

**Request for Qualification (RFQ) –
Technical and Financial Qualification
For 100 MWp Grid Connected Rooftop Solar
Projects for Indian Railways**

(No : REMCL/Rly/Roof Top/2016/1 dt 27.09.2016)

Railway Energy Management Company Limited

For

**Ministry of Railways
Government of India**

Overview of the Framework Railway Energy Management Company Limited

RAILWAY ENERGY MANAGEMENT COMPANY on behalf of Indian Railways invites eligible Bidders to participate in the bidding process for **“IMPLEMENTATION OF 100 MWp GRID CONNECTED ROOFTOP SOLAR PV SYSTEM AT OFFICE BUILDING/ RAILWAY STATIONS OF ZONAL RAILWAYS WITH THE OBJECTIVE OF GENERATING AND SUPPLYING ENERGY TO APPROPRIATE RAILWAY INSTALLATIONS”**

RAILWAY ENERGY MANAGEMENT COMPANY is a Joint Venture (JV) company of Indian Railways and RITES Ltd hereinafter referred to as “REMCL” or “Authorized Representative”, having its registered office at Core-1, 12th Floor, SCOPE Minar, Laxmi Nagar, Delhi-110 092 and Corporate office at RITES Bhawan, Ground Floor, Central Wing, Plot No. 1, Sector-29, Gurgaon-1220 001

All the activities related to bid processing management starting from Publishing of RFQ/RFP till award of LOA to successful bidders will be done by REMCL on behalf of Indian Railways. Thereafter all activities related to execution of work will be carried out by respective Zonal Railways, including the Power Purchase Agreement signed with the respective developers. REMCL will act as the Bid process Co-ordinator and manage the bid centrally on behalf of all Zonal Railways. REMCL’s responsibility will cease after issue of LOA. REMCL does not hold any responsibility in case of any dispute or litigation arises in PPA and execution of work after issuance of LOA by REMCL.

The bidding process will be a **single stage two packet centralized process** carried out by REMCL on behalf of Zonal Railways. The bid document comprises of RFQ, RFP and PPA. The bids are invited for a total consolidated capacity of 100 MWp distributed across all the Zonal Railways. The bidders will submit one bid package comprising of the technical and commercial qualification with supporting documents corresponding to the requirements of Request For Qualification(RFQ) and a price bid corresponding to the requirements of Request For Proposal(RFP), in two separate envelopes packed in a cover envelope on the Bid due date.

The bidder is required to submit one consolidated bid and indicate the capacity offered and name of Zonal Railways where he proposes to sell power (Annexure-VI). The bidder may quote for one Zonal Railway or more than one Zonal Railways. However, the bidder has to quote for the complete quantum for a Zonal Railway indicated in Annexure-VII and bids with part quantity for one Zonal Railway would be rejected. In case the bidder has submitted his bid for multiple Zonal Railways, his bid for other Zonal Railway(s) will remain valid. For the avoidance of doubt, if the quantum specified for Northern Railways (NR) is 20 MWp and for Western Railway is 10 MWp and the bidder intending to bid for NR & WR offers the whole quantum of 20 MWp in NR but 5 MWp in WR than his bid would be rejected for Western Railway. However his bid for Northern Railway would be eligible where he has offered the full quantum..

REMCL will evaluate the bids Zonal Railway wise based on the technical and financial eligibility illustrated under clause 2.2.2- A and 2.2.2- B, of this RFQ document.. Only those bidders who meet the technical and financial eligibility under this stage (corresponding to RFQ stage) will have their price bids opened by the Railway Energy Management Company Limited (REMCL). The financial bids (RFP) of those bidders who do not qualify at RFQ stage would be returned in unopened condition. The qualified bidders at RFP stage who has quoted the lowest tariff for a particular Zonal Railway would be declared as a successful bidder for that Zonal Railway(s). A single bidder can be declared as successful bidder in more than one Zone (s). For avoidance of doubt, if a bidders has quoted in three zones(CR,NR,ER) and he is lowest in two zones(CR, NR), he would be declared as the successful bidder for those two Zones(CR, NR) as explained in clause 1.2.5.

Request for Qualification (RFQ)

The RFQ aims at to identify credible bidders who have the requisite technical and financial capacity for undertaking the project. In order to encourage greater participation from credible domestic and international investors, the RFQ document should not require respondents to incur significant expense in preparing a response. The information sought for the purposes of pre-qualification should generally be restricted to technical and financial capabilities that are relevant to the project. Such information should be precise and quantified so that the process of short-listing is fair and transparent, and does not expose the government to disputes or controversies. The bidders, who meet the Technical and Financial qualification requirements will be shortlisted and announced by the Railway Energy Management Company Limited (REMCL). The shortlisted bidders will then be invited for the opening of the price bids. The results of the bid will be announced by the REMCL The RFQ document is provided with the list of Zonal Railways and their capacities in the Annexure-VII.

Technical Capacity

For demonstrating technical capacity and experience (the “Technical Capacity”), the Bidder shall, over the past 3 (three) financial years (i.e. current year and three previous financial years) preceding the Bid Due Date, have paid for, or received payments for successful commissioning of at least one grid connected solar PV project for a minimum value of 35% of the offered Capacity; The list of projects commissioned along with a copy of the Commissioning certificate, Bills and Invoices demonstrating payment received for such commissioning works and Work order / Contract / Agreement / from the Client/Owner shall be submitted in support. Please refer the illustration under 2.2.2- A.

Financial Capacity

Total contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid Due Date as per duly certified audited annual financial statements (for the present year provisional annual financial statements would also be allowed) should be a minimum of 150% of the Estimated Project Cost. Please refer the Illustration under 2.2.2- B

Request for Proposal (RFP)

The qualified bidders at RFQ stage shall be called for the opening of the price bids. The results of the bid will be announced by the REMCL, after selection of the successful bidder. REMCL on behalf of Zonal Railways will issue the Letter of Award to the successful bidders..

Signing of Power Purchase Agreement:

The successful bidder is required to sign Power Purchase Agreement (PPA) with the respective Zonal Railways for which it is issued the Letter of Award. If a bidder is awarded with work for multiple Zonal Railways i.e. CR, NCR & SER then the bidder is required to sign three separate PPAs with CR, NCR & SER for their respective aggregated capacities. The bidder may also be required to sign the PPA at Divisional level, if required.

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Request for Qualification (RFQ)

Application Letter for Technical and Financial Qualification
(To be submitted by Bidder)

To
Railway Energy Management Company Limited
RITES Bhawan,
Plot No. 1, Sector -29
Gurgaon-122001

Subject: Application for pre qualification of 100 MWp Grid Connected Solar Rooftop Project

1. I/ We acknowledge that REMCL will be relying on the information provided in the Bid and the documents accompanying such Bid for pre- qualification of the Bidders for the aforesaid project, and we certify that all information provided in the Bid and in Annexes I to VII is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying such Bid are true copies of their respective originals.
2. This statement is made for the express purpose of qualifying as a Bidder for the Design, Build Finance, Operate and Transfer (DBFOT) of the aforesaid Project.
3. I/ We shall make available to REMCL/Railways any additional information it may find necessary or require to supplement or authenticate the Qualification statement.
4. I/ We acknowledge the right of REMCL to reject our Bid without assigning any reason or otherwise and hereby waive, to the fullest extent permitted by applicable law, our right to challenge the same on any account whatsoever.
5. I/ We certify that in the last three years, we/ any of the Consortium Members or our/ their Associates have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award, nor been expelled from any project or contract by any public authority nor have had any contract terminated by any public authority for breach on our part.
6. I/ We declare that:
 - (a) I/ We have examined and have no reservations to the RFQ document, including any Addendum issued by REMCL;
 - b) I/ We do not have any conflict of interest in accordance with Clauses 2.2.1(c) and 2.2.1(d) of the RFQ document;
 - (c) I/We have not directly or indirectly or through an agent engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as defined in Clause 4.3 of the RFQ document, in respect of any tender or request for proposal issued by or any agreement entered into with the REMCL/Railways or any other public sector enterprise or any government, Central or State; and

- (d) I/ We hereby certify that we have taken steps to ensure that in conformity with the provisions of Section 4 of the RFQ document, no person acting for us or on our behalf has engaged or will engage in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice.
7. I/We understand that you may cancel the Bidding Process at any time and you are neither bound to accept any Bid that you may receive nor to invite the Bidders to Bid for the Project, without incurring any liability to the Bidders, in accordance with Clause 2.17.6 of the RFQ document.
 8. I/ We believe that we/ our Consortium/ proposed Consortium satisfy(s) the Financial criteria and meet(s) all the requirements as specified in the RFQ document and am/ are qualified to submit a Bid.
 9. I/ We declare that we/ any Member of the Consortium, or our/ its Associates are not a Member of a/ any other Consortium applying for pre-qualification.
 10. I/ We certify that in regard to matters other than security and integrity of the country, we/ any Member of the Consortium or any of our/ their Associates have not been convicted by a court or indicted or adverse orders passed by a regulatory authority which could cast a doubt on our ability to undertake the Project or which relates to a grave offence that outrages the moral sense of the community.
 11. I/ We further certify that in regard to matters relating to security and integrity of the country, we/ any Member of the Consortium or any of our/ their Associates have not been charge-sheeted by any agency of the Government or convicted by a court.
 12. I/ We further certify that no investigation by a regulatory authority is pending either against us/ any Member of the Consortium or against our/ their Associates or against our CEO or any of our directors/ managers/ employees.[£]
 13. I/We further certify that we/ any Member of the Consortium or any of our/ their Associates are not barred by the [Central Government/ State Government] or any entity controlled by it, from participating in any project (DBFOT or otherwise), and no bar subsists as on the date of Bid.
 14. I/ We undertake that in case due to any change in facts or circumstances during the Bidding Process, we are attracted by the provisions of disqualification in terms of the provisions of this RFQ, we shall intimate REMCL of the same immediately.
 15. The Statement of Legal Capacity as per format provided at Annex-V in Appendix-I of the RFQ document, and duly signed, is enclosed. The power of attorney for signing of Bid and the power of attorney for Lead Member of consortium, as per format provided at Appendix II and III respectively of the RFQ, are also enclosed.
 16. I/ We understand that the selected Bidder shall either be an existing Company incorporated under the Indian Companies Act, 1956/2013, or shall incorporate as such prior to execution of the Power Purchase Agreement.
 17. I/ We hereby irrevocably waive any right or remedy which we may have at any stage at law or howsoever otherwise arising to challenge or question any decision taken by REMCL in connection with the selection of Bidders, selection of the

Bidder, or in connection with the selection/ Bidding Process itself, in respect of the above mentioned Project and the terms and implementation thereof.

18. I/ We agree and undertake to abide by all the terms and conditions of the RFQ document.
19. I/ We certify that in terms of the RFQ, to satisfy the technical criteria, I/ We have paid for/received payments for successful commissioning of _____ (no.) grid connected solar PV project of capacity _____ MW and to satisfy the financial criteria, the contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid Due Date is Rs _____ (in figures) _____ (in words).
20. We agree and undertake to be jointly and severally liable for all the obligations of the SPD under the Power Purchase Agreement.[§]
21. We understand and agree that our response to RFP opened only if we are shortlisted at the RFQ stage.
22. In witness thereof, I/ we submit this Bid under and in accordance with the terms of the RFQ document.
23. I/ We confirm that we are bidding for the full capacity of the particular Zonal Railway. For example if a Zonal Railways requirement is 3 MWp, we will bid for entire 3 MWp and not for the part capacity.
24. I/We understand and agree that REMCL can partly finalise the bids or all bids can be finalised simultaneously.
25. I/ We understand, confirm and agree that we or any of our Associate thereof has not received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any Associate thereof or has not provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any Associate thereof;

Yours faithfully,

Date:

(Signature, name and designation of
Authorized Signatory)

Place:

Name and seal of the Bidder/ Lead Member

[§] This Paragraph 20 shall be omitted if the Bidder is not a Consortium.

[£] In case the Bidder is unable to provide the certification specified in paragraph 13, it may precede the paragraph by the words viz. "Except as specified in Schedule _____ hereto". The exceptions to the certification or any disclosures relating thereto may be clearly stated in a Schedule to be attached to the Bid. REMCL will consider the contents of such Schedule and determine whether or not the exceptions/disclosures are material to the suitability of the Bidder for pre-qualification hereunder.

DEFINITIONS & ABBREVIATIONS

In this “RFQ Document” the following words and expression will have the meaning as herein defined where the context so admits:

- 1.1. “ **Associate**” means with respect to any specified Person, any other Person directly or indirectly controlling, controlled by or under common control with such specified Person.
- 1.2. “**Bid Due Date**” As defined in Clause 1.1.5.
- 1.3. “**B.I.S**” shall mean specifications of Bureau of Indian Standards (BIS).
- 1.4. “**Bids**” shall mean the Techno Commercial Bid submitted by the Bidder along with all documents / credentials / attachments annexure etc., in response to this RFQ, in accordance with the terms and conditions hereof.
- 1.5. “**Bidder/Bidding Company**” shall mean Bidding Company submitting the Bid. Any reference to the Bidder includes Bidding Company/ including its successors, executors and permitted assigns as the context may require”.
- 1.6. “**Bid Security**” shall mean the unconditional and irrevocable bank guarantee to be submitted along with the Bid.
- 1.7. “**Bid Capacity**” shall means capacity offered by the bidder in his Bid under invitation.
- 1.8. “**Bid Deadline**” shall mean the last date and time for submission of Bid as specified in RFQ and RFP document.
- 1.9. “**Bidding Documents**” As defined in Clause 1.2.3.
- 1.10. “**Bidding Process**” As defined in Clause 1.2.1.
- 1.11. “**CEA**” shall mean Central Electricity Authority.
- 1.12. “**Central Financial Assistance**” means the financial assistance to the eligible projects as per MNRE Guidelines.. The CFA available from MNRE to SPD via Railways should be considered while developing the Price bid for the project. The CFA will be available to the successful bidder on the successful achievement of the criteria as shown in following table:

Sl. No.	Achievement vis-à-vis Target Allocation	Incentives for General Category States/UTs	Incentives for Special Category States/UTs
1.	80% and above within the project timelines as	Rs. 18,750/- per kW	Rs. 45,000/- per kW

	specified in schedule N.		
2.	Below 80% and up to 50% within the project timelines as specified in schedule N.	Rs. 11,250/- per kW	Rs. 27,000/- per kW
3.	Below 50%/ delayed commissioning up 6 months beyond the project timelines as specified in schedule N.	Rs. 7,500/- per kW	Rs. 18,000/- per kW

The CFA shall be disbursed as follows:

For General category states the Rs. 12,500/- per kWp (2/3 of the amount mentioned in the above table) incentive shall be disbursed after Successful Commissioning and acceptance of project and balance Rs. 6,250/- (1/3 of the amount mentioned in the above table) incentive after completion of first year of successful O&M, if project is commissioned in sanctioned time. Similarly, incentive amount shall be disbursed as per table for delayed commissioning.

For special category states the Rs. 30,000/- per kWp (2/3 of the amount mentioned in the above table) incentive shall be disbursed after Successful Commissioning and acceptance of project and balance Rs. 15,000/- (1/3 of the amount mentioned in the above table) incentive after completion of first year of successful O&M, if project is commissioned in sanctioned time. Similarly, incentive amount shall be disbursed as per table for delayed commissioning.

Northern Railway will be the Nodal Railway and CEGE of Northern Railway will be the focal point for the direct disbursement of CFA to the project developer.

- 1.13. **“Chartered Accountant”** shall mean a person practicing in India or a firm whereof all the partners practicing in India as a Chartered Accountant(s) within the meaning of the Chartered Accountants Act, 1949.
- 1.14. **“Competent Authority”** shall mean Chief Executive Officer (CEO) of REMCL, himself and/or a person or group of persons nominated by CEO/REMCL for the mentioned purpose herein.
- 1.15. **“Commissioning”** means Successful operation of the Project / Works by the Contractor, for the purpose of carrying out Performance Test(s) as defined in RFQ.
- 1.16. **“Company”** shall mean a body incorporated in India under the Companies Act, 1956 or Companies Act, 2013 including any amendment thereto.

- 1.17. **“Contracted capacity”** shall mean the Total aggregate capacity in MWp, proposed to be allocated by REMCL to the Successful Bidder through this bidding process as per terms and conditions specified therein.
- 1.18. **“Conflict of Interest”** As defined in Clause 2.2.1(c)
- 1.19. **“Consortium”** As defined in Clause 2.2.1(a)
- 1.20. **“(CUF) Capacity Utilization Factor”** means the ratio of the annual output of the plant in kWh versus contracted plant capacity for number of days. $CUF = \text{plant output in kWh} / (\text{contracted plant capacity in kWp (DC side)} * 365 * 24)$
- 1.21. **“DBFOT”** shall mean Design, Built, Finance, Operate and Transfer
- 1.22. **“Eligibility Criteria”** shall mean the Eligibility Criteria as set forth in Section 3 of this RFQ.
- 1.23. **“Estimated Project Cost”** as defined in PPA. For the purpose of this RFQ, the cost will be considered as Rs 75/Wp.
- 1.24. **“Financial Capacity”** As defined in Clause 2.2.2 (B).
- 1.25. **“General Categories States/UTs”** is defined by MNRE as the states which are not special category states, North East States and islands (Andaman and Nicobar and Lakshadweep islands)
- 1.26. **“Government”** Government of India.
- 1.27. **“IEC”** shall mean specifications of International Electro-technical Commission.
- 1.28. **“Jt. Bidding Agreement”** As defined in Clause 2.2.5 (g).
- 1.29. **“kWp”** shall mean Kilo-Watt Peak (Rated Power).
- 1.30. **“kWh”** shall mean Kilo-Watt-hour.
- 1.31. **“Lead Member”** As defined in Clause 2.2.5 (c).
- 1.32. **“LOA”** shall mean Letter of Award.
- 1.33. **“MNRE”** shall mean Ministry of New and Renewable Energy, Government of India
- 1.34. **“Maximum Bid Capacity”** shall mean the maximum capacity for which the Bidder can submit its Bid.
- 1.35. **“Member”** means Member of a Consortium

- 1.36. **“Net Metering”** shall mean arrangement under which rooftop solar system the system installed at eligible consumer premises delivers surplus electricity, if any, to the Distribution Licensee after off-setting the electricity supplied by distribution licensee during the applicable billing period.
- 1.37. **"O&M"** shall mean Operation & Comprehensive Maintenance of Rooftop Solar PV System
- 1.38. **“Power Purchase Agreement (PPA) or Agreement”** means an Agreement executed hereof between Railways and SPD, including the schedules, amendments, modifications and supplements made in writing by the Parties from time to time; This is supplemented along with the RFP document.
- 1.39. **“PPP model”** shall mean where the bidders intend to take a rooftop/sites owned by Railways on mutually agreed terms and conditions from Railways and enters into the PPA with Railways for supply of Solar power for 25 years from the date of Commissioning of project as per the guidelines issued by Ministry of Finance (MoF) as per letter no. F.No. 1/4/2005-PPP dt:23.01.2006.
- 1.40. **“Qualified Bidder”** shall mean the Bidder(s) who, after evaluation of their Techno Commercial Bid as per Clause 3.1 stand qualified for opening of Request for Proposal.
- 1.41. **“Qualification”** As defined in Clause 1.2.1.
- 1.42. **“Qualification Stage”** As defined in Clause 1.2.1.
- 1.43. **“Re. or Rs. or INR”** means Indian Rupee.
- 1.44. **“RFP or Request for Proposals”** As defined in Clause 1.2.1.
- 1.45. **"RFQ"** shall mean Request for Qualification (RFQ)/Tender document.
- 1.46. **“Special Category States/UTs, Northeast states and islands”** shall mean the state of Jammu and Kashmir, Himachal Pradesh and Uttarakhand, North East States and Andaman and Nicobar and Lakshadweep islands as defined by MNRE.
- 1.47. **“SPD”** shall mean **Solar Power Developer**, a Corporate Entity and Company incorporated by the bidder as per Indian Laws in accordance with Companies Act, 1956 or Companies Act 2013.
- 1.48. **“SPV”** shall mean **Special Purpose Vehicle** as defined in Clause 2.2.5.
- 1.49. **“Statutory Auditor”** shall mean the auditor of a Company appointed under the provisions of the Companies Act, 1956 or Companies Act 2013 or under the provisions of any other applicable governing law.

