

Reply to the Queries of Pre-bid meeting for Tender no PGL/PGL/2021-22/82 Dated: 27/12/2021

Project: PED4 4 Nos. x 4 MWp CAPACITY EACH SPV POWER PLANTS

Company Name: PES Engineers Pvt. Ltd.				
Sr. No.	Clause No	Existing Clause	Queries by the Companies	Addition/Deletion/Amendment/Clarifications
1	SECTION II ITB- 15.3	The earnest money is required to be deposited in the following manner: i) Rs. 40 Lakhs through e-banking or e-payment mode. ii) Balance Rs. 1.20 Crore in the form of Bank Guarantee i.e. digitally signed or hard copy of the BG should be handed over after submission of online bid on e-tendering portal not beyond 2 days but before opening date and time of techno-commercial e-bids.	Request that the entire EMD of Rs.1.6 crore may be deposited by way of bank guarantee.	Not Accepted.
2	SECTION II ITB- 31.2	Signing of Contract & Performance Bank Guarantee: The successful Bidder/ Supplier's within 15 days after the receipt of Work Order shall furnish Performance Bank Guarantee to the Purchaser for an amount of 10% of the contract value, excluding annual maintenance costs valid up to 60 days after the date of completion of performance obligations including warranty obligations and 5 years operation and maintenance contract period.	Generally, O&M contract is given as a separate contract and the performance guarantee during that period is not linked with main contract performance guarantee. For the O&M contract a separate performance BG at 10% value of O&M contract value is required.	The clause supersedes the existing clause as under: The successful Bidder/ Supplier's within 15 days after the receipt of Work Order shall furnish Performance Bank Guarantee to the Purchaser for an amount of 10% of the contract value, excluding annual maintenance costs valid up to 60 days after the date of completion of Performance Obligation and 5 years operation and maintenance period.
3	SECTION II ITB- 32.2	Completion Period & Penalty for Delay: In the event of delay in the supply and /or installation & commissioning, specified above, the bidder shall be liable to pay a penalty @ 1% value of contract for every week of delay subject to a maximum of 5% value. If the projects are not commissioned within 13 months of signing of contract, PGL shall be at liberty to cancel the work order/ contract. For the purpose of this clause, part of a week shall be considered to be a full week.	Completion Period & Penalty for Delay: In the event of delay in the supply and /or installation & commissioning, specified above, the bidder shall be liable to pay a penalty @ 0.5% value of contract for every week of delay subject to a maximum of 5% value. If the projects are not commissioned within 13 months of signing of contract, PGL shall be at liberty to cancel the work order/ contract. For the purpose of this clause, part of a	Not Accepted. However, this clause is further amended as under: "In the event of delay in the supply and /or installation & commissioning, specified above, the bidder shall be liable to pay a penalty @ 1% value of contract for every week of delay in achieving project milestones as specified under Section VI (SOR) Part-III subject to a maximum of 5% value. If the projects are not commissioned within 11 months of signing of contract, subject to clause 32.4 below, PGL shall be at liberty to cancel the work order/

			week shall be considered to be a full week.	contract. For the purpose of this clause, part of a week shall be considered to be a full week”.
4	SECTION II ITB- 32.4	<p>Completion Period & Penalty for Delay:</p> <p>If the projects are not commissioned or commissioned partly within 13 months of signing of contract, the contract for the un-commissioned capacity will stand cancelled and the capacity commissioned will be the contracted capacity. The successful bidder will have to refund all the costs for the un-commissioned capacity already released but remaining un-recovered after encashment of PBG and other guarantees as available, within 1 month. PGL will charge interest @ SBI MCLR rate as prevailing + 4% for the unpaid amount on day to day basis.</p>	<p>Completion Period & Penalty for Delay:</p> <p>Please ask the client to clarify how the material already supplied but not commissioned will be treated. Also, the interest rate specified in the same clause (SBI MCLR rate as prevailing + 4%) is abnormally high.</p>	<p>Subject to amendment in ITB clause 32.2, the ITB clause 32.4 is amended as under:</p> <p>“If the 4 MW capacity project is commissioned partly (i.e. minimum 2 MW) within 11 months of signing of contract, the contract for the un-commissioned capacity will stand cancelled and the capacity commissioned over and above 2 MW will be the contracted capacity.</p> <p>In any case, the commissioned capacity shall not be less than 2 MW. However, PGL may accept the capacity over and above 2 MW only after imposition of penalty @ Rs. 2.75 on the shortfall in generation to be calculated as specified at Section -IX, Clause 10.8 a) due to non-commissioning plus Rs. 2000/- per day per MW plus applicable GST upto 13 months.</p> <p>Further, PGL shall forfeit the Performance BG at the end of 13th month for the un-commissioned capacity and shall also retain the complete equipment delivered over and above the commissioned capacity if any on which 70% payment has been released against delivery of equipment and the remaining capacity for which equipment is delivered shall be property of PGL.</p>
5	Sec-VII TS -1.2	Technical Requirements	Tender specification calls for Monocrystalline PERC modules, completing with i) Vendor listed in O.M. dated 10.03.2021 issued by MNRE and ii) MNRE order no. 283/22/2019-grid solar dated 23rd Sep' 2020 for the public procurement (preference to Make in	Not Accepted.

