*Independent Power Projects in Sub-Saharan Africa: Lessons from Five Key Countries*" by

1371 Eberhard, Anton, Katharine Gratwick, Elvira Morella, and Pedro Antmann (World Bank

1372 2016)

1373

  - "*Attracting Investors to African Public-Private Partnerships: A project preparation guide*"

1374 commissioned by the Infrastructure Consortium for Africa (ICA) and funded by a grant

1375 from the Public-Private Infrastructure Advisory Facility (PPIAF) (World Bank 2009)

1376

  - "*Public-Private Partnership (PPP) Handbook*" (Asian Development Bank 2008)

1377