- 1.50. **“Successful Bidder(s) /Contractor/Project Developers(s)”** shall mean the Bidder(s) selected by REMCL pursuant to this RFQ & RFP, for Implementation of Grid Connected Roof Top Solar PV System as per the terms of the RFQ & RFP documents, and to whom a LOA has been issued.
- 1.51. **“SNA”** shall mean State Nodal Agency.
- 1.52. **“Technical Capacity”** As defined in Clause 2.2.2 (A).
- 1.53. **“Wp”** shall mean Watt Peak.
- 1.54. **“Zone/Zonal Railways”** means Zonal Railways covering the entire geographical area under that Zone as per the Railway Act 1989 as amended from time to time.

INTERPRETATIONS

1. Words comprising the singular shall include the plural & vice versa.
2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.
3. A time of day shall save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
4. Different parts of this contract are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this contract, they shall be interpreted in a harmonious manner so as to give effect to each part.
5. The table of contents and any headings or sub headings in the contract has been inserted for case of reference only & shall not affect the interpretation of the RFQ, RFP & PPA documents.

Disclaimer

The information contained in this Request for Qualification document (the “**RFQ**”) or subsequently provided to Bidder(s), whether verbally or in documentary or any other form, by REMCL or on behalf of Railways or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this RFQ and such other terms and conditions subject to which such information is provided.

This RFQ is not an agreement and is neither an offer nor invitation by REMCL/ Railways to the prospective Bidders or any other person. The purpose of this RFQ is to provide interested parties with information that may be useful to them in the formulation of their Bid for qualification pursuant to this RFQ (the “**Bid**”). This RFQ includes statements, which reflect various assumptions and assessments arrived at by REMCL/Railways in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This RFQ may not be appropriate for all persons, and it is not possible for REMCL/Railways, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFQ. The assumptions, assessments, statements and information contained in this RFQ may not be complete, accurate, adequate or correct. Each Bidder should therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this RFQ and obtain independent advice from appropriate sources.

Information provided in this RFQ to the Bidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. The REMCL/Railways accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

The REMCL/Railways, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Bidder or Bidders, under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this RFQ or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the RFQ and any assessment, assumption, statement or information contained therein or deemed to form part of this RFQ or arising in any way with pre-qualification of Bidders for participation in the Bidding Process.

The REMCL/Railways also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from

reliance of any Bidder upon the statements contained in this RFQ.

The REMCL/Railways may, in its absolute discretion but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this RFQ.

The issue of this RFQ does not imply that REMCL/Railways is bound to select and short-list pre-qualified Bids for Price Bid Stage or to appoint the selected Bidder, as the case may be, for the Project and REMCL/Railways reserves the right to reject all or any of the Bids without assigning any reasons whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by REMCL/Railways or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and REMCL/Railways shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

Invitation for Qualification

1. INTRODUCTION[§]

1.1 Background¹

1.1.1 **Railway Energy Management Company Limited** (hereafter referred to as REMCL) **on behalf of Indian Railways** invites eligible Bidders to participate in the bidding process for **“IMPLEMENTATION OF 100 MWp GRID CONNECTED ROOFTOP SOLAR PV SYSTEM AT OFFICE BUILDING/ RAILWAY STATIONS OF RAILWAYS WITH THE OBJECTIVE OF GENERATING AND SUPPLYING ENERGY TO RAILWAY INSTALLATIONS”**.

The detailed breakup of the project locations and their capacities of the respective Zonal Railway(s) are provided at Annexure VII. The total aggregated capacity of 100 MWp herein after is referred to as Contracted Capacity. The information on jurisdiction of Zonal Railway is given and can be accessed on their respective website. The generated solar power will be utilized solely by Zonal Railway(s) through net metering system (as per prevailing norms and regulations for Net Metering of respective states under Zonal Railways) for their respective locations under Zones. The scheme aims to reduce the fossil fuel based electricity load on main grid and make building self-sustainable from the point of electricity, to the extent possible and as part of this endeavour, the Railways has decided to undertake development and operation/ maintenance of the **100 MWp Solar Roof top** Project (the **“Project”**) through Public-Private Partnership (the **“PPP”**) on Design, Build, Finance, Operate and Transfer (the **“DBFOT”**) basis, and has, therefore, decided to carry out the bidding process for selection of Solar Power Developer (SPD) as the bidder to whom the Project may be awarded.

The **REMCL** intend to pre-qualify and short-list suitable Bidders (the **“Bidders”**) who will be eligible for awarding the Project. One bidder is allowed to quote for a particular Zonal Railway of his choice and/or for group of Zonal Railways i.e. more than one Zonal Railways. However it shall bid for the full quoted capacity of the Zonal Railways and not part capacity. For avoidance of doubt if a Zonal Railways have requirement of 3 MWp then the bid shall be for entire 3 MWp and not for the part capacity.

[§] **Instructions for Bidders**

Note 1: Blank spaces contain formats that are to be used by the Bidders after the RFQ is issued. (See Appendix-VI). The information inside the curly brackets shall be suitably modified by the Bidders.

Note 2: Footnotes marked “[§]” in the relevant Clauses of the RFQ are for guidance of the Bidders. In case of Appendices, the footnotes marked “[§]” or in other non-numerical characters shall be omitted by the Bidders while submitting their respective Bids. (See Appendix-VI)

- 1.1.2 The selected Bidder, a Corporate entity who is either a company incorporated under the Companies Act, 1956/2013 or undertakes to incorporate as such prior to execution of the power purchase agreement (the “**SPD**”) shall be responsible for designing, engineering, financing, procurement, construction, operation and maintenance of the Project under and in accordance with the provisions of a long-term Power Purchase Agreement (the “**PPA**”) to be entered into between the selected SPD and the Railways in the form provided by the REMCL/Railways as part of the Bidding Documents pursuant hereto.

NOTE: Draft PPA will be part of bid document. Bidders may note that terminology related to some of the terms may not be relevant. Similarly, some of the elaborations in this document will also not be applicable. Minor changes in PPA like specific requirements for SPD and Railway, will be incorporated before signing of the Agreement with the Railways. Bidders may also note that separate agreements will be signed with the Zonal Railways.

- 1.1.3 The scope of work will broadly include Design, Build, Finance, Operation and long –term maintenance and transfer of Roof-mounted solar PV projects at selected locations of Railways as per Annexure VII and the supply of electricity to Railways under long-term fixed rate PPA.
- 1.1.4 Indicative capital cost of the Project (the “**Estimated Project Cost**”) will be specified in the Bidding Documents of the Project. The assessment of actual costs, however, will have to be made by the Bidders.
- 1.1.5 The REMCL shall receive Bids in the RFP to be submitted with this RFQ in accordance with the terms set forth herein as modified, altered, amended and clarified from time to time by REMCL, and all Bids shall be prepared and submitted in accordance with such terms on or before the date specified in Clause 1.3 for submission of Bids (the “**Bid Due Date**”).

1.2 Brief description of Bid Document & Bidding Process Fee

- 1.2.1 The REMCL has adopted the “**Bidding Process**” for selection of the Bidder for award of the Project. The process involves qualification (the “**Qualification**”) of interested parties/ consortia who make a Bid in accordance with the provisions of this RFQ (the “**Bidder**”, which expression shall, unless repugnant to the context, include the Members of the Consortium). Each Bidder shall pay to REMCL a sum of Rs **20,000/- (Rupees Twenty thousand)** (non refundable) as the cost of the Bid Document. In addition to this bid processing fee @ Rs 7000/- (Seven Thousand Five Hundred) (non refundable) per MWp of the quoted capacity shall be payable by each bidder to REMCL along with the bid

submitted (RFQ). For the bidders submitting the Bid Document Fee before Pre-bid meeting would be required to obtain and submit receipt of the DD along with their bid. Both the Bid Document Fee & Bid Processing Fee shall be payable in form of Demand Draft in Favour of “Railway Energy Management Company Limited” payable at Gurgaon. At the end of this stage, REMCL expects to announce a shortlist of suitable pre-qualified Bidders who shall be further evaluated for their Price bid submitted corresponding to the requirements of the Request for Proposals (the “**Request for Proposals**” or “**RFP**”).

Government of India has issued guidelines (see Appendix-V) for qualification of bidders seeking to acquire stakes in any public sector enterprise through the process of disinvestment. These guidelines shall apply *mutatis mutandis* to this Bidding Process. The REMCL shall be entitled to disqualify a Bidder in accordance with the aforesaid guidelines at any stage of the Bidding Process. Bidders must satisfy themselves that they are qualified to bid, and should give an undertaking to this effect in the form at Appendix-I.

- 1.2.2 Corresponding to the requirements in RFQ, Bidders would be required to furnish all the information specified in this RFQ. Only those Bidders that are pre-qualified under RFQ and short-listed by REMCL shall be evaluated by REMCL for their Price bid for the Project under RFP. The Bidders are advised to visit the project sites and familiarize themselves with the Project.
- 1.2.3 The Bidders will be evaluated for their package comprising of technical and financial qualifications and Price bid (the “Bids”) in accordance with the RFQ and RFP and other documents to be provided by REMCL (collectively the “**Bidding Documents**”). The Bid shall be valid for a period of not less than 180 days from the date specified in Clause 1.3 for submission of Bids (the “**Bid Due Date**”).
- 1.2.4 In terms of the RFP, a Bidder will be required to deposit, along with its Bid, a Bid Security of amount @ Rupees 20 Lakh /MW⁴ (the “**Bid Security**”), refundable not later than 60 (sixty) days from the Financial Bid Opening Date (RFP), except in the case of the selected Bidder(s) whose Bid Security shall be retained till it has provided a Performance Security under the Power Purchase Agreement. The Bidders will have an option to provide Bid Security in the form of a demand draft or a bank guarantee from a Scheduled Bank in India acceptable to REMCL[§]. In case a bank guarantee is provided, its validity period shall not be less than 240 (Two Hundred and Forty) days from the Bid Due Date, inclusive of a claim period of 60 (sixty) days, and may be extended as may be mutually agreed between REMCL and the Bidder from time to time. Where a demand draft is provided, its validity shall not be less than 80 (eighty) days from the Bid Due Date for the purposes

of encashment thereof by REMCL. The Bid shall be summarily rejected if it is not accompanied by the Bid Security. The bidder can submit either a consolidated or segregated Bank Guarantee(s) w.r.t the Zonal Railway & respective offered capacity. In case, bidder submits a consolidated Bid Security for multiple Zonal Railway(s) but qualifies or is selected as lowest bidder in some of the Zonal Railways the consolidated Bid Security will be returned only after submission of Performance Bank Guarantee as per PPA and REMCL/Railways shall not be liable to pay any interest on the Bid Security deposit so made and the same shall be interest free.

- 1.2.5 The Bidder has to quote tariff Zone-wise and the bidder quoting the lowest tariff in a Zone under RFP shall be the selected Bidder for the respective Zone.

Separate PPA may be signed with divisions of Zonal Railways, if required. It is clarified that tariff in a Zone may vary from state to state. Bidders are required to quote single tariff for one Zone generally irrespective of state(s) in that Zone after going through the details given in Annexure –VII. Generally, the Lowest Bidder shall be the selected Bidder in the Zone where he has quoted lowest tariff. The remaining Bidders in the Zone shall be kept in reserve and may, in accordance with the process specified in the RFP, be invited to match the Bid submitted by the Lowest Bidder in case such Lowest Bidder withdraws or is not selected for any reason.

- 1.2.6 During the Bidding Process, Bidders are invited to examine the Project in greater detail, and to carry out, at their cost, such studies as may be required for submitting their respective Bids for award of the contract including implementation of the Project. Nodal officer for respective Zonal Railways shall be CEGE/CESE or its authorized representative of the respective Zonal Railway

- 1.2.7 As part of the Bidding Documents, REMCL will provide a draft Power Purchase Agreement and other information available pertaining/ relevant to the Project available with it.

⁴ The Bid Security will be estimated based on @ Rupees 20 lakh per MW.

⁵ The format for the bank guarantee has been published as part of the Model RFP document.

- 1.2.8 Price Bid will be invited for the Project on the basis of the tariff bid and fixed with no escalation clause for a period of 25 years for respective Zonal Railways. **The tariff to be proposed shall take into account the CFA available.**
- 1.2.9 Details of the process to be followed at the Bidding Process and the terms thereof will be spelt out in the Bidding Documents.
- 1.2.10 Any queries or request for additional information concerning this RFQ shall be submitted in writing by speed post/ courier/ special messenger and by e-mail so as to reach the officer designated in Clause 2.13.3 by the specified date. The envelopes/ communications shall clearly bear the following identification/ title:

“Queries/ Request for Additional Information: RFQ for 100 MWp Solar Roof Top Project”.

1.3 Schedule of Bidding Process

The REMCL shall endeavor to adhere to the following schedule:

	Event Description	Estimated Date
1.	Issue of combined RfQ and RfP Document	27.09.2016
2.	Date of Receiving Queries	13.10.2016
3.	Pre Bid Conference	21.10.2016
4.	Response by REMCL to Queries raised, if any	28.10.2016
5.	Bid Due Date (before 15:00 hrs)	15.11.2016
6.	Opening (at 15:30 hrs)	15.11.2016
7.	Validity of Bids	Till 180 days of Bid Due Date

1.4 Pre-Bid Conference details

The date, time and venue of the Pre Bid Conference shall be:

Date: 21.10.2016

Time: 1100 hrs

Venue: Railway Energy Management Company Limited
RITES Bhawan, No.1 , Sector-29, Guragaon-122001

2. INSTRUCTIONS TO BIDDERS

A. GENERAL

2.1 Scope of Bid

- 2.1.1 The REMCL wishes to receive Bids for Qualification in order to short-list experienced and capable Bidders for the evaluation of their Price Bids.
- 2.1.2 Short-listed Bidders for their technical and financial criteria under RFQ will be evaluated for their Price bid under RFP.

2.2 Eligibility of Bidders

- 2.2.1 For determining the eligibility of Bidders for their pre-qualification hereunder, the following shall apply:

(a) The Bidder for pre-qualification may be a single entity or a group of entities (the “**Consortium**”), coming together to implement the Project. However, no Bidder applying individually or as a member of a Consortium, as the case may be, can be member of another Bidder. The term Bidder used herein would apply to both a single entity and a Consortium.

(b) A Bidder may be a natural person, private entity, government-owned entity or any combination of them with a formal intent to enter into an agreement or under an existing agreement to form a Consortium. A Consortium shall be eligible for consideration subject to the conditions set out in Clause 2.2.5 below.

(c) A Bidder shall not have a conflict of interest (the “**Conflict of Interest**”) that affects the Bidding Process. Any Bidder found to have a Conflict of Interest shall be disqualified^s. A Bidder shall be deemed to have a Conflict of Interest affecting the Bidding Process, if:

- (i) the Bidder, its Member or Associate (or any constituent thereof) and any other Bidder, its Member or any Associate thereof (or any constituent thereof) have common controlling shareholders or other ownership interest; provided that this disqualification shall not apply in cases where the direct or indirect shareholding of an Bidder, its Member or an Associate thereof (or any shareholder thereof having a shareholding of more than 5 per cent of the paid up and subscribed share capital of such Bidder, Member or Associate, as the case may be) in the other Bidder, its Member or Associate is less than 5 per cent of the subscribed and paid up equity share capital thereof; provided further that this disqualification shall not apply to any ownership by a bank, insurance company, pension fund or a public financial institution referred to in sub-section (72) of section 2 of the Companies Act, 2013. For the purposes of this Clause 2.2.1(c), indirect shareholding held through one or more

^s The provisions of sub-clauses (i), (iii) and (v) shall not apply to government companies.

intermediate persons shall be computed as follows: (aa) where any intermediary is controlled by a person through management control or otherwise, the entire shareholding held by such controlled intermediary in any other person (the “**Subject Person**”) shall be taken into account for computing the shareholding of such controlling person in the Subject Person; and (bb) subject always to sub-clause (aa) above, where a person does not exercise control over an intermediary, which has shareholding in the Subject Person, the computation of indirect shareholding of such person in the Subject Person shall be undertaken on a proportionate basis; provided, however, that no such shareholding shall be reckoned under this sub-clause (bb) if the shareholding of such person in the intermediary is less than 26% of the subscribed and paid up equity shareholding of such intermediary; or

(ii) a constituent of such Bidder is also a constituent of another Bidder; or

(iii) such Bidder, or any Associate thereof receives or has received any direct or indirect subsidy, grant, concessional loan or subordinated debt from any other Bidder, or any Associate thereof or has provided any such subsidy, grant, concessional loan or subordinated debt to any other Bidder, its Member or any Associate thereof; or

(iv) such Bidder has the same legal representative for purposes of this Bid as any other Bidder; or

(v) such Bidder, or any Associate thereof has a relationship with another Bidder, or any Associate thereof, directly or through common third party/ parties, that puts either or both of them in a position to have access to each other’s information about, or to influence the Bid of either or each other; or

(vi) such Bidder, or any Associate thereof has participated as a consultant to REMCL in the preparation of any documents, design or technical specifications of the Project.

(d) A Bidder shall be liable for disqualification if any legal, financial or technical adviser of REMCL in relation to the Project is engaged by the Bidder, its Member or any Associate thereof, as the case may be, in any manner for matters related to or incidental to the Project. For the avoidance of doubt, this disqualification shall not apply where such adviser was engaged by the Bidder, its Member or Associate in the past but its assignment expired or was terminated prior to the Bid Due Date. Nor will this disqualification apply where such adviser is engaged after a period of 3 (three) years from the date of commercial operation of the Project.

Explanation: In case a Bidder is a Consortium, then the term Bidder as used in this Clause 2.2.1, shall include each Member of such Consortium.

(e) Other eligibility conditions shall include, if any

2.2.2 To be eligible for pre-qualification and short-listing, a Bidder shall fulfill the following conditions of eligibility:

- (A) **Technical Capacity:** For demonstrating technical capacity and experience (the “Technical Capacity”), the Bidder shall, over the past 3 (three) financial years (i.e. current year and three previous financial years) preceding the Bid Due Date, have paid for, or received payments of at least one solar PV grid connected project for a minimum value of 35% of the Offered Capacity; The list of projects commissioned along with a copy of the Commissioning certificate and Work order / Contract / Agreement / from the Client/Owner shall be submitted in support. If the bidder is quoting for one Zone then he must have executed (have paid for, or received payments) at least one project of at least 35% of the offered capacity. If the bidder has offered for more than one Zone with different capacities then he must have executed (have paid for, or received payments) at least one project of at least 35% of the highest capacity among the offered capacities.