			India). As far as we are aware, only one manufacturer meets this requirement. This will result in monopoly, hence there is no guarantee on deliveries meeting the project schedules. In view of the above we requested you to allow use of Poly-Crystalline modules.	
6	Sec-VII TS -1.3	<p>1.3 Component Specifications:</p> <p>1.3.1 The PV Modules glass panel shall be:</p> <ul style="list-style-type: none"> i) Glass-glass Modules, with minimum of 3.2 mm glass thickness. It shall be laminated using a laminator with symmetrical structure, i.e. heating plates on both sides. ii) The glass used shall have transmittance of above 94%. 	<p>The tender also calls for glass-glass (double glass) modules which is generally not recommended for ground mount projects. This will result in at least 15-20% increase in the module price. Availability of glass-glass modules is also a concern. Also, it is advised to avoid glass to glass requirement.</p>	<p>Accepted.</p> <p>The below sentence from clause 1.3.1 i) is deleted.</p> <p>“The requirement of glass-glass modules--“ appearing in clause 1.3.1 (i) is deleted.</p>

7	Sec-VII TS -1.4	<p>1.4 Warranty</p> <p>1.4.1 PV modules must be warranted with linear degradation rate of power output except for first year (maximum 0.6% including Light Induced Degradation (LID)) and shall guarantee 85% of the initial rated power output at the end of 25 years.</p> <p>1.4.2 The modules shall be warranted for minimum of 12 years against all material/ manufacturing defects and workmanship.</p> <p>1.4.3 The above warranties shall be backed by third party insurance.</p>	<p>1.4.1 The linear degradation of power output from the module is specified as 0.6% (Except for first year) and shall guarantee 85% of the initial rated power output at the end of 25 years. No module manufacturer in India is providing such warranty. This is practically impossible to achieve.</p> <p>1.4.2 The modules shall be warranted for minimum of 12 years against all material/ manufacturing defects and workmanship - Most of the manufacturers are providing only 10 years.</p> <p>1.4.3 The above warranties shall be backed by third party insurance - No third party agency is willing to provide such backup warranties.</p>	<p>The TS clause 1.4.1 is amended as under:</p> <p>1.4.1 PV modules must be warranted with linear degradation rate of power output except for first year (maximum 0.6% including Light Induced Degradation (LID)) and shall guarantee 80% of the initial rated power output at the end of 25 years.</p> <p>1.4.2 It is clarified that most of the module manufacturers are providing warranty of 12 years. Therefore, the existing clause of the DNIT shall prevail.</p> <p>1.4.3 Not accepted.</p> <p>The existing clause 1.4.3 shall prevail.</p>
8	Sec-IX 10.8, (a)	<p>10.8 Right to Contracted Capacity & Energy:</p> <p>a) The O&M Contractor shall maintain generation so as to achieve annual CUF between 20% to 21% (7.0128 to 7.36344 Million kWh (MU)) on the contracted capacity of 4MWp (AC) for the first year of the contract. Thereafter from 2nd year onward a degradation factor of up to 0.6% per year is permissible every year upto 5th Year (i.e. uptill O&M period). It shall be the responsibility of the contractor, entirely at its cost <u>and</u> expense to install/ replace such number of Solar Panels and associated infrastructure (like project control equipment, structure etc) if any as may be necessary to achieve the required yearly CUF and for this purpose contractor shall make its own study and investigation of the Global Horizontal</p>	<p>10.8 Right to Contracted Capacity & Energy:</p> <p>The following clause be added in Tender Specifications Following factors shall be considered while computing the “Guaranteed Net Energy Export” i) Actual insolation level at the respective project site shall be considered while computing the Guaranteed net energy export. However, effect due to variation of metrological parameters viz., ambient temperature, wind speed, humidity etc., shall not be considered.</p>	<p>Not accepted.</p> <p>Also see Additional Amendments at Sr. No. 1 below.</p>

		Irradiance (GHI) and other factors prevalent in the area which have implication on the quantum of generation.	The formula for generation correction with actual insolation level shall be attached as Annexure to the tender document, sample format is enclosed for reference.	
9	Annexure-III Page No: 150-153	Location of Projects	The plant layouts shared in the tender specification are not clear. Please ask the client to provide the same with clear identification of boundary lines.	Drawings are very much clear. However, the same are again re-loaded separately on website.
10	Section - IV (GCC), 16.1 (A), (i)	Advance Payment: Twenty (20%) of contract price (without GST) against Advance Bank Guarantee of 110% amount of advance will be paid after acceptance of work order and submission of performance bank guarantee by the contractor.	The format for Advance bank guarantee says that the advance payment will be interest bearing but the interest rate is not defined in the tender document. We request interest free advance. Please note that PSU's like NTPC, NHPC, NLC do not charge interest on mobilization advance as more than 80% of the project cost in solar plant is supplies. In rare cases where interest is charged, 'interest will be at the Base Rate of State Bank of India'.	It is clarified that BG is 110% of the advance amount. Therefore, existing clause shall prevail.
11	Section - IV (GCC) 16.1 (A), (ii)	On Delivery: Seventy (70%) of the contract value (including GST on actual basis) against delivery of goods/material at site after adjustment of 20% mobilization advance. Bank Guarantees for advance payment shall be released not later than 30 days after delivery of the complete goods at their final destination.	Seventy (70%) of the total amount of supplied materials as per the Schedule of rates shall be paid on pro-rata basis against delivery of goods/material at site after adjustment of 20% mobilization advance. Bank Guarantees for advance payment shall be released not later than 30 days after delivery of the complete goods at their final destination.	Existing clause is amended as under: - On Delivery: Seventy (70%) of the contract value (including GST on actual basis) against delivery of goods/material at site after adjustment of 20% mobilization advance on pro-rata basis for the corresponding consignment for goods/material after delivery at final destination with due acceptance of PGL. Bank Guarantees for advance payment shall be released not later than 30 days after delivery of the consignment for goods/material after delivery at their final destination with due acceptance of PGL.

12	Section- IV, Clause 16.1 (A), (iii) of GCC	On Final Acceptance: 90% of contract value of respective plant on commissioning including submission of GTP and other test reports after adjusting the earlier payments.	<p>On installation: 80% of contract value on completion of installation on pro-rata basis after adjusting the earlier payments.</p> <p>On Commissioning: 90% of contract value of respective plant on commissioning including submission of GTP and other test reports after adjusting the earlier payments.</p>	<p>The suggestion of the company is not accepted.</p> <p>However, the existing clause is further amended as under:</p> <p>On Final Acceptance: 90% of contract value of respective plant on commissioning including submission and acceptance of GTP and other test reports by PGL after adjusting the earlier payments.</p>
13	Section IV, Clause 16.1 (A), (iv) of GCC	100% of contract value of respective plant after completion of 12 months of successful operation of each plant after adjusting the earlier payments. However, the bidder may claim the balance payment on submission of Bank Guarantee of equivalent amount valid for a period of 12 months .	As performance bank guarantee equivalent to 10% of the contract value is being furnished, releasing this payment after 12 months of successful operation would result in 20% of the contract value being held towards performance amount for the said period.	<p>The clause is amended as under:</p> <p>“100% of contract value of respective plant after completion of 3 months from submission and acceptance of GTP including commissioning of each plant after adjusting the earlier payments. However, the bidder may claim the balance payment on submission of Bank Guarantee of equivalent amount valid for a period of 3 months.”</p>
14	--	O&M Scope	It is requested that as the O&M Contract shall be given as a separate contract.	<p>Accepted.</p> <p>O&M Contract will be signed separately.</p>
Company Name:- Green Energy and Organics				
15	--	Consortium should be allowed as it will open the doors for more companies to be participate in this field		Not accepted.
16	--	As per the tender the total cost of all 4 projects of 16 MW is 80 crore. As per the CVC guidelines rules the total turnover of a company should be 30% of the total amount of the project.		<p>Bid document nowhere specifies the total cost of the project.</p> <p>CVC guidelines no. 12-02-1-CTE-6 dt. 17.12.2002 at S.No. 5 A) indicates at least 30% of the estimated cost with other conditions such as experience fulfillment etc. Minimum 30% turnover is required. Also, the “Manual for Procurement of works 2019” issued by MoF, Deptt. of Expenditure, GOI provides that “at least 50% of turnover is required with other conditions such as experience fulfillment etc.</p>