Illustration:

Case -1: If the bidder has quoted for one Zonal Railway with quantum of 1 MWp then he must have executed (have paid for, or received payments) at least one project of not less than 35% of the quoted capacity which is equivalent to one project of not less than 0.35 MW

Case-2: If the bidder has quoted for three Zonal Railways with quantum of 1 MWp , 2 MWp & 3 MWp respectively then he must have executed (have paid for, or received payments) at least one project of not less than 35% of the highest capacity among the quoted capacities MW i.e 35% of 3 MW which is equivalent to one project of not less than 1.05 MWp

and

- (B) **Financial Capacity:** Total contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid due date as per duly certified audited annual financial statements and reports should be a minimum of 150% of the Estimated Project Cost.

- i. In case of a Consortium, the combined technical capacity and financial capacity of those Members, who shall have an equity share of at least 26% (twenty six per cent) each in the SPV, should satisfy the above conditions of eligibility; provided that each such Member shall, for a period of 2 (two) years from the date of commercial operation of the Project, hold equity share capital not less than: (i) 26% (twenty six per cent) of the subscribed and paid up equity of the SPV; and (ii) 5% (five per cent) of the Total Project Cost specified in the Power Purchase Agreement
- ii. If the bidder has submitted his offer for a Zonal Railway then he must have total contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid due date of at least 150% of the offered capacity (quantum specified for the Zonal Railway). If the bidder has submitted his offer for more than one Zonal Railway with different quantum's then he must have total contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid due date of at least 150% of the highest quantum among the Zonal Railways.

Illustration:

Case -1: If the bidder has quoted for one Zonal Railway with quantum of 1 MWp then he must have total contract amount received or paid in Rupees during

the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid of the offered capacity which is equivalent to 150 % of 7.5 Crores for 1 MW (@ Rs 75/Wp) i.e. Rs. 11.25 Crores

Case-2: If the bidder has quoted for three Zonal Railways with quantum of 1 MWp , 2 MWp & 3 MWp respectively then have total contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the Bid due date of the quoted capacity which is equivalent to 150 % of the highest capacity among the quoted capacities MWp which is equivalent to 150% of Rs 22.5 Crores for 3 MW (@ Rs 75/Wp) i.e. Rs. 33.75 Crores

Condition under clause 2.2.2 (B) may either fulfilled jointly or severally by the associates/applicant.

2.2.3 The Bidder shall enclose with its Bid, to be submitted as per the format at Appendix-I, complete with its Annexes, the following⁵:

- (i) Certificate(s) from statutory auditors of the Bidder or its Associates or the concerned client(s) stating the payments made/ received or works commissioned, as the case may be, during the past 3 (three) years (i.e. current year and three previous financial years) in respect of the projects specified in paragraph 2.2.2 (A) above. In case a particular job/ contract has been jointly executed by the Bidder (as part of a consortium), it should further support its claim for the share in work done for that particular job/ contract by producing a certificate from its statutory auditor or the client; and
- (ii) certificate(s) from statutory auditors of the Bidder or its Associates specifying the Financial Capacity of the Bidder, as at the close of the preceding financial year.

2.2.4 The Bidder should submit a Power of Attorney as per the format at Appendix-II, authorizing the signatory of the Bid to commit the Bidder. In the case of a Consortium, the Members should submit a Power of Attorney in favor of the Lead Member as per format at Appendix-III.

2.2.5 Where the Bidder is a single entity, it may be required to form an appropriate Special Purpose Vehicle, incorporated under the Indian Companies Act, 2013 (the “SPV”), to execute the Power Purchase Agreement and implement the Project. In case the Bidder is a Consortium, it shall, in addition to forming an SPV, comply with the following additional requirements:

- (a) Number of members in a consortium shall not exceed 6 (six), but information sought in the Bid may be restricted to 4 (four) members in the order of their equity contribution;

⁵ In case duly certified audited annual financial statements containing the requisite details are provided, a separate certification by statutory auditors would not be necessary in respect of Clause 2.2.4. In jurisdictions that do not have statutory auditors, the firm of auditors which audits the annual

accounts of the Bidder or its Associate may provide the certificates required under this RFQ.

- b) subject to the provisions of sub-clause (a) above, the Bid should contain the information required for each member of the Consortium;
- (c) members of the Consortium shall nominate one member as the lead member (the “**Lead Member**”), who shall have an equity share holding of at least 26% (twenty six per cent) of the paid up and subscribed equity of the SPV. The nomination(s) shall be supported by a Power of Attorney, as per the format at Appendix-III, signed by all the other members of the Consortium;
- (d) the Bid should include a brief description of the roles and responsibilities of individual members, particularly with reference to financial, technical and O&M obligations;
- (e) an individual Bidder cannot at the same time be member of a Consortium applying for pre-qualification. Further, a member of a particular Bidder Consortium cannot be member of any other Bidder Consortium applying for pre-qualification;
- (f) the members of a Consortium shall form an appropriate SPV to execute the Project, if awarded to the Consortium;
- (g) members of the Consortium shall enter into a binding Joint Bidding Agreement, substantially in the form specified at Appendix-IV (the “**Jt. Bidding Agreement**”), for the purpose of making the Bid and submitting a Bid in the event of being short-listed. The Jt. Bidding Agreement, to be submitted along with the Bid, shall, *inter alia*:
 - (i) convey the intent to form an SPV with shareholding/ ownership equity commitment(s) in accordance with this RFQ, which would enter into the Power Purchase Agreement and subsequently perform all the obligations of the SPD in terms of the Power Purchase Agreement, in case the project to undertake the Project is awarded to the Consortium;
 - (ii) clearly outline the proposed roles and responsibilities, if any, of each member;
 - (iii) commit the minimum equity stake to be held by each member;
 - (iv) commit that each of the members, whose experience will be evaluated for the purposes of this RFQ, shall subscribe to 26% (twenty six per cent) or more of the paid up and subscribed equity of the SPV and shall further commit that each such member shall, for a period of 2 (two) years from the date of commercial operation of the Project, hold equity share capital not less than: (i) 26% (twenty six per cent) of the subscribed and paid up equity share capital of the SPV; and (ii) 5% (five per cent) of the Total Project Cost specified in the Power Purchase Agreement;

- (v) members of the Consortium undertake that they shall collectively hold at least 51% (fifty one per cent) of the subscribed and paid up equity of the SPV at all times until the second anniversary of the commercial operation date of the Project; and
- (vi) include a statement to the effect that all members of the Consortium shall be liable jointly and severally for all obligations of the SPD in relation to the Project until the Financial Close of the Project is achieved in accordance with the Power Purchase Agreement; and
- (h) except as provided under this RFQ and the Bidding Documents, there shall not be any amendment to the Jt. Bidding Agreement without the prior written consent of REMCL.

2.2.6 Any entity which has been barred by the Central/ State Government, or any entity controlled by it, from participating in any project (DBFOT or otherwise), and the bar subsists as on the date of Bid, would not be eligible to submit a Bid, either individually or as member of a Consortium.

2.2.7 A Bidder including any Consortium Member or Associate should, in the last 3 (three) years, have neither failed to perform on any contract, as evidenced by imposition of a penalty by an arbitral or judicial authority or a judicial pronouncement or arbitration award against the Bidder, Consortium Member or Associate, as the case may be, nor has been expelled from any project or contract by any public entity nor have had any contract terminated by any public entity for breach by such Bidder, Consortium Member or Associate. Provided, however, that where an Bidder claims that its disqualification arising on account of any cause or event specified in this Clause 2.2.8 is such that it does not reflect (a) any malfeasance on its part in relation to such cause or event; (b) any willful default or patent breach of the material terms of the relevant contract; (c) any fraud, deceit or misrepresentation in relation to such contract; or (d) any rescinding or abandoning of such contract, it may make a representation to this effect to REMCL for seeking a waiver from the disqualification hereunder and REMCL may, in its sole discretion and for reasons to be recorded in writing, grant such waiver if it is satisfied with the grounds of such representation and is further satisfied that such waiver is not in any manner likely to cause a material adverse impact on the Bidding Process or on the implementation of the Project.

2.2.8 In computing the Technical Capacity and Financial Capacity of the Bidder/ Consortium Members under Clauses 2.2.2, 2.2.3 and 3.2, the Technical Capacity and Financial Criteria of their respective Associates would also be eligible hereunder.

For purposes of this RFQ, Associate means, in relation to the Bidder/ Consortium Member, a person who controls, is controlled by, or is under the common control with such Bidder/ Consortium Member (the “**Associate**”). As used in this definition, the expression “control” means, with respect to a person which is a company or corporation, the ownership, directly or indirectly, of more than 50% (fifty per cent) of the voting shares of such person, and with

respect to a person which is not a company or corporation, the power to direct the management and policies of such person by operation of law.

2.2.9 The following conditions shall be adhered to while submitting a Bid:

- (a) Bidders should attach clearly marked and referenced continuation sheets in the event that the space provided in the prescribed forms in the Annexes is insufficient. Alternatively, Bidders may format the prescribed forms making due provision for incorporation of the requested information;
- (b) information supplied by a Bidder (or other constituent Member if the Bidder is a Consortium) must apply to the Bidder, Member or Associate named in the Bid and not, unless specifically requested, to other associated companies or firms. Invitation to submit Bids will be issued only to Bidders whose identity and/ or constitution is identical to that at pre-qualification;
- (c) in responding to the pre-qualification submissions, Bidders should demonstrate their capabilities in accordance with Clause 3.1 below; and
- (d) in case the Bidder is a Consortium, each Member should substantially satisfy the pre-qualification requirements to the extent specified herein.

2.2.10 While Qualification is open to persons from any country, the following provisions shall apply:

- (a) Where, on the date of the Bid, 25% (twenty five per cent) or more of the aggregate issued, subscribed and paid up equity share capital in a Bidder or its Member is held by persons resident outside India or where a Bidder or its Member is controlled by persons resident outside India; or
- (b) if at any subsequent stage after the date of the Bid, there is an acquisition of 25% (twenty five per cent) or more of the aggregate issued, subscribed and paid up equity share capital or control, by persons resident outside India, in or of the Bidder or its Member;] [then the Qualification of such Bidder or in the event described in sub clause (b) above, the continued Qualification of the Bidder shall be subject to approval of REMCL from national security and public interest perspective. The decision of REMCL in this behalf shall be final and conclusive and binding on the Bidder.

[The holding or acquisition of equity or control, as above, shall include direct or indirect holding/ acquisition, including by transfer, of the direct or indirect legal or beneficial ownership or control, by persons acting for themselves or in concert and in determining such holding or acquisition, REMCL shall be guided by the principles, precedents and definitions contained in the Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers Regulations, 2011, or any substitute thereof, as in force on the date of such acquisition.]⁵ The Bidder shall promptly inform REMCL of any change in the shareholding, as above, and failure to do so shall render the

Bidder liable for disqualification from the Bidding Process.

⁵ The provisions of this Clause 2.2.10 may be modified from time to time in accordance with the extant instructions of the Government.

2.2.11 Notwithstanding anything to the contrary contained herein, in the event that the Bid Due Date falls within 3 (three) months of the closing of the latest financial year of a Bidder, it shall ignore such financial year for the purposes of its Bid and furnish all its information and certification with reference to the 3 (Three) years or 1 (one) year, as the case may be, preceding its latest financial year. For the avoidance of doubt, financial year shall, for the purposes of a Bid hereunder, mean the accounting year followed by the Bidder in the course of its normal business.

2.3 Change in composition of the Consortium

2.3.1 Change in the composition of a Consortium will not be permitted by REMCL post the bid due date.

2.4 Number of Bids and costs thereof

2.4.1 No Bidder shall submit more than one Bid for the Project. A Bidder applying individually or as a member of a Consortium shall not be entitled to submit another Bid either individually or as a member of any Consortium, as the case may be.

2.4.2 The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bidding Process. The REMCL will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

2.5 Site visit and verification of information

Bidders are encouraged to submit their respective Bids after visiting the Project site and ascertaining for themselves the site conditions, traffic, location, surroundings, climate, availability of power, water and other utilities for construction, access to site, handling and storage of materials, weather data, applicable laws and regulations, and any other matter considered relevant by them. Nodal officer/ contact person of respective Zonal Railways for site verification shall be CEGE/CESE or their authorized representative.

2.6 Acknowledgement by Bidder

2.6.1 It shall be deemed that by submitting the Bid, the Bidder has:

- (a) made a complete and careful examination of the RFQ;
- (b) received all relevant information requested from REMCL/Railways;
- (c) accepted the risk of inadequacy, error or mistake in the information provided in the RFQ or furnished by REMCL on behalf of Indian Railways relating to any of the matters referred to in Clause 2.5 above; and
- (d) agreed to be bound by the undertakings provided by it under and in terms hereof.

2.6.2 The REMCL shall not be liable for any omission, mistake or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFQ or the Bidding Process, including any error or mistake therein or in any information or data given by REMCL.

2.7 Right to accept or reject any or all Bids

2.7.1 Notwithstanding anything contained in this RFQ, REMCL reserves the right to accept or reject any Bid and to annul the Bidding Process and reject all Bids, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore. In the event that REMCL rejects or annuls all the Bids, it may, in its discretion, invite all eligible Bidders to submit fresh Bids hereunder.

2.7.2 The REMCL reserves the right to reject any Bid if:

- (a) at any time, a material misrepresentation is made or uncovered, or
- (b) the Bidder does not provide, within the time specified by REMCL, the supplemental information sought by REMCL for evaluation of the Bid.

If the Bidder/Bidder is a Consortium, then the entire Consortium may be disqualified/ rejected. If such disqualification/ rejection occurs after the Bids have been opened and the lowest Bidder gets disqualified/ rejected, then Railways shall annul the bidding process and invite fresh bids.

2.7.3 In case it is found during the evaluation or at any time before signing of the Power Purchase Agreement or after its execution and during the period of subsistence thereof, including the contract thereby granted by REMCL/Railways, that one or more of the pre-qualification conditions have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the SPD either by issue of the LOA or entering into of the Power Purchase Agreement, and if the Bidder/SPV has already been issued the LOA or

has entered into the Power Purchase Agreement, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFQ, be liable to be terminated, by a communication in writing by REMCL/Railways to the Bidder, without REMCL/Railways being liable in any manner whatsoever to the Bidder and without prejudice to any other right or remedy which Railways may have under this RFQ, the Bidding Documents, the Power Purchase Agreement or under applicable law.

- 2.7.4 The REMCL/Railways reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFQ. Any such verification or lack of such verification by REMCL/Railways shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of REMCL/Railways there under.

B. DOCUMENTS

2.8 Contents of the RFQ

This RFQ comprises the disclaimer set forth hereinabove, the contents as listed below, and will additionally include any Addenda issued in accordance with Clause 2.10.

Invitation for Qualification

Section 1.	Introduction
Section 2.	Instructions to Bidders
Section 3.	Criteria for Evaluation
Section 4.	Fraud & Corrupt Practices
Section 5.	Pre Bid Conference
Section 6.	Miscellaneous

Appendices

I.	Bidder Information in Annex I – Annex IX
II.	Power of Attorney for signing of Bid
III.	Power of Attorney for Lead Member of Consortium
IV.	Joint Bidding Agreement for Consortium
V.	Guidelines of the Department of Disinvestment
VI.	List of Bid-specific provisions
VII.	List of Project specific provisions

2.9 Clarifications

- 2.9.1 Bidders requiring any clarification on the RFQ may notify REMCL in writing by speed post/ courier/ special messenger and by e-mail in accordance with Clause 1.2.11. They should send in their queries before the date specified in the schedule of Bidding Process contained in Clause 1.3. REMCL shall endeavour to respond to the queries within the period specified therein, but no later than 15 (fifteen) days prior to the Bid Due Date. The responses will be sent by e-mail. The REMCL will forward all the queries and its responses thereto, to all purchasers of the RFQ without identifying the source of queries.
- 2.9.2 REMCL shall endeavour to respond to the questions raised or clarifications sought by the Bidders. However, the REMCL reserves the right not to respond to any question or provide any clarification, in its sole discretion, and nothing in this Clause shall be taken or read as compelling or requiring REMCL to respond to any question or to provide any clarification.
- 2.9.3 REMCL may also on its own motion, if deemed necessary, issue interpretations and clarifications to all Bidders. All clarifications and interpretations issued by REMCL shall be deemed to be part of the RFQ. Verbal clarifications and information given by REMCL or its employees or representatives shall not in any way or manner be binding on REMCL.

2.10 Amendment of RFQ

- 2.10.1 At any time prior to the deadline for submission of Bid, REMCL may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFQ by the issuance of Addenda.
- 2.10.2 Any Addendum or Corrigendum thus issued will be uploaded on website only and no separate intimation to Bidders will be sent.
- 2.10.3 In order to afford the Bidders a reasonable time for taking an Addendum or Corrigendum into account, or for any other reason, REMCL may, in its sole discretion, extend the Bid Due Date.[§]

C. PREPARATION AND SUBMISSION OF BID

2.11 Language

The Bid and all related correspondence and documents in relation to the Bidding Process shall be in English language. Supporting documents and printed literature furnished by the Bidder with the Bid may be in any other language provided that they are accompanied by translations of all the pertinent passages in the English language, duly authenticated and certified by the Bidder. Supporting materials, which are not translated into English, may not be considered. For the purpose of interpretation and evaluation of the Bid, the English language translation shall prevail.

2.12 Format and signing of Bid

- 2.12.1 The Bidder shall provide all the information sought under this RFQ. REMCL will evaluate only those Bids that are received in the required formats and complete in all respects. Incomplete and /or conditional Bids shall be liable to rejection.
- 2.12.2 The Bidder shall prepare 1 (one) original set of the Bid (together with the documents required to be submitted pursuant to this RFQ) and clearly marked as "ORIGINAL". In addition, the Bidder shall submit 1 (one) copy of such Bid and documents, which shall be marked as "COPY". The Bidder shall also provide 2 (two) soft copies thereof on a Compact Disc (CD). In the event of any discrepancy between the original and the copy, the original shall prevail.
- 2.12.3 The Bid and its copy shall be typed or written in indelible ink. It shall be signed by the authorized signatory of the Bidder who shall also initial each page of the Bid (including each Appendix and Annex) in blue ink. In case of printed and published documents, only the cover shall be initialed. All the alterations, omissions, additions or any other amendments made to the Bid shall be initialed by the person(s) signing the Bid. The Bid shall contain page numbers and shall be bound together in a manner that does not allow replacement of any page.

[§] While extending the Bid Due Date on account of an addendum, the REMCL shall have due regard for the time required by Bidders to address the amendments specified therein. In the case of significant amendments, at least 15 (fifteen) days shall be provided between the date of amendment and the Bid Due Date, and in the case of minor amendments, at least 7 (seven) days shall be provided.