				however, there is no cap on maximum turnover. Therefore, the query is not accepted.
17		There is a total sum of 16 MW in 4 different projects. The company requested to bifurcate these projects as 4 MW.		Not accepted.
18		In this project the tender condition is to make sure for the Mono-PERC DCR panels. According to the longitude / latitude and the geographical condition of the area, the production of monoperc and polycrystalline solar panel is the totally same.		It is clarified that Mono-PERC modules are latest, more efficient and require less space and will also reduce infra cost. On the other hand various companies have started manufacturing Mono-PERC modules. The MNRE, vide GOI office memorandum F.No. 283/54/2018/GRID SOLAR-Part (1) dt. 30.12.2021 has updated the ALMM List which clearly indicates that there are various manufacturers of Monocrystalline PERC modules. Therefore, the advanced technology of modules is selected and the suggestion is not accepted.
Company- Mittal Machines (P) Ltd.				
19	Section-II, ITB, Clause 15.1- "Earnest Money"	15.1 The Bidder shall furnish, as part of its bid, earnest money amount of Rs. 1.6 Crores (Rs. One Crore and Sixty Lakh Only).	As per current conditions since covid conditions are pre-valent and on rise again, the major PSU are either asking for undertaking for Bid Security Declaration or reduce to 80 lacs in form of BG due to large value of estimated cost.	Not accepted.
20	Section-II, ITB, Clause 15.3- "Earnest Money"	15.3 The earnest money is required to be deposited in the following manner: i) Rs. 40 Lakhs through e-banking or e-payment mode. ii) Balance Rs. 1.20 Crore in the form of Bank Guarantee i.e. digitally signed or hard copy of the BG should be handed over after submission of online bid on e-tendering portal not beyond 2 days but before opening date and time of techno-commercial ebids.	The BG is a good as cash for department so in large value tenders BG is equally accepted.	Not accepted.
21	Appendix-A Qualification Requirements	Qualification Requirements 1. The bidder should be a manufactured/System integrator, who has designed, manufactured, tested supplied, erected, commissioned MW Scale Solar PV Project(s) anywhere in India:- a) 1 Single Project of 16 MW capacity, OR b) 2 Projects of 8 MW capacity each, OR	As these are 4 different locations of 4 MW each, qualification shall be on basis of 4 MW. As per CVC Guidelines the experience in terms of QTY should be asked for 50% of the capacity, however	CVC guidelines no. 12-02-1-CTE-6 dt. 17.12.2002 at S.No. 5 A) indicates at least 30% of the estimated cost with other conditions such as experience fulfilment etc. Minimum 30% turnover is required. Also, the "Manual for Procurement of works 2019"