2.13 Sealing and Marking of Bids

2.13.1 The Bidder shall submit the Bid in the format specified at Appendix-I, together with the documents specified in Clause 2.13.2, and seal it in an envelope and mark the envelope as “Application for Technical and Financial Qualification: **** Project”. The Bidder shall seal the original and the copy of the Bid, together with their respective enclosures, in separate envelopes duly marking the envelopes as “ORIGINAL” and “COPY”. The envelopes shall then be sealed in an outer envelope which shall also be marked in accordance with Clauses 2.13.2 and 2.13.3. Price bid shall also be packed in the separate envelopes as mentioned in 2.11 of the RFP document. If a bidder is submitting their offer for different Zonal Railway(s), then separate sheet for each individual dual Zonal Railways is required to be submitted and all should be place in separate sealed envelope with the name of Zonal Railways and bidders name on the respective envelope

Both the envelopes including the Application for qualification and price bid shall be packed together in a bigger single envelope to submit to REMCL. Please refer Annex IX on the list of submittals along with RFQ and RFP.

2.13.2 Each envelope shall contain:

- (i) Bid in the prescribed format (Appendix-I) along with Annexes and supporting documents;
- (ii) Power of Attorney for signing the Bid as per the format at Appendix-II;
- (iii) if applicable, the Power of Attorney for Lead Member of Consortium as per the format at Appendix-III;
- (iv) copy of the Jt. Bidding Agreement, in case of a Consortium, substantially in the format at Appendix-IV;
- (v) copy of Memorandum and Articles of Association, if the Bidder is a body corporate, and if a partnership then a copy of its partnership deed;
- (vi) copies of Bidder’s duly audited balance sheet and profit and loss account for the preceding 3 [Three] years; [and]
- (vii) 2 (two) soft copies of the Bid on a Compact Disc (CD)[; and
- (viii) documents as specified in Annexure-IX of Appendix-I.

Each of the envelopes shall clearly bear the following identification:

“Application for Qualification: 100 MWp Solar Roof Top Project”

and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right hand corner of each of the envelopes.

2.13.3 Each of the envelopes shall be addressed to:

ATTN. OF/ DESIGNATION::

Chief Executive Officer / REMCL

ADDRESS: Railway Energy Management Company Limited
Ground Floor, Central Wing,
RITES Bhawan, Plot No.1,
Sector-29, Gurgaon, -122001

TELEPHONE NO: 0124-2818748

E-MAIL ADDRESS: abhishek@rites.com

2.13.4 If the envelopes are not sealed and marked as instructed above, REMCL assumes no responsibility for the misplacement or premature opening of the contents of the Bid and consequent losses, if any, suffered by the Bidder.

2.13.5 Bids submitted by fax, telex, telegram or e-mail shall not be entertained and shall be rejected.

2.14 Bid Due Date

2.14.1 Bids should be submitted before **15:00** hours IST on the Bid Due Date, at the address provided in Clause 2.13.3 in the manner and form as detailed in this RFQ. A receipt thereof should be obtained from the person specified in Clause 2.13.3.

2.14.2 The REMCL may, in its sole discretion, extend the Bid Due Date by issuing an Addendum in accordance with Clause 2.10 uniformly for all Bidders.

2.15 Late Bids

Bids received by Railways after the specified time on the Bid Due Date shall not be eligible for consideration and shall be summarily rejected.

2.16 Modifications/ substitution/ withdrawal of Bids

2.16.1 The Bidder may modify, substitute or withdraw its Bid after submission, provided that written notice of the modification, substitution or withdrawal is received by REMCL prior to the Bid Due Date. No Bid shall be modified, substituted or withdrawn by the Bidder on or after the Bid Due Date.

2.16.2 The modification, substitution or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 2.13, with the envelopes being additionally marked "MODIFICATION", "SUBSTITUTION"

or “WITHDRAWAL”, as appropriate.

- 2.16.3 Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid Due Date, unless the same has been expressly sought for by REMCL, shall be disregarded.

D. EVALUATION PROCESS

2.17 Opening and Evaluation of Bids

- 2.17.1 REMCL shall open the Bids at **15:30** hours IST on the Bid Due Date, at the place specified in Clause 2.13.3 and in the presence of the Bidders who choose to attend.
- 2.17.2 Bids for which a notice of withdrawal has been submitted in accordance with Clause 2.16 shall not be opened.
- 2.17.3 REMCL will subsequently examine and evaluate Bids in accordance with the provisions set out in Section 3.
- 2.17.4 Bidders are advised that pre-qualification of Bidders will be entirely at the discretion of REMCL. Bidders will be deemed to have understood and agreed that no explanation or justification on any aspect of the Bidding Process or selection will be given.
- 2.17.5 Any information contained in the Bid shall not in any way be construed as binding on REMCL, its agents, successors or assigns, but shall be binding against the Bidder if the Project is subsequently awarded to it on the basis of such information.
- 2.17.6 REMCL reserves the right not to proceed with the Bidding Process at any time without notice or liability and to reject any or all Bid(s) without assigning any reasons.
- 2.17.7 If any information furnished by the Bidder is found to be incomplete, or contained in formats other than those specified herein, REMCL may, in its sole discretion, exclude the relevant project from computation of the Experience of the Bidder.
- 2.17.8 In the event that a Bidder claims credit for an Eligible Project, and such claim is determined by REMCL as incorrect or erroneous REMCL shall reject such claim and exclude the same from computation of the Experience, and may also, while computing the aggregate Experience of the Bidder, make a further deduction equivalent to the claim rejected hereunder. Where any information is found to be patently false or amounting to a material misrepresentation, REMCL reserves the right to reject the Bid in accordance with the provisions of Clauses 2.7.2 and 2.7.3.

2.18 Confidentiality

Information relating to the examination, clarification, evaluation, and

recommendation for the short-listed pre-qualified Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising REMCL in relation to or matters arising out of, or concerning the Bidding Process. REMCL will treat all information, submitted as part of Bid, in confidence and will require all those who have access to such material to treat the same in confidence. REMCL may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or REMCL or as may be required by law or in connection with any legal process.

2.19 Tests of responsiveness

2.19.1 Prior to evaluation of Bids, REMCL shall determine whether each Bid is responsive to the requirements of the RFQ. A Bid shall be considered responsive if:

- (a) it is received as per format at Appendix-I;
- (b) it is received by the Bid Due Date including any extension thereof pursuant to Clause 2.14.2;
- (c) it is signed, sealed, bound together in hard cover, and marked as stipulated in Clauses 2.12 and 2.13;
- (d) it is accompanied by the Power of Attorney as specified in Clause 2.2.4, and in the case of a Consortium, the Power of Attorney as specified in Clause 2.2.5 (c);
- (e) it contains all the information and documents (complete in all respects) as requested in this RFQ;
- (f) it contains information in formats same as those specified in this RFQ;
- (g) it contains certificates from its statutory auditors^s in the formats specified at Appendix-I of the RFQ for each Eligible Project;
- (h) it contains an attested copy of the receipt of REMCL towards the cost of the RFQ process as specified in Clause 1.2.1;
- (i) it is accompanied by the Jt. Bidding Agreement (for Consortium), specific to the Project, as stipulated in Clause 2.2.5 (g);
- (j) it does not contain any condition or qualification; and
- (k) it is not non-responsive in terms hereof.

2.19.2 REMCL reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution or withdrawal shall be entertained by REMCL in respect of such Bid. Provided, however, that REMCL may, in its discretion, allow the Bidder to rectify any

infirmities or omissions if the same do not constitute a material modification of the Bid.

^s In case duly certified audited annual financial statements containing the requisite details are provided, a separate certification by statutory auditors would not be necessary in respect of Clause 2.19.1 (g). In jurisdictions that do not have statutory auditors, the firm of auditors which audits the annual accounts of the Bidder may provide the certificates required under this RFQ.

2.20 Clarifications

- 2.20.1 To facilitate evaluation of Bids, REMCL may, at its sole discretion, seek clarifications from any Bidder regarding its Bid. Such clarification(s) shall be provided within the time specified by REMCL for this purpose. Any request for clarification(s) and all clarification(s) in response thereto shall be in writing.
- 2.20.2 If a Bidder does not provide clarifications sought under Clause 2.20.1 above within the prescribed time, its Bid shall be liable to be rejected. In case the Bid is not rejected, REMCL may proceed to evaluate the Bid by construing the particulars requiring clarification to the best of its understanding, and the Bidder shall be barred from subsequently questioning such interpretation of REMCL.

E. QUALIFICATION AND BIDDING

2.21 Short-listing and notification

After the evaluation of Bids, REMCL would announce a list of short-listed pre-qualified Bidders (Bidders) who will be eligible for opening of their Price Bid. At the same time, REMCL would notify the other Bidders that they have not been short-listed. The REMCL will not entertain any query or clarification from Bidders who fail to qualify.

2.22 Submission of Bids

The Bidders will be requested to submit a Bid in the form and manner to be set out in the Bidding Documents.

The Bidders are therefore advised to visit the site and familiarise themselves with the Project by the time of submission of the Bid. No extension of time is likely to be considered for submission of Bids pursuant to invitation that may be issued by REMCL.

2.23 Proprietary data

All documents and other information supplied by REMCL or submitted by an Bidder to the REMCL shall remain or become the property of REMCL. Bidders are to treat all information as strictly confidential and shall not use it for any purpose other than for preparation and submission of their Bid. The REMCL will not return any Bid or any information provided along therewith.

2.24 Correspondence with the Bidder

Save and except as provided in this RFQ, REMCL/Railways shall not entertain any correspondence with any Bidder in relation to the acceptance or rejection of any Bid.

3. CRITERIA FOR EVALUATION

3.1 Evaluation parameters^s

3.1.1 Only those Bidders who meet the eligibility criteria specified in Clauses 2.2.2 shall qualify for evaluation under this Section 3. Bids of firms/ consortia who do not meet these criteria shall be rejected.

3.1.2 The Bidder's competence and capability is proposed to be established by the following parameters:

(a) Technical Capacity; and

(b) Financial Capacity.

3.2 Technical Capacity for purposes of evaluation

3.2.1 Subject to the provision of clause 2.2, the bidder must establish the minimum technical capacity specified in clause 2.2.2 (A).

3.3 Details of Experience

3.3.1 The Bidder should furnish the details of Eligible Experience for the last 3 (three) financial years (i.e. current year and three previous financial years) immediately preceding the Bid Due Date.

3.3.2 The Bidders must provide the necessary information relating to Technical Capacity as per format at Annex-II of Appendix-I.

3.3.3 The Bidder should furnish the required Project-specific information and evidence in support of its claim of Technical Capacity, as per format at Annex-IV of Appendix-I.

3.4 Financial information for purposes of evaluation

3.4.1 Total contract amount received or paid in Rupees during the last 3 financial years (i.e. current year and three previous financial years) preceding the bid due date as per duly certified audited annual financial statements and reports should be a minimum of [150%] of the Estimated Project Cost.

3.4.2 The Bid must be accompanied by the Audited Annual Reports of the Bidder (of each Member in case of a Consortium) for the last 3 (three) financial years (i.e. current year and three previous financial years) , preceding the year in which the Bid is made.

3.4.3 In case the annual accounts for the latest financial year are not audited and therefore the Bidder cannot make it available, the Bidder shall give an undertaking to this effect and the statutory auditor shall certify the same. In such a case, the Bidder shall provide the Audited Annual Reports for 3 (three) years (i.e. current year and three previous financial years) preceding the year for which the Audited Annual Report is not being provided.

3.4.4 The Bidder must establish the minimum Financial Capacity specified in Clause 2.2.2 (B), and provide details as per format at Annex-III of Appendix-I.

^s REMCL may, in case of repetitive projects that attract a larger number of Bidders, or where the total project cost is less than Rs. 500 crore, increase the number of short-listed Bidders to [7 (seven)]. In case of power projects to be awarded on the basis of statutory guidelines for tariff-based bidding and having no obligations or liabilities for buy-out of project assets or any similar obligations, Railways may suitably increase the number of short-listed Bidders

4. **FRAUD AND CORRUPT PRACTICES**

- 4.1 The Bidders and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Bidding Process. Notwithstanding anything to the contrary contained herein, REMCL may reject an Bid without being liable in any manner whatsoever to the Bidder if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bidding Process.
- 4.2 Without prejudice to the rights of REMCL under Clause 4.1 hereinabove, if a Bidder is found by REMCL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding Process, such Bidder shall not be eligible to participate in any tender or RFQ issued by REMCL during a period of 2 (two) years from the date such Bidder is found by REMCL to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.
- 4.3 For the purposes of this Clause 4, the following terms shall have the meaning hereinafter respectively assigned to them:
- (a) **“corrupt practice”** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding Process (for avoidance of doubt, offering of employment to, or employing, or engaging in any manner whatsoever, directly or indirectly, any official of REMCL who is or has been associated in any manner, directly or indirectly, with the Bidding Process or the LOA or has dealt with matters concerning the Power Purchase Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of REMCL, shall be deemed to constitute influencing the actions of a person connected with the Bidding Process); or (ii) save and except as permitted under sub clause (d) of Clause 2.2.1, engaging in any manner whatsoever, whether during the Bidding Process or after the issue of the LOA or after the execution of the Power Purchase Agreement, as the case may be, any person in respect of any matter relating to the Project or the LOA or the Power Purchase Agreement, who at any time has been or is a legal, financial or technical adviser of REMCL in relation to any matter concerning the Project;
 - (b) **“fraudulent practice”** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding Process;

- (c) “**coercive practice**” means impairing or harming or threatening to impair or harm, directly or indirectly, any person or property to influence any person’s participation or action in the Bidding Process;
- (d) “**undesirable practice**” means (i) establishing contact with any person connected with or employed or engaged by the REMCL with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding Process; or (ii) having a Conflict of Interest; and
- (e) “**restrictive practice**” means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding Process.

5. PRE-BID CONFERENCE

- 5.1 A Pre-Bid Conference of the interested parties shall be convened at the designated date, time and place. Only those persons who have purchased the RFQ document shall be allowed to participate in the Pre-Bid Conference. Bidders who have downloaded the RFQ document from the REMCL/RITES website (www.remcl.in & www.rites.com) should submit a Demand Draft for the amount specified in Clause 1.2.1 towards the cost of the RFQ process, through their representative attending the conference. A maximum of three representatives of each Bidder shall be allowed to participate on production of authority letter from the Bidder.
- 5.2 During the course of Pre-Bid Conference, the Bidders will be free to seek clarifications and make suggestions for consideration of REMCL. The REMCL shall endeavour to provide clarifications and such further information as it may, in its sole discretion, consider appropriate for facilitating a fair, transparent and competitive Bidding Process.

6. MISCELLANEOUS

- 6.1 The Bidding Process shall be governed by, and construed in accordance with, the laws of India and the courts in the State of Delhi shall have exclusive jurisdiction over all disputes arising under, pursuant to and/ or in connection with the Bidding Process.
- 6.2 REMCL in its sole discretion and without incurring any obligation or liability, reserves the right, at any time, to;
- (a) suspend and/ or cancel the Bidding Process and/ or amend and/ or supplement the Bidding Process or modify the dates or other terms and conditions relating thereto;
 - (b) consult with any Bidder in order to receive clarification or further information;
 - (c) pre-qualify or not to pre-qualify any Bidder and/ or to consult with any Bidder in order to receive clarification or further information;
 - (d) retain any information and/ or evidence submitted to Railways by, on behalf of, and/ or in relation to any Bidder; and/ or
 - (e) independently verify, disqualify, reject and/ or accept any and all submissions or other information and/ or evidence submitted by or on behalf of any Bidder.
- 6.3 It shall be deemed that by submitting the Bid, the Bidder agrees and releases REMCL, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and/ or performance of any obligations hereunder and the Bidding Documents, pursuant hereto, and/ or in connection with the Bidding Process, to the fullest extent permitted by applicable law, and waives any and all rights and/ or claims it may have in this respect, whether actual or contingent, whether present or in future.
- 6.4 Railway Energy Management Company Limited (hereinafter called "REMCL"), on behalf of Indian Railways invites eligible Bidders to participate in the Generation and Supply of electricity from Rooftop Solar PV systems under a PPP Model. The Bidder will be responsible for Design, Engineering, Procurement, Finance, Erection (including civil and structural works), Installation, Testing, Commissioning and Generation from the solar PV system(s) including Operation and Maintenance (O&M) of the system(s) located on rooftops of Office Building/Station of Railways for a period of 25 years after commissioning of project(s).
For the implementation of above mentioned work, Bidder should submit their bid proposal along with all supporting documents complete in all respect on or before date specified Schedule of Bidding Process in the office of "REMCL" in prescribed format.

Bidders shall submit bid proposal along with non-refundable processing fee, complete in all respect as per this document. Techno-Commercial bids will be opened in presence of authorized representatives of bidders who wish to be present. Bid proposals received without the prescribed processing fee and Bid Bond will be rejected. In the event of any date indicated above is a declared Holiday, the next working day shall become operative for the respective purpose mentioned herein.

Bid documents which include Eligibility criteria, Technical Specifications, various conditions of contract, formats, etc. can be downloaded from [REMCL or RITES website www.remcl.in or www.rites.com] any amendment(s) / corrigendum / clarifications with respect to this Bid shall be uploaded on REMCL or RITES website only. The Bidder should regularly follow up for any Amendment / Corrigendum / Clarification on the above website.

- 6.5 The SPD shall ensure transfer of all project elements to Nodal Railway after 25 years i.e. on expiry of PPA at no cost and free from any encumbrances and liability. The Zonal Railway in the twenty sixth year (26th) may examine the need of up-gradation of the system or renovation and modernization of the existing system depending on technological options available at that time and SPD with mutual consent may carry out the same. Any maintenance thereafter would be ensured by Zonal Railways.

Appendix I
ANNEX-I

Particulars of the Bidder

To,

1.
 - (a) Name:
 - (b) Country of incorporation:
 - (c) Address of the corporate headquarters and its branch office(s), if any, in India:
 - (d) Date of incorporation and/ or commencement of business:
2. Brief description of the Company including details of its main lines of business and proposed role and responsibilities in this Project:
3. Particulars of individual(s) who will serve as the point of contact/ communication for the Bidder:
 - (a) Name:
 - (b) Designation:
 - (c) Company:
 - (d) Address:
 - (e) Telephone Number:
 - (f) E-Mail Address:
4. Particulars of the Authorized Signatory of the Bidder:
 - (a) Name:
 - (b) Designation:
 - (c) Address:
 - (d) Phone Number:
5. In case of a Consortium:
 - (a) The information above (1-4) should be provided for all the Members of the Consortium.
 - (b) Information regarding the role of each Member should be provided as per table below:

Sl. No.	Name of Member	Role [§]	Percentage of equity in the Consortium ^{§§}
1.			
2.			
3.			
4.			

[§] The role of each Member, as may be determined by the Bidder, should be indicated in accordance with Clause 2.2.6 (d) and instruction 4 at Annex-IV.

^{§§}The percentage of equity should be in accordance with Clause 2.2.5 (a), (c) and (g).

6. The following information shall also be provided for the Bidder, including each Member of the Consortium:

Name of Bidder/ member of Consortium:

No.	Criteria	Yes	No
1.	Has the Bidder/ constituent of the Consortium been barred by the [Central/ State] Government, or any entity controlled by it, from participating in any project (DBFOT or otherwise)?		
2.	If the answer to 1 is yes, does the bar subsist as on the date of Bid?		
3.	Has the Bidder/ constituent of the Consortium paid liquidated damages of more than 5% of the contract value in a contract due to delay or has been penalised due to any other reason in relation to execution of a contract, in the last three years?		

7. A statement by the Bidder and each of the Members of its Consortium (where applicable) or any of their Associates disclosing material non-performance or contractual non-compliance in past projects, contractual disputes and litigation/ arbitration in the recent past is given below (Attach extra sheets, if necessary):

ANNEX-II

Technical Capacity of the Bidder[@]

(Refer to Clauses 2.2.2(A), 3.2 and 3.3 of the RFQ)

Bidder type [#]	Member Code [¥]	Technical Capacity as per Clause 2.2.2 in kWp
Single entity Bidder		
Consortium Member 1		
Consortium Member 2		
Consortium Member 3		
Consortium Member 4		
Aggregated Technical Capacity in kWp		

[@] Provide details of only those projects that have been undertaken by the Bidder under its own name and/ or by an Associate specified in Clause 2.2.8. The list of projects commissioned along with a copy of the Commissioning certificate, Bills and Invoices demonstrating payment received for such commissioning works and Work order / Contract / Agreement / from the Client/Owner shall be submitted in support.

[¥]Member Code shall indicate NA for Not Applicable in case of a single entity Bidder. For other Members, the following abbreviations are suggested viz. LM means Lead Member, TM means Technical Member, FM means Financial Member, OMM means Operation & Maintenance Member, OM means Other Member. Refer Annex-IV of this Appendix-I. Add more rows if necessary.

[§] Refer Clause 3.2.1.

^{§§} For conversion of US Dollars to Rupees, the rate of conversion shall be Rupees [65 (sixty five)] to a US Dollar. In case of any other currency, the same shall first be converted to US Dollars as on the date 60 (sixty) days prior to the Bid Due Date, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date.

ANNEX-III

Financial Capacity of the Bidder

(Refer to Clauses 2.2.2(B), 2.2.3 (ii) and 3.4 of the RFQ)

(In Rs. crore[§])

Bidder type ^{§§}	Member Code [£]	Total contract amount received or paid in Rupees		
		Year 1 (3)	Year 2 (4)	Year 3 (5)
(1)	(2)			
Single entity Bidder				
Consortium Member 1				
Consortium Member 2				
Consortium Member 3				
Consortium Member 4				
TOTAL				

Name & address of Bidder's Bankers:

[§]For conversion of other currencies into rupees, see notes below Annex-II of Appendix-I.

^{§§}A Bidder consisting of a single entity should fill in details as per the row titled Single entity Bidder and ignore the rows titled Consortium Members. In case of a Consortium, row titled Single entity Bidder may be ignored.

[£]For Member Code, see instruction 4 at Annex-II of this Appendix-I.

^{££}The Bidder should provide details of its own Financial Capacity or of an Associate specified in Clause 2.2.8.

Instructions:

1. The Bidder/ its constituent Consortium Members shall attach copies of the balance sheets, financial statements and Annual Reports for 3 (three) years (i.e. current year and three previous financial years) preceding the Bid Due Date. The financial statements shall:
 - (a) reflect the financial situation of the Bidder or Consortium Members and its/ their Associates where the Bidder is relying on its Associate's financials;
 - (b) be audited by a statutory auditor;
 - (c) be complete, including all notes to the financial statements; and
 - (d) correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).
2. Net Cash Accruals shall mean Profit After Tax + Depreciation.
3. Year 1 will be the latest completed financial year, preceding the bidding. Year 2 shall be the year immediately preceding Year 1 and so on. In case the Bid Due Date falls within 3 (three) months of the close of the latest financial year, refer to Clause 2.2.11.
4. In the case of a Consortium, a copy of the Jt. Bidding Agreement shall be submitted in accordance with Clause 2.2.5 (g) of the RFQ document.
5. The Bidder shall provide an Auditor's Certificate specifying the Financial Capacity of the Bidder with Clause 2.2.5 of the RFQ document.
6. **Estimated Project Cost**" as defined in PPA, For the purpose of this RFQ, the cost will be considered as Rs 75/Wp.

ANNEX-IV

Details of Eligible Projects

(Refer to Clauses 2.2.2(A), 3.2 and 3.3 of the RFQ)

Project Code:

Member Code:

Item	Refer Instruction	Particulars of the Project
(1)	(2)	(3)
Title & nature of the project		
Capacity of the project in MW	5	
Year-wise (a) payments received/ made for construction, (b) payments made for development of Solar PV projects and/ or (c) revenues appropriated	6	
Entity for which the project was constructed/ developed	7	
Location		
Project cost	8	
Date of commencement of project/ contract		
Date of completion/ Commissioning	9	
Equity shareholding (with period during which equity was held)	10	
Whether credit is being taken for the Eligible Experience of an Associate (Yes/ No)	15	

Instructions:

1. Bidders are expected to provide information in respect of each Eligible Project in this Annex. The projects cited must comply with the eligibility criteria specified in Clause 3.2.1 and 3.4.1 of the RFQ, as the case may be. Information provided in this section is intended to serve as a backup for information provided in the Bid. Bidders should also refer to the Instructions below.

Appendix I
Annex-IV

2. For a single entity Bidder, the Project Codes would be a, b, c, d etc. In case the Bidder is a Consortium then for Member 1, the Project Codes would be 1a, 1b, 1c, 1d etc., for Member 2 the Project Codes shall be 2a, 2b, 2c, 2d etc., and so on.
3. A separate sheet should be filled for each Eligible Project.
4. Member Code shall indicate NA for Not Applicable in case of a single entity Bidder. For other Members, the following abbreviations are suggested viz. LM means Lead Member, TM means Technical Member, FM means Financial Member, OMM means Operation & Maintenance Member; and OM means Other Member. In case the Eligible Project relates to an Associate of the Bidder or its Member, write “Associate” along with Member Code.
5. The total payments received/ made and/or revenues appropriated for each Eligible Project are to be stated in Annex-II of this Appendix-I. The figures to be provided here should indicate the break-up for the past 3 (three) financial years (i.e. current year and three previous financial years) .
Year 1 refers to the financial year immediately preceding the Bid Due Date;
Year 2 refers to the year before Year 1,
Year 3 refers to the year before Year 2, and so on (Refer Clause 2.2.11).
6. Provide the estimated capital cost of the Eligible Project. Refer to Clauses 3.2.3 and 3.2.4
7. Experience for activity relating to an Eligible Project shall not be claimed by two or more Members of the Consortium. In other words, no double counting by a consortium in respect of the same experience shall be permitted in any manner whatsoever.
8. Certificate from the Bidder’s statutory auditor[§] or its respective clients must be furnished as per formats below for each Eligible Project. In jurisdictions that do not have statutory auditors, the auditors who audit the annual accounts of the Bidder/ Member/Associate may provide the requisite certification.

[§] In case duly certified audited annual financial statements containing the requisite details are provided, a separate certification by statutory auditors would not be necessary.

9. In the event that credit is being taken for the Eligible Experience of an Associate, as defined in Clause 2.2.9, the Bidder should also provide a certificate in the format below:

Certificate from the Statutory Auditor/ Company Secretary regarding Associate[§]

Based on the authenticated record of the Company, this is to certify that more than 50% (fifty per cent) of the subscribed and paid up voting equity of _____ (*name of the Bidder/ Consortium Member/ Associate*) is held, directly or indirectly[‡], by _____ (*name of Associate/ Bidder/ Consortium Member*). By virtue of the aforesaid share-holding, the latter exercises control over the former, who is an Associate in terms of Clause 2.2.9 of the RFQ.

A brief description of the said equity held, directly or indirectly, is given below:

[Describe the share-holding of the Bidder/ Consortium Member and the Associate. In the event the Associate is under common control with the Bidder/ Consortium Member, the relationship may be suitably described and similarly certified herein.]

Name of the audit firm:

Seal of the audit firm:

Date:

(Signature, name and designation of
the authorised signatory).

10. It may be noted that in the absence of any detail in the above certificates, the information would be considered inadequate and could lead to exclusion of the relevant project in evaluating the eligibility.

[§]In the event that the Bidder/Consortium Member exercises control over an Associate by operation of law, this certificate may be suitably modified and copies of the relevant law may be enclosed and referred to.

[‡] In the case of indirect share-holding, the intervening companies in the chain of ownership should also be Associates i.e., the share-holding in each such company should be more than 50% in order to establish that the chain of “control” is not broken.

ANNEX-V

Statement of Legal Capacity

(To be forwarded on the letterhead of the Bidder/ Lead Member of Consortium)

Ref. Date:

To,

.....
.....
.....

Dear Sir,

We hereby confirm that we/ our members in the Consortium (constitution of which has been described in the Bid) satisfy the terms and conditions laid out in the RFQ document.

We have agreed that (insert member's name) will act as the Lead Member of our consortium.^s

We have agreed that (insert individual's name) will act as our representative/ will act as the representative of the consortium on its behalf^s and has been duly authorized to submit the RFQ. Further, the authorised signatory is vested with requisite powers to furnish such letter and authenticate the same.

Thanking you,

Yours faithfully,

(Signature, name and designation of the authorised signatory)

For and on behalf of.....

Annex VI

Summary of the Offered capacity and respective Zonal Railways

(The bidder to fill the information in below table based on the Zonal Railways and their respective capacities for which it is bidding. Bidders to refer the detail site information and capacity break up as given in Annex VII)

Name of Zonal Railways	Offered Capacity for the Zonal Railways as per the Specified Quantum in Annexure-VII
<i>Total Capacity in MWp</i>	

Annex VII

Rooftop Capacity by Zonal Railways & their details

(these details are available after Appendix VII)

i. Central Railways of 10 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

ii. Eastern Railways of 5 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

iii. East Central Railways of 4 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

iv. East Coast Railways of 3 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

--	--	--	--	--	--	--	--	--

v. Northern Railways of 20 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

vi. North Central Railways of 10 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

vii. North Eastern Railways of 4 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

viii. North Frontier Railways of 2 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

ix. North Western Railways of 3 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

x. Southern Railways of 4 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xi. South Central Railways of 6 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xii. South Eastern Railways of 6 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xiii. South East Central Railways of 4 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xiv. South Western Railways of 2 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xv. Western Railways of 10 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xvi. West Central Railways of 1 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xvii. Metro of 3 MWp

S. N.	Division	State	Site/ Location	Approx rooftop	Proposed Power	Connecting Voltage	Connected Load	Annual Power

			name	space available as per survey (sq mtr)	Pack Capacity (kW)	(V)	(kW)	Consumption (kWh)
*			****	*****	*****	*****	*****	*****

xviii. Rail Coach Factory of 3 MWp

S. N.	Division	State	Site/ Location name	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
*			****	*****	*****	*****	*****	*****

Note: The above data given by Zonal Railways are indicative (for eg- Proposed power pack capacity). Bidder is required to economize the allotted space on the roof top. In case it is found and demonstrated that the actual capacity (from roof top survey by developer) is lower than the indicated capacity for which the roof top space is not adequate, Railways may offer extra/new roof top space within the same state in that Zone. Change of state for balance capacity, if any, will not be permitted under any circumstances.

Annex VIII
Summary Sheet of the Bid

Name of Zonal Railways	Offered Capacity for the Zonal Railways as per the Specified Quantum (Annexure-VII)	Aggregated Technical Capacity in kWp as per clause no. 2.2.2 (A) (Annex II of RFQ)	Bid Processing Fee in Rs/ DD No. and bank name	Bid Document Fee in Rs/ DD No. and bank name (one for all Zones)	Bid Security Amount in Rs/ (BG/DD No./ Bank name) along with validity date in dd/mm/yy(on individual basis/ consolidated basis)	TOTAL Financial Capacity in Rs in Crores (Annex III of RFP)
Total						

Bidders are also required to submit the above table in Annex VIII in text format in the soft copies in 2 CDs.

Annex IX

List Of submittals along with RFQ and RFP

Sl No.	List of Documents/Submittals	To be submitted along with RFQ/RFP ?
1	Bid Document Fee	RFQ
2	Bid Processing Fee	RFQ
3	Bid Security	RFQ
4	Particulars of the Bidder (Annex I of Appendix I of RFQ)	RFQ
5	Technical Capacity of the Bidder (Annex II of Appendix I of RFQ)	RFQ
6	Financial Capacity of the Bidder (Annex III of Appendix I of RFQ)	RFQ
7	Details of Eligible Projects (Annex IV of Appendix I of RFQ)	RFQ
8	Statement of Legal Capacity (Annex V of Appendix I of RFQ)	RFQ
9	Summary of the Offered capacity and respective Zonal Railways (Annex VI of Appendix I of RFQ)	RFQ
10	Rooftop Capacity by Zonal Railways & their details (Annex VII of Appendix I of RFQ) The bidder shall retain the details of the Zonal Railways for which it is bidding	RFQ
11	Summary Sheet of the Bid (Annex VIII of Appendix I of RFQ)	RFQ
12	Power of Attorney for signing of Bid (Appendix II of RFQ)	RFQ
13	Power of Attorney for Lead Member of Consortium (Appendix III of RFQ)	RFQ
14	Joint Bidding Agreement (Appendix IV of RFQ)	RFQ
15	Guidelines of the Department of Disinvestment (Appendix V of RFQ)	RFQ
16	Bank Guarantee for Bid Security (Appendix II of RFP)	RFQ
17	CHECK LIST FOR BANK GUARANTEES (Annex I of Appendix II of RFP)	RFQ
18	General particulars of the Bidder (Annex III of Appendix I of RFP)	RFQ
19	Letter Comprising the Bid (APPENDIX I of RFP)	RFP
20	Format for Information by Bidders (Annex I and Annex II of Appendix I of RFP)	RFP
21	Conditions of contract (PPA- Annex IV of Appendix I of RFP))	RFP

Bidders are also required to submit the soft copy of their complete bid in 2 CDs.

Note: Any other documents in addition to the list of submittals shall be submitted by the bidder along with the RFQ.

Power of Attorney for signing of Bid^s

(Refer Clause 2.2.5)

Know all men by these presents, We.....
(name of the firm and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorise Mr/ Ms (name), son/daughter/wife of and presently residing at, who is presently employed with us/ the Lead Member of our Consortium and holding the position of, as our true and lawful attorney (hereinafter referred to as the “Attorney”) to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our Bid for pre-qualification and submission of our bid for the Project proposed or being developed by the (the “Railways”) including but not limited to signing and submission of all bids and other documents and writings, participate in Pre-Bid meetings and other conferences and providing information/ responses to REMCL/Railways, representing us in all matters before REMCL/Railways, signing and execution of all contracts including the Power Purchase Agreement and undertakings consequent to acceptance of our bid, and generally dealing with Railways in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/or till the entering into of the Power Purchase Agreement with respective Zonal Railways.

AND we hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE,, THE ABOVE NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF 2.....

For
.....

Witnesses:

1.

2.

_____ ^s To be submitted in original.

(Signature, name, designation and address)

(Notarised)

Accepted

.....

(Signature)

(Name, Title and Address of the Attorney)

Notes:

- f The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- f Wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- f For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.*

APPENDIX-III

Power of Attorney for Lead Member of Consortium^s

(Refer Clause 2.2.5)

Whereas the Railway Energy Management Company Limited (“REMCL”) on behalf of Indian Railways has invited Bids from interested parties for the 100 MW Solar Roof top Project (the “Project”).

Whereas,,, and (collectively the “Consortium”) being Members of the Consortium are interested in bidding for the Project in accordance with the terms and conditions of the Request for Qualification document (RFQ), Request for Proposal (RFP) and other connected documents in respect of the Project, and

Whereas, it is necessary for the Members of the Consortium to designate one of them as the Lead Member with all necessary power and authority to do for and on behalf of the Consortium, all acts, deeds and things as may be necessary in connection with the Consortium’s bid for the Project and its execution.

NOW THEREFORE KNOW ALL MEN BY THESE PRESENTS

We, having our registered office at, M/s. having our registered office at, M/s. having our registered office at, and having our registered office at, (hereinafter collectively referred to as the “Principals”) do hereby irrevocably designate, nominate, constitute, appoint and authorise M/S having its registered office at, being one of the Members of the Consortium, as the Lead Member and true and lawful attorney of the Consortium (hereinafter referred to as the “Attorney”). We hereby irrevocably authorise the Attorney (with power to sub-delegate) to conduct all business for and on behalf of the Consortium and any one of us during the bidding process and, in the event the Consortium is awarded the contract, during the execution of the Project and in this regard, to do on our behalf and on behalf of the Consortium, all or any of such acts, deeds or things as are necessary or required or incidental to the pre-qualification of the Consortium and submission of its bid for the Project, including but not limited to signing and submission of all bids and other documents and writings, accept the Letter of Award, participate in bidders’ and other conferences, respond to queries, submit information/ documents, sign and execute contracts and undertakings consequent to acceptance of the bid of the Consortium and generally to represent the Consortium in all its dealings with Railways, and/ or any other Government Agency or any person, in all matters in connection with or relating to or arising out of the Consortium’s bid for the Project and/ or upon award thereof till the Power Purchase Agreement is entered into with Railways.

^s To be submitted in original.

AND hereby agree to ratify and confirm and do hereby ratify and confirm all acts, deeds and things done or caused to be done by our said Attorney pursuant to and in exercise of the powers conferred by this Power of Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us/ Consortium.

IN WITNESS WHEREOF WE THE PRINCIPALS ABOVE NAMED HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF 2.....

For
(Signature)
.....
(Name & Title)

For
(Signature)
.....
(Name & Title)

For
(Signature)
.....
(Name & Title)

Witnesses:

- 1.
- 2.
-

(Executants)

(To be executed by all the Members of the Consortium)

Notes:

- f The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.*
- f Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a board or shareholders' resolution/ power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder.*
- f For a Power of Attorney executed and issued overseas, the document will also have to be legalised by the Indian Embassy and notarised in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalised by the Indian Embassy if it carries a conforming Appostille certificate.*

APPENDIX-IV

Joint Bidding Agreement

(Refer Clause 2.13.2)

(To be executed on Stamp paper of appropriate value)

THIS JOINT BIDDING AGREEMENT is entered into on this the day of 20...

AMONGST

1. Limited, a company incorporated under the Companies Act, 1956/2013[¥] and having its registered office at (hereinafter referred to as the “**First Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

2. Limited, a company incorporated under the Companies Act, 1956/2013 and having its registered office at (hereinafter referred to as the “**Second Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

3. Limited, a company incorporated under the Companies Act, 1956/2013 and having its registered office at (hereinafter referred to as the “**Third Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)

AND

4. Limited, a company incorporated under the Companies Act, 1956/2013 and having its registered office at (hereinafter referred to as the “**Fourth Part**” which expression shall, unless repugnant to the context include its successors and permitted assigns)[§]

The above mentioned parties of the FIRST, SECOND, THIRD and FOURTH PART are collectively referred to as the “**Parties**” and each is individually referred to as a “**Party**”

WHEREAS,

(A) ***** Railway, established under , represented by its

[¥] A Bidder who is registered abroad may substitute the words, viz “a company registered under the Companies Act, 1956/2013” by the words, viz “a company duly organised and validly existing under the laws of the jurisdiction of its incorporation”. A similar modification may be made in Recital 2, as necessary.