		c) 4 Projects of 4 MW capacity each along with operation and maintenance of solar PV projects of aggregate 8 MW capacity or more for minimum 2 years, in any of the last three years and which is/are in successful operation on the date of bid opening (The Bidder should meet the qualification criteria for setting up of the project as well as O&M as mentioned above).	cumulative experience of 80% may be asked. So it is requested to amend the conditions as: "Cumulative Capacity more than 13.2 MW With atleast one plant of more than 2 MW under successful operation for 6 months at least."	issued by MoF, Deptt. of Expenditure, GOI provides that " at least 50% of turnover is required with other conditions such as experience fulfillment etc. however, there is no cap on maximum turnover. Therefore, the query is not accepted.
22	Appendix- A "Qualification Requirements"	Net worth: Rs. 200 crore (INR), during any one of the last three years' audited annual accounts.	It seems wrong Net worth is mentioned. Generally Net worth is to be 15% Of the Total Project Value 80 Cr X 15%= 12 Cr be amended.	Not Accepted.
23	Appendix- A "Qualification Requirements"	Annual Turnover: Rs. 80 crore (INR), during any one of the last three years' audited annual accounts.	Since the project period is 10 months, so relatively considering the 50% of the turnover requirements it should be $(80 \times 10 / 12) / 2$ say 50 Crores approx, Plz amend accordingly.	Not Accepted.
24	Section-IV, Clause 7- "Performance Bank Guarantee", Sub-clause 7.1	7.1 Within 15 days after the successful Bidder/ Supplier's receipt of Work Order, the Bidder/ Supplier shall furnish Performance Bank Guarantee to the Purchaser for an amount of 10% of the contract value, excluding annual maintenance costs valid upto 60 days after the date of completion of performance obligations including warranty obligations and 5 years operation and maintenance contract period.	As per latest guidelines:.... Kindly allow 3% PBG.	Not Accepted.
25	--	BCD/Custom Duty/Tax	The impact of any change in GST/BCD/CD/ADD be allowed under change in law and developer may be compensated as per actual impact.	Change in GST is only accepted. However, all other clause shall remain same. A note below the SOR is provided for the same. Refer S.No.4 of Additional amendments below.
26	--	JV Clause.	Solar business has been in rise during last 6-7 years and most of the companies take over project with financial partners or manufacture may wish to participate in JV with EPC company. So it is requested JV of at least 2 firms be allowed for better participation.	Not accepted.

27	--	Electrical License	Since the work of solar is completely of electrical nature and as per electrical safety act the clause of Electrical License seems to be missing.	This is a turnkey project, therefore all approvals w.r.t installation & commissioning of Solar PV plant including clearance of CEI, Punjab as applicable are to be taken by the successful bidder.
28	--	Under Schedule of requirement define DC capacity	Define DC capacity to achieve the 20 % CUF	The bid is CUF based. Therefore, the bidder is required to calculate the DC capacity required to achieve the CUF.
Company- Fujiyama Power Systems Pvt. Ltd.				
29	--		We request you to kindly allow the consortium/JV of 2 or more companies to participate in the tender as the expertise of 2 companies can lead to better results and will also allow companies that have funds but not technical expertise to participate in the tender and vice versa.	Not Accepted.
	Section-V Special "Conditions of the Contract"	Sr. No. C. "Regarding ALMM"	ALMM Approved Panels: As mentioned in the SCC, serial no. C of the tender documents that only ALMM approved modules are to be used for this project. In this case, we would like to request you to kindly allow the other modules/Panels to be used as only limited Panel companies are registered in the ALMM list yet for Mono Perc Modules as enlistment in the ALMM list is taking more than 6-8 months and some of the good manufactures are still not enlisted in ALMM. Apart from these the imported panels have better efficiency and output in comparison to the Indian version at less cost. We request you keep BIS registered module as the condition for this so that more and	Not accepted.

			more manufacturers can be involved to bring competitiveness.	
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Additional Amendments: -

S. No.	Section and Clause No.	Existing Clause of Tender	Amendments/deletions
1.	Section – IX, “Scope of Operation & Maintenance of Power Plant” Clause 10.8, Sub Clause 10.8 (a).	<p>a)The O&M Contractor shall maintain generation so as to achieve annual CUF between 20% to 21% (7.0128 to 7.36344 Million kWh (MU)) on the contracted capacity of 4MWp (AC) for the first year of the contract. Thereafter from 2nd year onward a degradation factor of up to 0.6% per year is permissible every year upto 5th Year (i.e. uptill O&M period). It shall be the responsibility of the contractor, entirely at its cost <u>and</u> expense to install/ replace such number of Solar Panels and associated infrastructure (like project control equipment, structure etc.) if any as may be necessary to achieve the required yearly CUF and for this purpose contractor shall make its own study and investigation of the Global Horizontal Irradiance (GHI) and other factors prevalent in the area which have implication on the quantum of generation. The yearly degradation allowed to the Contractor is tabulated as under:-</p>	<p>The clause is amended as under:</p> <p>a) The O&M Contractor shall maintain generation so as to achieve annual CUF between 20.674% to 21% (7.319 to 7.36344 Million kWh (MU)) on the contracted capacity of 4MWp (AC) for the first year of the contract. Thereafter from 2nd year onward a linear degradation factor of up to 0.6% per year is permissible every year upto 5th Year (i.e. uptill O&M period). It shall be the responsibility of the contractor, entirely at its cost <u>and</u> expense to install/ replace such number of Solar Panels and associated infrastructure (like project control equipment, structure etc.) if any as may be necessary to achieve the required yearly CUF and for this purpose contractor shall make its own study and investigation of the Global Horizontal Irradiance (GHI) and other factors prevalent in the area which have implication on the quantum of generation. The yearly degradation allowed to the Contractor is tabulated as under:-</p>