[§] The number of Parties will be shown here, as applicable, subject however to a maximum of 6 (six).

[] (hereinafter referred to as the “**Railways**” which expression shall, unless repugnant to the context or meaning thereof, include its administrators, successors and assigns) has invited bids (the “**Bids**”) by its Request for Qualification No. dated (the “**RFQ**”) for pre-qualification and short-listing of bidders for development, operation and maintenance of the Project (the “**Project**”) through public private partnership.

- (B) The Parties are interested in jointly bidding for the Project as members of a Consortium and in accordance with the terms and conditions of the RFQ document and other bid documents in respect of the Project, and
- (C) It is a necessary condition under the RFQ document that the members of the Consortium shall enter into a Joint Bidding Agreement and furnish a copy thereof with the Bid.

NOW IT IS HEREBY AGREED as follows:

1. Definitions and Interpretations

In this Agreement, the capitalised terms shall, unless the context otherwise requires, have the meaning ascribed thereto under the RFQ.

2. Consortium

- 2.1 The Parties do hereby irrevocably constitute a consortium (the “**Consortium**”) for the purposes of jointly participating in the Bidding Process for the Project.
- 2.2 The Parties hereby undertake to participate in the Bidding Process only through this Consortium and not individually and/ or through any other consortium constituted for this Project, either directly or indirectly or through any of their Associates.

3. Covenants

The Parties hereby undertake that in the event the Consortium is declared the selected Bidder and awarded the Project, it shall incorporate a special purpose vehicle (the “**SPV**”) under the Indian Companies Act, 2013 for entering into a Power Purchase Agreement with the Railways and for performing all its obligations as the SPD in terms of the P o w e r P u r c h a s e Agreement for the Project.

4. Role of the Parties

The Parties hereby undertake to perform the roles and responsibilities as described below:

- (a) Party of the First Part shall be the Lead member of the Consortium and shall have the power of attorney from all Parties for conducting all business for and on behalf of the Consortium during the Bidding Process;
- (b) Party of the Second Part shall be {the Technical Member of the Consortium;}
- {(c) Party of the Third Part shall be the Financial Member of the Consortium; and}
- {(d) Party of the Fourth Part shall be the Operation and Maintenance Member/ Other Member of the Consortium.}

5. Joint and Several Liability

The Parties do hereby undertake to be jointly and severally responsible for all obligations and liabilities relating to the Project and in accordance with the terms of the RFQ, RFP and the Power Purchase Agreement, till such time as the Financial Close for the Project is achieved under and in accordance with the Power Purchase Agreement.

6. Shareholding in the SPV

- 6.1 The Parties agree that the proportion of shareholding among the Parties in the SPV shall be as follows:

First Party:

Second Party:

{Third Party:}

{Fourth Party:}

- 6.2 The Parties undertake that a minimum of 26% (twenty six per cent) of the subscribed and paid up equity share capital of the SPV shall, at all times till the second anniversary of the date of commercial operation of the Project, be held by the Parties of the First, {Second and Third} Part whose experience and Net Worth have been reckoned for the purposes of qualification and short-listing of Bidders for the Project in terms of the RFQ.
- 6.3 The Parties undertake that each of the Parties specified in Clause 6.2 above shall, at all times between the commercial operation date of the Project and the second anniversary thereof, hold subscribed and paid up equity share capital of SPV equivalent to at least 5% (five per cent) of the Total Project Cost.

- 6.4 The Parties undertake that they shall collectively hold at least 51% (fifty one per cent) of the subscribed and paid up equity share capital of the SPV at all times until the second anniversary of the commercial operation date of the Project.
- 6.5 The Parties undertake that they shall comply with all equity lock-in requirements set forth in the Power Purchase Agreement.

7. Representation of the Parties

Each Party represents to the other Parties as of the date of this Agreement that:

- (a) Such Party is duly organised, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Agreement;
- (b) The execution, delivery and performance by such Party of this Agreement has been authorised by all necessary and appropriate corporate or governmental action and a copy of the extract of the charter documents and board resolution/ power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member is annexed to this Agreement, and will not, to the best of its knowledge:
 - (i) require any consent or approval not already obtained;
 - (ii) violate any Applicable Law presently in effect and having applicability to it;
 - (iii) violate the memorandum and articles of association, by-laws or other applicable organisational documents thereof;
 - (iv) violate any clearance, permit, contract, grant, license or other governmental authorisation, approval, judgement, order or decree or any mortgage agreement, indenture or any other instrument to which such Party is a party or by which such Party or any of its properties or assets are bound or that is otherwise applicable to such Party; or
 - (v) create or impose any liens, mortgages, pledges, claims, security interests, charges or encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of such Party so as to prevent such Party from fulfilling its obligations under this Agreement;

- (c) this Agreement is the legal and binding obligation of such Party, enforceable in accordance with its terms against it; and
- (d) there is no litigation pending or, to the best of such Party's knowledge, threatened to which it or any of its Associates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfillment of its obligations under this Agreement.

8. Termination

This Agreement shall be effective from the date hereof and shall continue in full force and effect until the Financial Close of the Project is achieved under and in accordance with the Power Purchase Agreement, in case the Project is awarded to the Consortium. However, in case the Consortium is either not pre-qualified for the Project or does not get selected for award of the Project, the Agreement will stand terminated in case the Bidder is not pre-qualified or upon return of the Bid Security by REMCL to the Bidder, as the case may be.

9. Miscellaneous

- 9.1 This Joint Bidding Agreement shall be governed by laws of India.
- 9.2 The Parties acknowledge and accept that this Agreement shall not be amended by the Parties without the prior written consent of REMCL/Railways.

IN WITNESS WHEREOF THE PARTIES ABOVE NAMED HAVE EXECUTED AND DELIVERED THIS AGREEMENT AS OF THE DATE FIRST ABOVE WRITTEN.

SIGNED, SEALED AND DELIVERED
For and on behalf of
LEAD MEMBER by:

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED

SECOND PART

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of
THIRD PART

(Signature)
(Name)
(Designation)
(Address)

SIGNED, SEALED AND DELIVERED

For and on behalf of
FOURTH PART

(Signature)
(Name)
(Designation)
(Address)

In the presence of:
1.

2.

Notes:

1. The mode of the execution of the Joint Bidding Agreement should be in accordance with the procedure, if any, laid down by the Applicable Law and the charter documents of the executant(s) and when it is so required, the same should be under common seal affixed in accordance with the required procedure.
2. Each Joint Bidding Agreement should attach a copy of the extract of the charter documents and documents such as resolution / power of attorney in favour of the person executing this Agreement for the delegation of power and authority to execute this Agreement on behalf of the Consortium Member.
3. For a Joint Bidding Agreement executed and issued overseas, the document shall be legalised by the Indian Embassy and notarized in the jurisdiction here the Power of Attorney has been executed.

APPENDIX-V⁶
Guidelines of the Department of Disinvestment
(Refer Clause 1.2.1)

No. 6/4/2001-DD-II Government of India Department of
Disinvestment

Block 14, CGO Complex
New Delhi. Dated 13th July, 2001

. OFFICE MEMORANDUM

Sub: Guidelines for qualification of Bidders seeking to acquire stakes in Public Sector Enterprises through the process of disinvestment

Government has examined the issue of framing comprehensive and transparent guidelines defining the criteria for bidders interested in PSE-disinvestment so that the parties selected through competitive bidding could inspire public confidence. Earlier, criteria like Net Worth, experience etc. used to be prescribed. Based on experience and in consultation with concerned departments, Government has decided to prescribe the following additional criteria for the qualification/ disqualification of the parties seeking to acquire stakes in public sector enterprises through disinvestment:

- (a) In regard to matters other than the security and integrity of the country, any conviction by a Court of Law or indictment/ adverse order by a regulatory authority that casts a doubt on the ability of the bidder to manage the public sector unit when it is disinvested, or which relates to a grave offence would constitute disqualification. Grave offence is defined to be of such a nature that it outrages the moral sense of the community. The decision in regard to the nature of the offence would be taken on case to case basis after considering the facts of the case and relevant legal principles, by the Government of India.
- (b) In regard to matters relating to the security and integrity of the country, any charge-sheet by an agency of the Government/ conviction by a Court of Law for an offence committed by the bidding party or by any sister concern of the bidding party would result in disqualification. The decision in regard to the relationship between the sister concerns would be taken, based on the relevant facts and after examining whether the two concerns are substantially controlled by the same person/ persons.
- (c) In both (a) and (b), disqualification shall continue for a period that Government deems appropriate.

⁶ These guidelines may be modified or substituted by the Government from time to time.

- (d) Any entity, which is disqualified from participating in the disinvestment process, would not be allowed to remain associated with it or get associated merely because it has preferred an appeal against the order based on which it has been disqualified. The mere pendency of appeal will have no effect on the disqualification.
- (e) The disqualification criteria would come into effect immediately and would apply to all bidders for various disinvestment transactions, which have not been completed as yet.
- (f) Before disqualifying a concern, a Show Cause Notice why it should not be disqualified would be issued to it and it would be given an opportunity to explain its position.
- (g) Henceforth, these criteria will be prescribed in the advertisements seeking Expression of Interest (EOI) from the interested parties. The interested parties would be required to provide the information on the above criteria, along with their Expressions of Interest (EOI). The bidders shall be required to provide with their EOI an undertaking to the effect that no investigation by a regulatory authority is pending against them. In case any investigation is pending against the concern or its sister concern or against its CEO or any of its Directors/ Managers/ employees, full details of such investigation including the name of the investigating agency, the charge/ offence for which the investigation has been launched, name and designation of persons against whom the investigation has been launched and other relevant information should be disclosed, to the satisfaction of the Government. For other criteria also, a similar undertaking shall be obtained along with EOI.

sd/-

[0]

Under Secretary to the Government of India

APPENDIX-VI

List of Bid-specific provisions[§]

A. Clauses with currency-based footnotes

1. Introduction
2. Clause 1.2.4: Brief description of Bidding Process.
3. Clause 2.2.1 (c): Eligibility of Bidders.
4. Clause 2.2.3: Eligibility of Bidders.
5. Clause 2.3.2: Change in composition of the Consortium.
6. Clause 2.10.3: Amendment of RFQ.
7. Clause 2.19.1 (g): Test of responsiveness.
8. Clause 3.2.1: Technical Capacity for purposes of evaluation.

Note: The above footnotes marked “\$” shall not be deleted. They shall remain in the RFQ to be issued to prospective Bidders.

B. Appendices with non-numeric footnotes

All non-numeric footnotes in the Appendices shall be retained in the respective Appendices for guidance of the Bidders. These shall be omitted by the Bidders while submitting their respective Bids.

C. Appendices where curly brackets are used

1. Appendix I (Annex-IV): Letter Comprising the Bid for Pre-Qualification.
2. Appendix IV: Joint Bidding Agreement: Recitals 3 and 4; Clauses 4 and 6.

Note: The curly brackets should be removed after the provisions contained therein are suitably addressed by the Bidders.

D. Appendices with blank spaces

All blank spaces in the Appendices shall be retained in the RFQ. These shall be filled up when the format of the respective Appendix is used.

[§] This Appendix VI contains the list of Clauses and Appendices that would need to be suitably modified for reflecting Bid specific provisions. This Appendix VI may, therefore be included in the RFQ document to be issued to the Bidders.

APPENDIX-VII

List of Project-specific provisions⁷

A. Clauses with serially numbered Footnotes (Fn)

1. Clause 1.1: Background (Fn. 1).
2. Clause 1.1.1: Background (Fn. 2)
3. Clause 1.2.1: (Fn. 3)
4. Clause 1.2.4: (Fn. 4)
5. Clause 2.2.11: (Fn. 5)

***Note:** The Clauses to which these Footnotes relate also include square parenthesis or asterisks which may be addressed simultaneously.

B. Appendices with serially numbered Footnotes (Fn)

1. Appendix V: Guidelines of the Department of Disinvestment: (Fn.6).
2. Appendix VII: List of Project-specific Provisions: (Fn. 7).

⁷ This Appendix-VII contains a list of Clauses and Appendices that would need to be suitably modified, prior to issue of the RFQ document, for reflecting project-specific provisions. This Appendix-VII should be omitted before issuing the RFQ document to prospective Bidders.

NIT No: REMCL/Rly/Roof Top/2016/1

Zonal Railway wise quantum of solar projects

Railway	Target in MW
CR	10
ER	5
ECR	4
ECoR	3
NCR	10
NR	20
NER	4
NFR	2
NWR	3
SR	4
SCR	6
SER	6
SECR	4
SWR	2
WR	10
WCR	1
RCF	3
Metro Rly	3

Total

100 MWp

Details of Locations along with shadow free areas available for provision of 8.7 MWp Solar Plants for CR

SN	Divn	Installation Location at Railway	Approx. roof top place available as per survey in sq mtrs	Proposed power pack Capacity KWp	Connecting voltage	Connected Load in KW	Annual power consumption In kwh (Approx.)	Remarks
1	BB	WadiBunder coaching complex	1975	165	440	521	761760	RCC slab flat
2		Mazgaon Central cabin	139	10	440	10	43200	RCC slab flat
3		Byculla P/press sty Bldg	700	60	440	362	347620	RCC slab flat
4		Byculla S&T W/Shop	950	80	440	142	618880	RCC slab flat
5		Byculla AEM, SSE, Rest house	875	60	440	195	375840	RCC slab flat
6		Kurla -OHE, S&T store, AWS office & IPS	530	50	440	65	1506586	RCC slab flat
7		Vidyavihar west booking & central cabin	325	30	440	65	204220	RCC slab flat
8		Ghatkopar central cabin & EBS	290	15	440	65	226800	RCC slab flat
9		Sion low level booking office.	180	15	440	34	74460	RCC slab flat
10		Thane Kopari booking office building	484	40	440	260	647600	RCC slab flat
11		Kalra- KYN, BB & old booking office, DG room, Central cabin, Relay room, Farsik cabin, Hospital & pump room No.1,2,3	1068	75	440	75	164260	RCC slab flat
12		Mumbai - Booking office & Station	282	25	440	25	64760	RCC slab flat
13		Diva- New booking/ RRI, rpl office(1) & (2)	466	40	440	43	94170	RCC slab flat
14		Thakurli- Gate, Relay room, Running room, New Running room, Chota cabin, RPSF & Hostel.	2115	200	440	180	355200	RCC slab flat
15		Dombivli- East side upper booking office DG room	168	16	440	45	81000	RCC slab flat
16		Kopar-SM office	65	5	440	15	27000	RCC slab flat
17		Kalyan- PF-1 Booking office, PRS, PRS s/stn., New Rly Court, Parcel office, Sr DSTE Office & TTM office	2042.5	220	440	600	937500	RCC slab flat
18		Shahad- East & West booking office & Station	70	10	440	15	32400	RCC slab flat
19		Ambhivli- booking office	65	10	440	6	11232	RCC slab flat
20		Tarvala - west booking office, office bldg, dy GS office, Relay Room	234	20	440	25	90000	RCC slab flat
21		Vasind - station bldg., Dy SS Office, Relay Room, Power Room	154	15	440	16	43200	RCC slab flat
22		Asangaon- station bldg., Relay Room	85	10	440	22	54000	RCC slab flat
		Igatpur-						RCC flat and GI sheet
23		Central cabin Cabin B Cabin A DN RT T Yard AC/R Room BSL Div. Central Cabin Toilet	1218	100	440	160	405000	RCC+GI Sheet for leakage prob
24		Kasara - Central cabin, OHE office, PVI office	671	60	440	75	151200	RCC slab
25		Vilthawadi Station Booking office & Station & SM	180	15	440	12.50	33750	Flat RCC
26		ULNR Station SM&Booking & Station	450	40	440	36	76360	Flat RCC
27		Ambernath station Running Room & Station. Central Cabin & Swing	562	50	440	76	141000	Flat RCC

Central Railway

Annexure-VIII (1)
CR

SN	Divn	Installation Location at Railway	Approx. roof top place available as per survey in sq mtrs	Proposed power pack Capacity KWP	Connecting voltage	Connected Load in KW	Annual power consumption in kwh (Approx.)	Remarks
28	CB	Badliapur station						
		Central Cabin, SM & Booking	414	35	440	32	96000	Flat RCC
29	CB	Vangul station						
		Running Room & Station, & Realy Room	132	10	440	15	45000	Flat RCC
30	CB	Bidpur station	88	10	440	8	24000	
31	CB	NERAL STATION						
		Staff Room, Driver Lobby & Central Cabin	523	40	440	110	330000	Flat RCC
32	CB	LOHAVALA STN						
		1st class waiting hall -Central Cabin(RRI) -BYE Running room	4201	150	440	125	420000	RCC flat
33	CB	Xhopob - new service Bldg & Station	560	15	440	12	14400	RCC flat
34	CB	KARIJAT STN						
		Karjat -Central Cabin(RRI cabin) CLA	400	35	440	85	102000	RCC flat
35	CB	Kurla -DEE(TD) office Kurla -Central Cabin	732	60	440	109	130800	Galvanized roof sloping Galvanized sloping roof
		Kanjurmarg -PF No.1A & Stn	1858	40	440	35	42000	GI sheet slopping
37	CB	KASARA -RPF office PF No.1 PF No.2	922.5	30	440	28	33600	GI Pitched roof
		LOHAVALA -Concourse Hall FOB PA end -FOB SA end Ghat R/Room	973	50	440	45	54000	GI Pitched roof
39	CB	Khadaki -Stn & Booking	94	10	440	10	12000	
1	NGP	NGP Rly Stn MS COP-7000	7000	600	440	1193	772800	MS chaot slopping
2		Ground level pump house, Ajni - 3300	3300	275	440	275	602250	
3		BPO Rly Stn MS COP -1630	1630	130	440	130	593125	
4		Chandrapur Rly stn MS COP - 1235	1235	100	440	100	438000	
5		Bhandak Rly stn -MS COP 1760	1760	100	440	80	243333	
6		Ajni Rly stn - MS COP 820	820	65	440	65	316333	
7		JNO Rly stn MS COP- 1000	1000	25	440	20	444500	
8		BXY Rly stn MS COP-200	200	15	440	13	17200	
9		FUX Rly stn MS COP-1000	1000	20	440	15	72400	
10		GMJI Rly stn MS COP-2130	2130	40	440	30	120000	
11		SEGMI Rly stn MS COP-2235	2235	30	440	23	132000	
12		PLD Rly stn MS COP-1180	1180	60	440	47	66000	
13		CND Rly stn MS COP-159	159	10	440	25	48000	
14		SIN Rly stn MS COP-1000	1000	80	440	80	192000	
15		WAR Rly stn MS COP-2300	2300	190	440	190	565500	
16		AMF Rly stn MS COP-1000	1000	80	440	80	135560	
17		BZU Rly stn MS COP-4680	4680	240	440	200	135560	
18		MTY Rly stn MS COP-500	500	40	440	40	58210	
19		PAR Rly stn MS COP-1000	1000	80	440	80	80350	
20		MIY Rly stn MS COP-79	79	5	440	15	12045	
21		GDYA Rly stn MS COP-814	814	30	440	30	147825	

Central Railway

Annexure-VII(i)

SN	Divn	Installation Location at Railway	Approx. roof top place available as per survey in sq mtrs	Proposed power pack Capacity KWp	Connecting voltage	Connected Load in KW	Annual power consumption in kwh (Approx.)	Remarks
1	BSL	BSL Station area (NRSS&ORSS)	12450	1250	440 V	26493	19597152	RCC slab flat
2		NKRD Station	4500	400	440 V	510	989640	RCC slab flat
3		Akola- New RRI, SSE/EM/Office, Officer rest house & New PRS	766	60	440	133	1008204	RCC slab flat
4		Khandwa New Running Room	295	25	440	50	2977072	RCC slab flat
6		Badnera SSE(M), Signal Complex	480	40	440	43	731976	RCC slab flat
6		Raver New relay room	150	10	440	26	118656	RCC slab flat
7		Waghoda- New relay room	144	10	440	21	45420	RCC slab flat
8		Jalgaon- New panel bldg., SSE/EM/Office	390	30	440	71	1069768	RCC slab flat
9		Chalisgaon -C&W & RPF Office	392	30	440	90	687312	RCC slab flat
1	SUR	Jumbo Goods Shed/SUR	14000	1200	415	1095	3197400	MS slopping
2		SCADA building/SUR	600	60	415	50	226300	
3		Booking & PRS office/Gulbarga	680	50	415	48	140160	
4		Auditorium/SUR	456	40	415	50	146000	
5		Pangani Station	406	20	415	15	18399	
6		Shendari Station	406	20	415	15	8027	
7		Arag Station	406	20	415	18	18688	
8		DLGN Station	406	20	415	18	19859	
9		JTRD Station	406	20	415	18	17806	
10		Salgaon Station	406	20	415	18	21828	
11		YSI Station	406	20	415	19	13924	
12		DKY Station	406	30	415	22	28021	
13		UMD Station	408	35	415	33	42355	
14		OSA Station	360	30	415	31	20226	
15		BTW Station	278	15	415	11	23198	
16		LUR Station	264	20	415	140	22245	
17		Hirenanduru Station	252	20	415	15	12738	
18		Rly. Hospital/KVV	228	20	415	35	22359	
19		RPF office/GR	213	20	415	14	21475	
20		KEM Station	216	20	415	15	20052	
21		Martyr Station	195	20	415	18	17080	
22		Second entry booking office/GR	174	10	415	10	29854	
23		Officer rest house/LUR	150	10	415	20	25447	
24		TTE rest house/LUR	150	10	415	30	28599	
25		S&T building/Akolner	144	10	415	14	4670	
26		SUR C&W office & ETL office/SUR	144	10	415	985	24111	
27		Relay room/GR	139	10	415	40	25477	
28		PVR Station	139	10	415	70	38272	
29		Modimbi Station	116	10	415	18	7607	
30		Nimbalkar S & T building roof	116	10	415	13	10737	
31		Visapur Station & S&T rooms	115	10	415	18	33728	RCC flat
32		Akolner/Station building	108	10	415	9	4670	
33		Power house/GR	108	10	415	9	24695	
34		S&T building/Anagar	100	10	415	10	64632	
35		S&T building/Balyandi	100	10	415	11	52011	
36		Jinti Road/Station	100	10	415	11	26894	
37		Kashi/S&T building	100	10	415	11	19392	
38		Malikpeth/Station	100	10	415	11	22198	
39		Ranjangaon/S&T building	100	10	415	11	17242	
40		Latur/Running room	100	10	415	12	22458	
41		Pakni S & T building roof	100	10	415	12	28475	
42		BRD Station	100	10	415	13	15692	
43		Parewadi/Station	100	10	415	13	20713	
44		Pophata/Station	100	10	415	15	18443	
45		Washimbel/Station	100	10	415	15	18617	
46		Borbail/S&T building	100	10	415	18	20263	
47		Bhigvan/S&T building	100	10	415	22	55301	
48		Dy.CE/C office/SUR	93	10	415	10	27855	
49		New Sub station building/GR	92	10	415	5	25744	
50		RPF office/PVR	92	10	415	10	22145	
51		Officer rest house/PVR	92	10	415	16	23588	
52		Jeur Station	83	10	415	22	25899	
53		Shahabad Station	77	5	415	24	22145	
54		booking office/LUR	75	5	415	4	24157	
55		SSE/EM/Office/KVV	69	5	415	4	25185	
56		Hunsihadgi/Station	62	5	415	12	16455	
57		Gaudgaon/Station	60	5	415	11	1853	
58		Savajji/Station & relay house	60	5	415	12	22153	
59		Akalkot Station	60	5	415	20	52340	
60		Wadsing Station	55	5	415	15	17751	

Central Railway

CR

Annexure-VII(1)

SN	Divn	Installation Location at Railway	Approx. roof top place available as per survey in sq mtrs	Proposed power pack Capacity KWp	Connecting voltage	Connected Load In KW	Annual power consumption in kwh (Approx.)	Remarks
1	Pune	Pune Sports complex Bldg	240	20	440	25	27000	RCC flat
2		Pune RPF barrack	240	20	440	15	34380	RCC flat
3		Kasarwadi Station Bldg	120	10	440	10	22800	RCC flat
4		Pimpri Waiting hall, SM office, Booking office	240	20	440	30	60000	RCC flat
5		Chinchwad OHE office, Station bldg, Booking office, Relay room	480	40	440	43	56844	RCC flat
6		Akurdi Station bldg	480	20	440	18	36952	RCC flat
7		Dehu Road Waiting hall, SM office, Booking office, SM office, Relay room, RPF barrack, Electrical	420	25	440	21	69304	RCC flat
8		Talegaon -Panel bldg, OHE office, OHE substation, PRS bldg	600	60	440	90	69564	RCC flat
9		Loni -PI cabin, SS office, DG room	180	15	440	22	102612	RCC flat & Tin shed
10		Uloli -Station bldg, PI cabin	360	25	440	19	61236	RCC flat
11		Yewai -Station bldg, PI cabin, DG room	300	15	440	13	44244	RCC flat
12		Kedgaon -Station bldg, PI cabin, Store & ESM	420	20	440	14	47016	RCC flat
13		Jajuri -Old station bldg, ASM office, 2nd class Waiting room, Telecom room	240	10	440	9	37812	RCC flat
		Jajuri -Old Station Building	240	20	440	16		RCC Flat
14		Watha -New bldg, PI OFC, Telecom, 2nd class Waiting hall, old stn building	420	25	440	20	29004	RCC flat
								RCC Flat
15		Nira -Station & PI Bldg	240	20	440	15	51852	RCC flat
		Nira -Station Building / Canteen	182	15	440	14		RCC Flat
16		Lonand -IPS & Relay room, GS room, comm room & 2nd class waiting hall	240	15	440	13	39288	RCC flat
		Lonand -Station Building	180	10	440	8		RCC Flat
17		Salpa -New bldg & PI cabin, Old station bldg, OFC, Store & 2nd class Waiting room	240	10	440	9	53666	RCC flat
		Salpa -New Station Building	120	10	440	13		RCC Flat
		Salpa -Old Station Building	120	10				RCC Flat
18		Palsi -Station bldg	240	10	440	2	42864	RCC flat
	Palsi -New PI Cabin Building	120	440		6	RCC Flat		
19	Jarandeshwar Station bldg	240	10	440	2	27276	RCC flat	
	Jarandeshwar New Station Building	60			440		5	RCC Flat
	Jarandeshwar -Old Station Building	120					RCC Flat	
20	Sangali -New station bldg & Old station bldg	660	5	440	4	119484	RCC flat	
21	Kohapur -PI bldg, ORH bldg, Running room	720	10	440	6	7524	RCC flat	
22	Fursungi Station Building	60	5	440	10	20616	RCC Flat	
23	Atandi -Station Building	120	10	440	10	20652	RCC Flat	
		120	10	440			RCC Flat	

Central Railway

CR Annexure VIII(i)

SN	Div	Installation Location at Railway	Approx. roof top place available as per survey in sq mtrs	Proposed power pack Capacity KWp	Connecting voltage	Connected Load in KW	Annual power consumption in kwh (Approx.)	Remarks				
25	Pune	Shindavane - Station Building	60	5	440	11	24240	RCC Flat				
		Shindavane - Old Station Building	60	5	440			RCC Flat				
26		Amble - New P.I. Cabin Building	60	6	440	10	51652	RCC Flat				
		Amble - Old Station Building	60	5	440			RCC Flat				
27		Rajawadi - Old Station Building	55	5	440	10	8760	RCC Flat				
28		Adhark - Station Building	120	10	440	82	217152	RCC Flat				
		Satara New PI Cabin	120	10	440			RCC Flat				
		Satara Old Station building	180	15	440			RCC Flat				
		Satara Sand Room	60	5	440			RCC Flat				
		Satara Hamaal Room	60	5	440			RCC Flat				
		Satara Officers Rest House	120	10	440			RCC Flat				
		Satara Electrical Office	120	10	440			RCC Flat				
		Satara Signal Room	120	10	440			RCC Flat				
		Satara - Health Unit	120	10	440			RCC Flat				
		30		Koregaon New PI Cabin	60			10	440	7	35280	RCC Flat
				Koregaon Old Station Building	60				440			RCC Flat
				Koregaon DG room	60				440			RCC Flat
31		Rahimspur - New PI Cabin Building	120	10	440	0	27480	RCC Flat				
32		Targaon New PI Cabin Building	60	5	440	7	60564	RCC Flat				
33		Masur - New PI Cabin Building	60	5	440	6	32748	RCC Flat				
34		Shiwade - Old Station building	120	10	440	8	25560	RCC Flat				
Total				8676 (approx. 8.7 MWp)								

NOTE-

Minimum unit of 5 KWp capacity of solar plant is considered at a location.
 Area of PF shelters with asbestos sheets is not considered suitable for mounting of solar panel.
 PF Shelters with steel sheets have been considered suitable for mounting of solar panel.
 RCC roofs where suitable space is available have been considered
 Solar panel efficiency has been taken as 80%.

Eastern Railway

Annexure- A VII-(i)

Divn.	Installation of Location at Railways	Approx. rooftop space available as per survey (Sq. Mtr.)	Proposed Power Pack capacity (KWp)	Connecting Voltage (V)	Connected Load (KW)	Annual Power Consumption (KWh)
a	b	c	d	e	f	g
ASN	Durgapur	1185 (in 5 buildings)	90	11 KV	203	1156000
	Andal	1157 (in 5 buildings)	90	11KV	250	1423500
	Basukinath	965	80	415 V	30	170820
	Baidyanathdham	1217	100	415 V	95	541000
	Deoghar	1335	110	415 V	90	512460
	Kunuri	260 (in 2 buildings)	20	415 V	14	79720
	Jagdishpur	370 (in 2 buildings)	30	415 V	6	34170
	Ghormara	300	20	415 V	10	56940
	Rajbandh	180 (in 2 buildings)	10	415 V	25	142350
	Joramow	140 (in 3 buildings)	10	415 V	8	45560
	Maheshmunda	160 (in 2 buildings)	10	415 V	4	22780
	Lahabon	140 (in 2 buildings)	10	415 V	8	45560
	Asansol station	1200	150	11 KV	200	6954870
	Jasidih station	2000	100	11 KV	70	613220
	14 locations	Total	830 KWp			
HWH	BWN Diesel shed	2000	150	11 KV	300	2160000
	HWH Power House	650	40	6 KV	60	1209600
	New Construction Bldg/ HWH	400	30	415 V	90	864000
	Printing Press, HWH	400	30	415 V	500	1036800
	TKPR Coaching Depot	425	30	415 V	150	2419200
	SYAE Coaching Depot	600	40	415 V	130	34160
	BWN Hospital	300	20	415 V	170	345600
	BDC Good Shed	300	20	415 V	50	345600
	Pakur	510	30	11 KV	600	1576800
	Guskara	500	30	415 V	25	120000
	Chandanpur	330	20	415 V	35	120000
	Dankuni GSS	350	10	415 V	25	1368000
	Janai Road	420	20	415 V	35	72000
	Gurap	310	20	415 V	35	168000
	Magra	200	20	415 V	18	4280
	Panduah	400	30	415 V	10	2380
	Jirat	350	20	415 V	25	72000
	Singur	150	10	415 V	25	24000
	Kamarkundu	310	20	415 V	40	252000
	Belmuri	150	10	415 V	65	78000
	EMU Carshed, HWH	500	30	415 V	175	1382400
	Jheel Siding, HWH	150	10	415 V	50	518400
	Prantik	150	10	415 V	08	120000
	Mollarpur	150	10	415 V	08	60000
	Murarai	150	10	415 V	15	120000
	Khana	150	10	415 V	15	102000
	Bhedla	150	10	415 V	10	60000
	Ambika Kalna	290	20	415 V	25	156000
	Bagnapara	150	10	415 V	15	88800
	Purbasthali	150	10	415 V	25	72000
Patuli	150	10	415 V	10	72000	
Samudragarh	150	10	415 V	25	60000	
Gangpur	150	10	415 V	30	60000	
Palsit	150	10	415 V	05	48000	

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Annex - VII (ii)

a	b	c	d	e	f	g	
HWH	Saktigarh	300	10	415 V	25	96000	
	Khagraghat	350	20	415 V	50	108000	
	Nabadwipdham	250	20	11 KV	50	444000	
	Bazarsau	300	10	415 V	25	60000	
	Salar	250	10	415 V	50	84000	
	Sagardighi	150	10	415 V	25	48000	
	Nalhati	200	20	415 V	50	54000	
	Moregram	150	10	415 V	25	3600	
	Konnagar	150	10	415 V	25	132000	
	Rishra	150	10	415 V	25	168000	
	Baidyabati	150	10	415 V	25	72000	
	Bhadreswar	150	10	415 V	25	156000	
	Mankundu	150	10	415 V	25	48000	
	Chuchurah	150	10	415 V	25	84000	
	Arambagh	300	20	415 V	50	54000	
	Haripal	150	10	415 V	25	48000	
	Loknath	160	10	415 V	25	12000	
	Jaugarm	170	10	415 V	25	42000	
	Masagram	185	10	415 V	25	48000	
	Nabagram	130	10	415 V	25	7200	
	Baruipara	200	10	415 V	25	84000	
	Begampur	200	10	415 V	25	19500	
	Belanagar	200	10	415 V	25	54000	
	Boinchi	200	10	415 V	25	48000	
		58 locations	Total	1050 KWp			
	MLDT	DRM Bldg.	1735	140	11 KV	2400	57600
		BGP stn Bldg	2023	160	11 KV	1200	26400
		JMP stn Bldg	1554	120	11 KV	900	20700
Gour Malda		200	15	415 V	40	116800	
Chamagram		200	10	415 V	12	31536	
New Farakka		260	20	415 V	36	94608	
Ballalpur		250	20	415 V	30	78840	
Jangipur		200	10	415 V	33	86724	
Bonidanga		125	10	415 V	10	26280	
Dhamdhamia		120	10	415 V	5	13140	
Maharajpur		120	10	415 V	25	65700	
Karanpurato		250	20	415 V	25	65000	
Taljhari		280	20	415 V	25	65200	
Sultanganj		650	50	415 V	134	352150	
Bhagalpur		400	20	415 V	634	1666150	
Jamalpur		320	30	415 V	100	262800	
Manderhill		125	10	415 V	10	26780	
Banka		300	25	415 V	30	78840	
Murahara		125	10	415 V	10	26250	
Hansdiha		120	10	415 V	25	65700	
Akbarnagar		130	10	415 V	2	5250	
Abhaipur		130	10	415 V	18	47304	
Kajra		185	15	415 V	19	49930	
Barharwa		310	25	415 V	100	262800	
Kahalgaon		125	10	415 V	50	131400	
	25 locations	Total	790 KWp				

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Annex. - VII (ii)

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a	b	c	d	e	f	g
SDAH	Bldg. no. L/86 & L/87 (Narkeldanga)	960 (3 locations)	80	415 V	42	90060
	Narkeldanga car shed	874 (2 locations)	70	11 KV	48	87600
	Beliaghata /RPF barrack	633	50	415 V	35	51100
	Sonarpur Car shed	801	60	11 KV	25	569060
	Barrackpore stn	2032 (10 locations)	160	11 KV	21	45930
	Barasat	1614 (4 locations)	130	11 KV	9.30	29850
	Majhergram stn	980 (3 locations)	80	415 V	47.44	70490
	Ranaghat Junction	765 (3 locations)	60	11 KV	7.54	22030
	JCS & SSE/ Sig Store	473	30	415 V	25	29500
	Baranagar	376	30	415 V	12	14240
	RRB/ Chitpur office	400	30	415 V	4.9	8580
	C&W office/ Dakhindari	250	20	415 V	3	7670
	Dakshineswr	598	40	11 KV	18	16350
	Barasat Carshed (PPO roof)	256	20	11 KV	0.82	2980
	Ranaghat Carshed	500	40	11 KV	28.36	36230
	Gede station	520	40	415 V	7.86	9360
	Majhdia Station	450	30	415 V	1.53	1680
	Bagula station	450	30	415 V	1.83	2010
	Control Bldg	412	30	415 V	178	519180
	Shantipur station	300	20	415 V	2.3	5880
	Plassey station	300	20	415 V	3.91	7140
	Titagarh	274	20	415 V	8.5	23350
	Beldanga station	255	20	415 V	5.64	8240
	Sargachhi station	240	20	415 V	3.64	6650
	Krishnapur station	320	20	415 V	4.44	8110
	Agarpara station	200	10	415 V	4.98	1000
	Kalinarayanpur stn	225	10	415 V	6.26	10970
	Pagla Chandi stn	200	10	415 V	2.3	6720
	Jiaganj station	210	10	415 V	3.94	7190
	Chitpur /Health unit	200	10	415 V	4.75	8410
	Kolkata running Room	200	10	11 KV	8.5	18620
	Dakhindari-Health Unit	175	10	415 V	4.0	7080
	Baghbazar	150	10	415 V	5.20	850670
	SSE(W)/ Chitpur office	175	10	415 V	8	20440
	Jaynagar Majilpur	125	10	415 V	7	5490
	KAK stn bldg	146	10	415 V	4	12140
	Bidhannagar	123	10	415 V	14	26560
	Muragacha station	132	10	415 V	4.96	9060
	Rejinagar station	150	10	415 V	6.04	11030
	Murshidabad stn	150	10	415 V	6.04	11030
	Phulia station	200	10	415 V	5.86	10700
	Sealdah station platform shed	adequate		520	6 KV	6.26
	42 locations	Total	1830 KWp			
KPA	--	adequate	500	11 KV	25000	192.60 LU

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Annex - U11 (ii)

a	b	c	d	e	f	g
SDAH	Bldg. no. L/86 & L/87 (Narkeldanga)	960 (3 locations)	80	415 V	42	90060
	Narkeldanga car shed	874 (2 locations)	70	11 KV	48	87600
	Beliaghata /RPF barrack	633	50	415 V	35	51100
	Sonarpur Car shed	801	60	11 KV	25	569060
	Barrackpore stn	2032 (10 locations)	160	11 KV	21	45930
	Barasat	1614 (4 locations)	130	11 KV	9.30	29850
	Majhergram stn	980 (3 locations)	80	415 V	47.44	70490
	Ranaghat Junction	765 (3 locations)	60	11 KV	7.54	22030
	JCS & SSE/ Sig Store	473	30	415 V	25	29500
	Baranagar	376	30	415 V	12	14240
	RRB/ Chitpur office	400	30	415 V	4.9	8580
	C&W office/ Dakhindari	250	20	415 V	3	7670
	Dakshineswr	598	40	11 KV	18	16350
	Barasat Carshed (PPO roof)	256	20	11 KV	0.82	2980
	Ranaghat Carshed	500	40	11 KV	28.36	36230
	Gede station	520	40	415 V	7.86	9360
	Majhdia Station	450	30	415 V	1.53	1680
	Bagula station	450	30	415 V	1.83	2010
	Control Bldg	412	30	415 V	178	519180
	Shantipur station	300	20	415 V	2.3	5880
	Plassey station	300	20	415 V	3.91	7140
	Titagarh	274	20	415 V	8.5	23350
	Beldanga station	255	20	415 V	5.64	8240
	Sargachhi station	240	20	415 V	3.64	6650
	Krishnapur station	320	20	415 V	4.44	8110
	Agarpara station	200	10	415 V	4.98	1000
	Kalinarayanpur stn	225	10	415 V	6.26	10970
	Pagla Chandi stn	200	10	415 V	2.3	6720
	Jiaganj station	210	10	415 V	3.91	7190
	Chitpur /Health unit	200	10	415 V	4.75	8410
	Kolkata running Room	200	10	11 KV	8.5	18620
	Dakhindari-Health Unit	175	10	415 V	4.0	7080
	Baghbazar	150	10	415 V	5.20	850670
	SSE(W)/ Chitpur office	175	10	415 V	8	20440
	Jaynagar Majilpur	125	10	415 V	7	5490
	KAK stn bldg	146	10	415 V	4	12140
	Bidhannagar	123	10	415 V	14	26560
	Muragacha station	132	10	415 V	4.96	9060
	Rejinagar station	150	10	415 V	6.04	11030
	Murshidabad stn	150	10	415 V	6.04	11030
	Phulia station	200	10	415 V	5.86	10700
	Sealdah station platform shed	adequate		520	6 KV	6.26	2628000
	42 locations	Total	1830 KWp			
KPA	--	adequate	500	11 KV	25000	192.60 LU

List of Selected Sites and shadow free roof top area.