Year	% Degradation Allowed	CUF Required (%)	MUs to be Generated by the Contractor
1 st	Nil	Between 20% to 21%	7.0128 MU to 7.3634 MU
2 nd	0.6%	not less than 19.4%	not less than 6.8024 MU
3 rd	0.6%	not less than 18.8%	not less than 6.5920 MU
4 th	0.6%	not less than 18.2%	not less than 6.3816 MU
5 th	0.6%	not less than 17.6%	not less than 6.1713 MU

The yearly upper ceiling of generation will be 7.3636 MUs

While working out the CUF of any year during the contract period, the generation loss due to clauses 10.9.1 and 10.9.2 below shall be permitted to be pass through and added to the actual generation. Thus CUF worked out on the basis of actual plus pass through generation will be considered as the CUF of the plant for that year subject to ceiling of 21%.

Year	% Degradation Allowed	CUF Required (%)	MUs to be Generated by the Contractor
1 st	Nil	Between 20.5% to 21%	7.1881 MU to 7.3634 MU
2 nd	0.6%	not less than 20.874%	not less than 7.319 MU
3 rd	0.6%	not less than 20.748%	not less than 7.275 MU
4 th	0.6%	not less than 20.622%	not less than 7.230 MU
5 th	0.6%	not less than 20.496%	not less than 7.186 MU

The yearly upper ceiling of generation will be 7.3634 MUs

While working out the CUF of any year during the contract period, the generation loss due to clauses 10.9.1 and 10.9.2 below shall be permitted to be pass through and added to the actual generation. Thus CUF worked out on the basis of actual plus pass through generation will be considered as the CUF of the plant for that year subject to ceiling of 21%.

2 Section – IX, “Scope of Operation & Maintenance of Power Plant” Clause 10.8, Sub Clause 10.8 d).

While maintaining the CUF on contracted capacity as specified, the export of peak solar power will be restricted to the contracted capacity. In case at any point of time, the peak of capacity reached is higher than the contracted capacity **and causes disturbance in the system** at the point where power is injected, the Contractor will have to forego the excess generation and reduce the output to the contract capacity.

The sentence “--and causes disturbance in the system” is hereby deleted.

3.	Section – II, Instructions to Bidders (ITB), Clause -32, “Completion Period & Penalty for Delay”	<p><u>Completion Period & Penalty for Delay</u></p> <p>32.1 The completion period for all the 4 projects will be within 10 months from the date of signing of the contract by the bidder.</p> <p>32.2 In the event of delay in the supply and /or installation & commissioning, specified above, the bidder shall be liable to pay a penalty @ 1% value of contract for every week of delay subject to a maximum of 5% value. If the projects are not commissioned within 13 months of signing of contract, PGL shall be at liberty to cancel the work order/ contract. For the purpose of this clause, part of a week shall be considered to be a full week.</p> <p>32.3 Relaxation in completion period for the purpose of penalty shall be allowed if it is felt that the delay is beyond the control of contractor or due to force majeure conditions. The decision in this regard shall be given by competent authority of PGL.</p> <p>32.4 If the projects are not commissioned or commissioned partly within 13 months of signing of contract, the contract for the un-commissioned capacity will stand cancelled and the capacity commissioned will be the contracted capacity. The successful bidder will have to refund all the costs for the un-commissioned capacity already released but remaining un-recovered after encashment of PBG and other guarantees as available, within 1 month. PGL will charge interest @ SBI MCLR rate as prevailing + 4% for the unpaid amount on day to day basis.</p>	<p><u>The ITB clause 32 (Completion Period & Penalty for Delay) is amended as under:</u></p> <p>32.1 The completion period for all the 4 projects will be within 10 months from the date of signing of the contract by the bidder.</p> <p>32.2 “In the event of delay in the supply and /or installation & commissioning, specified above, the bidder shall be liable to pay a penalty @ 1% value of contract for every week of delay in achieving project milestones as specified under Section VI (SOR) Part-III subject to a maximum of 5% value. If the projects are not commissioned within 11 months of signing of contract, subject to clause 32.4 below, PGL shall be at liberty to cancel the work order/ contract. For the purpose of this clause, part of a week shall be considered to be a full week”.</p> <p>32.3 Relaxation in completion period for the purpose of penalty shall be allowed if it is felt that the delay is beyond the control of contractor or due to force majeure conditions. The decision in this regard shall be given by competent authority of PGL.</p> <p>32.4 If the 4 MW capacity project is commissioned partly (i.e. minimum 2 MW) within 11 months of signing of contract, the contract for the un-commissioned capacity will stand cancelled and the capacity commissioned over and above 2 MW will be the contracted capacity.</p> <p>In any case, the commissioned capacity shall not be less than 2 MW. However, PGL may accept the capacity over and above 2 MW only after imposition of penalty @ Rs. 2.75 on the shortfall in generation to be calculated as specified at Section -IX, Clause 10.8 a) due to non-commissioning plus Rs. 2000/- per day per MW plus applicable GST upto 13 months.</p> <p>Further, PGL shall forfeit the Performance BG at the end of 13th month for the un-commissioned capacity and shall also retain the complete equipment delivered over and above the commissioned capacity if any on which 70% payment has been released against delivery of equipment and the remaining capacity for which equipment is delivered shall be property of PGL.</p>
4	Performa-XIV Schedule of Rates (SOR)		<p>The following Note is added below the Price bid Performa XIV:</p> <p>NOTE: The evaluation of the Price Bid will be done on the total FOR price excluding GST. Any change in GST shall be borne by PGL.</p>

5	Section - VII, SOR, Part III	Delivery/Work Schedule:	The following is added in the note given below in Part III In case of delays in completion of project milestones activities as given in delivery/work schedule above, PGL retains the right to impose penalties in accordance with Section – II, ITB 32.2.
6	Section - VII, Clause 1, Sub clause 1.1	Solar Photovoltaic Modules 1.1 The total Solar PV minimum array capacity shall be such that 4 MWp on AC side is injected at Delivery point located in the PSPCL grid throughout during the term of contract /PPA. Solar Modules shall Mono-crystalline PERC of minimum 440 Wp and above wattage. Module capacity less than minimum 440 Wp should not be supplied. The Photovoltaic modules must be tested and certified by an independent testing laboratory that is accredited in accordance with ISO Guide 25. Photovoltaic Modules shall comply with the specified edition of the following standards and codes.	The clause is amended as under: 1.1 The total Solar PV minimum array capacity shall be such that 4 MWp on AC side is injected at Delivery point located in the PSPCL grid throughout during the term of contract /PPA. Solar Modules shall Mono-crystalline PERC of minimum 380 Wp and above wattage. Module capacity less than minimum 380 Wp should not be supplied. The Photovoltaic modules must be tested and certified by an independent testing laboratory that is accredited in accordance with ISO Guide 25. Photovoltaic Modules shall comply with the specified edition of the following standards and codes. Modules of above 380Wp shall be preferred by PGL. Also, the half cut cell technology in the modules will not be accepted.
7	Section VIII, Performa XIV, Part A (SOR-I, Sr. No. 6)	Spare Modules (As mandatory spares, 40 nos. Mono-PERC of 440W or above capacity per site)	The capacity of the module is amended as under: Spare Modules (As mandatory spares, 40 nos. Mono-PERC of 380Wp or above capacity per site)
8	Section – X, Annexure – I, Sr. No. 1 of table	List of minimum spares parts for each SPV Project site, Sr. No. 1	The capacity of the Mono-crystalline PERC module is amended from 440W or above to 380Wp or above. Modules of above 380Wp shall be preferred by PGL. Also, the half cut cell technology in the modules will not be accepted.
9	Section VII Clause IV, Sub Clause 4.2	4.2 Technical Requirements	The below Note is added at the end of the existing table 4.2 i.e. “Technical Requirement” Note: The following makes of PCUs meeting the technical requirements specified herein are only required to be supplied: i) ABB/FIMER ii) HITACHI iii) TMEIC
10	Section V, (SCC)		The following clause is added at the end of SCC as Appendix-B (Performance Ratio) 1 INTRODUCTION This document lays down the procedures and requirements for conducting Functional Guarantee tests including scope of the tests, procedures for the tests,

reporting formats and process for determining test results in accordance with the Tender Specifications, applicable standards and industry best practices.

2 FUNCTIONAL GUARANTEE TESTS FOR SOLAR PV PLANT

Functional Guarantee for Solar PV Plant shall comprise of following Guarantees:

- (1) Performance Ratio Guarantee test for operational acceptance.

2.1 PERFORMANCE RATIO GUARANTEE TEST

A Performance Ratio Guarantee test shall be commenced within 60 days of the commissioning of Plant Facilities to demonstrate that the plant has achieved the Guaranteed Performance Ratio in line with requirements under section VII of the bidding document. This will be one of the pre-conditions for the Plant Operational Acceptance. Performance Ratio (PR) test period would be continuous measurement of 30 consecutive days. The test shall be conducted in accordance with the IEC-61724 as per the methodology described in Technical Specifications under section VII of the bidding document. The procedure of PR test is described further in Section 2.4. The report shall contain all the measured energy and Met data values, calculations, results and conclusions.

2.1.1 Performance Ratio

The Performance Ratio (PR) of the PV Plant will be calculated as follows: (according to IEC 61724 Ed.2)

$$PR = \frac{E_{out}}{\sum_k (C_k \times P_o) \times (G_{i,k} \times r_k)}$$

$$\sum_k (C_k \times P_o) \times (G_{i,k} \times r_k)$$

Where

Temperature Corrected Performance Ratio

E_{out} Cumulative AC energy measured at ABT meter import export meter over the duration of reporting period (kWh)

r_k Duration of the k^{th} recording interval, i.e. (1/60) hour

\sum_k Summation over all recording intervals in the reporting period, (1/4) hour

C_k Power rating temperature adjustment factor and can be calculated as below $C_k = 1 + \gamma \times (T_{avg_mod,k} - T_{ref})$

γ Temperature coefficient of power with negative sign ($^{\circ}C^{-1}$)

$T_{avg_mod,k}$ Average PV Module temperature measured at the commencement of time interval ' r_k ' ($^{\circ}C$)

PV Module temperature at which P_o is determined, i.e. $25^{\circ}C$

P_o Installed nominal peak power of PV modules, i.e. Nameplate rating at STC (kW_p)

$G_{i,k}$ Average irradiance measured at the Plane of Array (POA) at the commencement of time interval r_k (kW/m^2) (average of all Pyranometres in various sites)

$G_{i,ref}$ Irradiance value at which P_o is determined, i.e. $1 kW/m^2$

2.1.2 General Requirement

- The Functional Guarantee shall comprise of a set of visual/mechanical/Electrical checks followed by a Performance Ratio (PR) test of the Plant Facilities.
- The PR test shall be carried out for a period of 30 consecutive days at site by the Contractor in presence of the PGL Engineer.
- These tests shall be binding on both the parties to the contract to determine compliance of the equipment with the guaranteed performance parameters.
- The test will consist of guaranteeing the correct operation of the Plant Facilities, by way of the performance ratio based on the reading of the energy produced and delivered to the grid (ABT meter) and the Plane of Array incident solar radiation.
- PR is calculated as per the formula given in Clause no. 2.1.
- The Functional Guarantee condition for the purpose of Provisional Acceptance of the Plant Facilities shall be considered to have been met if the guaranteed Performance Ratio (PR) is achieved on a daily basis for 30 *consecutive days*.
- During this PR test, equipment failure/interruption of any kind, except for SCADA communication failures, will not be accountable. In case of a breakdown, the test may be resumed once the complete system is rectified and working properly.