Annexure-A1

Sl. No.	Installation Location at Railways	State	Approximate rooftop space available as per survey (Sq. Mtr.)	Proposed Power Pack Capacity(kWp)	Connecting Voltage(V)	Connected Load (kW)	Annual Power Consumption (kWh)	
1	Hajipur Station building	SEE	1438	120	440	40	489696	
2	Sonpur Station Building		1255	105	440	60	80000	
3	Sonpur Rly. Hospital		1824	152	440	75	120000	
4	Passenger hall+UTS bldg., Muzaffarpur		1392	116	440	32	140160	
5	TL+AC coach depot, Muzaffarpur		803	67	440	12	52560	
6	ZRTI hostel, Muzaffarpur		880	73	440	25	105120	
7	ZRTI school, Muzaffarpur		810	68	440	40	31800	
8	Hospital/Imli Road,		400	33	440	10	21900	
9	Brahmpura hospital,		260	22	440	6	13140	
10	Barauni Station building			1878	157	440	65	840000
	Total		10940	912		365	1894376	
11	DRM Building/SPJ	SPJ	1651	138	440	150	242588	
12	Hospitals/SPJ		3000	250	440	50	141671	
13	Samastipur station building		3815	318	440	200	708357	
14	Belliah station building		1850	154	440	20	63751	
15	Narkallaganj station building		3155	263	440	30	106253	
16	Darbhanga station building		1934	161	440	125	442719	
17	Sitamadhi station building		2600	217	440	35	123965	
18	Bapudham Motihari stn, building		2100	175	440	40	141670	
19	Saharsa station building		3000	250	440	75	283341	
	Total		23105	1925		725	2254315	
20	Dildarnagar Stn. building	DNR	206	17	440	13	71175	
21	Buxar Stn. Building		334	28	440	16	87600	
22	Ara Stn. Building		306	26	440	10	54750	
23	Danapur Stn. Building		2660	222	440	57	312075	
24	DNR workshop building		483	40	440	10	27375	
25	Patna Stn. Building		1697	141	440	2793	15291675	
26	Patna central hospital		754	63	440	1470	8048250	
27	Rajendranagar stn. Bulding		1320	110	440	748	4095300	
28	Kful Stn. building		530	44	440	20	109500	
29	Jhajha Stn. Building		1002	84	440	30	164250	
30	Jhajha Rly. Hospital		831	69	440	10	54750	
31	Jehanabad Stn. Building		198	17	440	7	35588	
32	Mokama stn. Building		808	67	440	26	139613	
33	Mokama RPF barrack		158	13	440	2	10950	
34	Mokama ghat RPF Trg. Centre	395	33	440	30	163155		
	Total		11682	974		5242	28666006	
35	Running room, Dhanbad	DIIN	250	21	440	30	183960	
36	Running room, Gomoh		Jharkhand	350	29	440	30	183960
37	Running room, Barwadih		800	67	440	66	404712	
38	Running room, Singrauli		MP	500	42	440	35	214620
39	DRM office, building		Jharkhand	1500	125	440	300	822150
40	Control Barkakana, building		Jharkhand	800	67	440	40	153300
41	Control Chopan, building		UP	500	42	440	56	214620
42	Dhanbad Hospital building		Jharkhand	1500	125	440	125	479062
	Total		6200	517		682	2656384	
43	DRM Building/MGS	MGS	2000	167	440	388	2549160	
44	Hospital/MGS		UP	1200	100	440	246	1706010
45	Officer's club MGS		750	63	440	52	113880	
46	Hospital/Gaya		Bihar	660	55	440	110	321200
47	TRS Shed/MGS		1150	96	440	100	648000	
48	Running room-17(New)		UP	150	13	440	80	292000
49	Running room-17(Old)			110	9	440	80	292000
50	Running room-555			160	13	440	80	292000
51	Running room-556			180	15	440	80	292000
52	Running room-1102			110	9	440	80	292000
53	Running room-Gaya	Bihar	160	13	440	80	292000	
54	Community hall MGS	UP	160	13	440	40	72000	
	Total		6790	566		1416	7162250	
	Grand Total		58717	4893		8430	42633331	

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Annexure VII (iv)

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Sl. No.	Installation Location at Railways	Approximate roof top space available as per survey (in Sq. Mtr)	Proposed Power Pack Capacity in (Kwp)	Connecting Voltage(v)	Connected Load(kW)	Annual Power Consumption (kwh) fig in '000	
Division- KHURDA ROAD							
1	North Block GM Bldg/Rail Sadan/BBS	1152	100	415V	85	219	
2	Construction office Complex, Rail Vihar, BBS	5000	400	415V	250	803	
3	Running Room/BBS	600	50	415V	35	91	
4	Station building at CTC	3000	250	415V	192	657	
5	DRM Bldg/KUR	1920	150	415V	285	949	
6	Div. Rly Hospital/KUR	5400	450	415V	62	182	
7	ORH/Puri	600	50	415V	200	657	
8	PRS/Berhampur	600	50	415V	50	146	
9	Running Room/PSA	600	50	415V	100	292	
10	ELS Admn BldgANGL	1800	150	415V	50	146	
	Division- Sambalpur	0	0				
11	Sambalpur Station	1211	100	415V	100	328	
12	Balangir Station	1803	150	415V	161	547	
13	Barapali Station	1852	150	415V	40	127	
14	Dungriipali Station	602	50	415V	20	54	
15	Khaptiipali Station	625	50	415V	33	110	
15	Lisonga Station	1213	100	415V	32	109	
17	Kantabanji Station	1245	100	415V	192	657	
18	Kesinga Station	1805	150	415V	71	237	
19	Lanjigarh Station	612	50	415V	28	91	
20	Theruvali Station	620	50	415V	11	29	
21	Titlagarh Station	3604	300	415V	320	1095	
	Division- WALT AIR	0	0				
24	Jagdarpur Station	652	50	415V	182	638	
25	Dantewara Station	608	50	415V	49	164	
	Grand total	37124	3050				
		3050KWP (3.0MWP approx.)					

Details for Installation of 20 MWp Solar Plant over Northern Railway							
DLI Division							
S.No.	Section	Intallation Location at Railways	Approximate roof top space available as per survey(Sq Meter)	Proposed Power Pack Capacity (KWp)	connecting Voltage(V)	Connected Load (KW)	Annual Power Consumption (kwh)
1	DUK Section	Subzi Mandi	228	20	11000	84	143590
2		Delhi Azadpur	260	5	440	4	60960
3		Adrash Nagar	609	50	440	135	157896
4		Holambi Kalan	216	10	440	9	37680
5		Narela	298	25	440	45	289764
6		Sonipat	1530	90	11000	92	390528
7		Ganaur	292	25	440	42	350640
8		Smalkhan	258	20	440	25	102480
9		Panipat	1936	105	11000	104	715572
10		Babarpur	162	10	440	11	140328
11		Gharaunda	82	5	440	15	107160
12		Bajidan Jattan	136	10	440	15	45528
13		Bhaini Khurd	92	5	440	9	62688
14		Dhoda Kheri	271	5	440	8	66240
15		Mohri	140	10	440	8	36060
16	SBB-GZB	Ghazaibad	4600	120	1100	120	3848940
17	GZB(Ex)- MTC- SRE(Ex)	Tapri	600	30	440	29	242760
18		Deoband	1652.64	20	440	25	44412
19		Muzaffar Nagar	2410	200	11000	200	233568
20		Meerut Cantt	1070	80	11000	80	503808
21		Meerut City	5690	235	11000	236	1037808
22		Modi Nagar	2240	40	440	40	99264
23		Murad Nagar	576	20	440	20	78744
24		Guldhar	320	10	440	10	61272
25		Naya Ghaziabad	375	15	440	14	108000
26		DLI(Ex)- JHL- BTI(Ex)	Kartar Singh	160.4	15	440	15.52	174228
27	Kot Fateh		230.1	20	440	24	28608
28	Maisaar Khana		221.9	20	440	34.6	42264
29	Maur		114.0	10	440	48.04	42264
30	Mansa		393.9	30	440	45	285540
31	Narender Pura		1254.4	35	440	34.5	65076
32	Budhlada		370.0	30	440	44.36	182532
33	Datewas		167.4	10	440	8	39192
34	Bareta		561.0	35	440	34	79104
35	Kahan Garh		167.4	5	230	6	27072
36	Jakhal		1092.8	40	11000	38	999420
37	Himmatpura		169.2	10	440	12	36876
38	Tohana		119.3	10	440	17	105240
39	Narwana		594.0	15	440	14	278160
40	Uchana		146.2	10	440	15	133440
41	Barsola			10			23400
42	Jind Jn.		1440.9	30	11000	29	2451360
43	Rohitak		2319.5	110	11000	109	1763640
44	Sampla		137.3	10	440	25	156576
45	Bahadurgarh		1469.0	50	440	49	338760
46	Ghevera	96.0	10	440	26	65868	

Northern Railway

Annexure vii - (v)

47	Nangloi	525.0	15	440	15.75	167868
48	Shakurbasti	750.0	30	11000	30	528624
49	Delhi Kishan	700.0	25	11000	26	296424
		Sub-Total	1750			17277226

S.No	Section	Intallation Location at Railways	Approximate roof top space available as per survey(Sq Meter)	Proposed Power Pack Capacity (KWp)	Connecting Voltage(V)	Connected Load(KW)	Annual Power Consumption (kwh)
1	BSB(Ex)- FD- LKO(Ex)	Shivpur	200	15	415V	50 KW	107155
2		Birapati	160	10	415V	10 KW	12480
3		Babatpur	250	10	415V	10 KW	12480
4		Jalaganj	240	5	415V	3 KW	3744
5		Sarkoni	100	10	415V	10 KW	12480
6		Zafraabad	840	10	415V	31 KW	52608
7		Jaunpur	3139	75	11KV	150 KW	377613
8		Mehgawan	100	10	415V	10 KW	12480
9		Mehrawan	250	20	415V	20 KW	10096
10		Manikala Halt	50	5	415V	5 KW	46240
11		Shahganj	1314	10	415V	30 KW	101380
12		Tulsi Nagar	248	10	415V	10 KW	12498
13		Malipur	282	20	415V	18 KW	12941
14		Jafaganj	113	5	230V	6 KW	7488
15		Akbarpur	1143	5	415V	35 KW	72025
16		Tanda	300	20	415V	18 KW	25501
17		Katahri	176.55	15	415V	15 KW	17499
18		Goshinganj	863	40	415V	45 KW	31809
19		Ulna Bhari	290	20	415V	20 KW	18912
20		Billharghat	280	15	415V	20 KW	23850
21		Darshan Nagar	350	20	415V	20 KW	29186
22		Ayodhya	3714	50	415V	50 KW	82672
23		Acharya Narendra Dev Nagar	745	10	415V	8 KW	33342
24		Faizabad	7531	290	11000	300 KW	1329108
25		Salarpur	307.41	10	415V	11 KW	33125
26		Sohawal	426.53	20	415V	20 KW	33941
27		Baragaon	162.1	10	415V	12 KW	15105
28		Gauriyamau	92.25	5	415V	6 KW	63
29		Rudauli	941	35	415V	40 KW	53267
30		Raozagaon	505.3	25	415V	25 KW	10574
31		Patranga	393.9	20	415V	25 KW	16427
32		Daryabad	968.2	30	415V	38 KW	47640

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33	Saickhanpur	331.64	10	415V	10 KW	12480
34	Safdarganj	816.8	25	415V	23 KW	28704
35	Rusaoli	202.11	5	415V	5 KW	18720
36	Barabanki	2953	85	415V	85 KW	466351
37	Sefedabad	590.92	15	415V	15 KW	2330
38	Jugaur	174.93	5	415V	10 KW	4824
39	Malhaur	511.66	20	415V	35 KW	150424
1	Alamnagar	472	15	415V	50 KW	264000
2	Transportnagar	250	5	415V	15 KW	31401
3	Utraithia	326	10	415V	12 KW	38844
4	Mohan Lal Ganj	391	15	415V	15 KW	36305
5	Kankaha	303	5	415V	5 KW	22312
6	Nigohan	341	5	415V	5 KW	50070
7	Sri Raj Nagar	263	5	415V	5 KW	6240
8	BacharAWA N	772	10	415V	8 KW	9984
9	Kundanganj	311	10	415V	10 KW	18334
10	Harchand Pur	332	10	415V	8 KW	9984
11	Gangaganj	256	5	415V	6 KW	7488
12	Raibereli	8272	130	11000	128 KW	650880
13	Rupamau	124	5	415V	5 KW	6240
14	Farsatganj	311	5	415V	6 KW	7488
15	Jais	867	5	415V	6 KW	7488
16	Bani	111	10	415V	16 KW	3444
17	Gauriganj	749	25	415V	23 KW	84000
18	Talakhajuri	139	10	415V	17 KW	19668
19	LKO(Ex)- RBL-PBH- BSB(Ex) Amethi	5129	50	415V	49 KW	75080
20	Misrauli	180	15	415V	15 KW	9015
21	Antu	846	5	415V	5 KW	6240
22	Jageshar Ganj	236	10	415V	10 KW	12480
23	Chilbila	270	15	415V	22 KW	27456
24	Pratapgarh	5691	190	11000	190.8KW	1402224
25	Pirhiganj	242	10	415V	9 KW	11232
26	Dandupur	416	10	415V	8 KW	9984
27	Gaura	376	10	415V	8 KW	9984
28	Swansa	276	15	415V	15 KW	18720
29	Badshapur	100	10	415V	15 KW	18720
30	Janghai	3214	15	415V	16 KW	19968
31	Saraikan Sarai	100	5	415V	5 KW	9984
32	Suriwa	441	10	415V	11 KW	37176
33	Modh	216	0	415V	2 KW	1248
34	Bhadobi	2796	50	415V	50 KW	127818

35		Parsipur	160	10	415V	10 KW	12480
36		Kapsathi	200	5	415V	5 KW	6240
37		Sewapuri	530	5	415V	5 KW	6240
38		Chaukhandi	370	5	415V	6.5 KW	8736
39		Lohta	360	15	415V	20 KW	27031
40		Kashi	400	30	415V	80 KVA	803645
1	LKO-SLN-ZBD-BSB	Lucknow	21384	275	11000	250 KW	6106656
2		DRM office, LKO	15550	515		515 KW	2166276
3		JRRPF, Lucknow	5000	415	11000	1.2 MW	6885432
4		IRTIM	2500	210	11000	1.1 MW	782580
5		Utaratia	326	10	415V	12KW	38844
6		Bakkas	255	10	415V	10KW	13200
7		Anoopganj	210	5	415V	5KW	13200
8		Rahamatnagar	135	10	415V	15KW	39600
9		Chaundarauli	225	20	415V	20KW	40800
10		Trivediganj	250	10	415V	10KW	
11		Haidergarh	185	10	415V	10KW	12480
12		Chaubisi	280	10	415V	10KW	7236
13		Akbarganj	245	10	415V	10KW	12480
14		Sindurwa	345.4	15	415V	18KW	22464
15		Nihalgarh	1414	30	415V	30KW	34692
16		Adhinpur	345	10	415V	10KW	12480
17		Musifirkhana	290	5	415V	5KW	6240
18		Shiv Nagar	360	10	415V	10KW	12480
19		Bandhuakalan	260	10	415V	10KW	12480
20		Sultanpur	7246	55	11000	58KW	231408
21		Pakhruli	446	10	415V	10KW	24960
22		Bhadayia	371.26	5	415V	5KW	
23		Lambhua	828.72	10	415V	10KW	12480
24		Maharani Pashim	565	10	415V	20KW	24960
25		Koiripur	460	10	415V	10KW	12480
26		Harpalganj	543	10	415V	10KW	12480
27		Sarai Harkhu	96	5	415V	10KW	12480
28		Baksha	96	5	415V	5KW	6240
29		Jaunpur City	878.46	20	11000	20KW	377616
30		Zafraabad	840	10	415V	31KW	52608
		Sub-Total		3535 KWp		24262765	

* 1.6 MW Solar Power Plant has been proposed for Varanasi Railway Station and same is not included in proposed plan.

Details for Installation of 20 MWp Solar Plant over Northern Railway								
FZR DIVISION								
S.No.	Section	Installation Location at Railways		Approximate roof top space available as per survey(Sq Meter)	Proposed Power Pack Capacity (KWp)	connecting Voltage(V)	Connected load (KW)	Annual Power Consumpti on (kwh)
1	FZR- Bhatinda(Ex)	Firozpur	DRM Office	4098	340	11000	2100	2295781
2			Railway Hospital	2784.9	230			
3			RRI Building	239	20			
4			Washing Line	448	35			
5			Running	180	15			
6			Booking	104	10			
7			Reservation Centre	130	10			
8			Station Building	1349	110			
9		Kasu Begu	Station Building	250	15	415	15	29784
10		Golehwala	Station Building	250	20	415	20	52224
11		Faridkot	Station Building	650	40	415	41	147120
12		Glani Zail Singh Sandhwan	Station Building	200	15	415	15	44448
13		Kot Kapura	Station Building	800	65	11000	135	394380
14		Romana Albel Singh	Station Building	250	15	415	19	36864
15		Gangsar Jaitu	Station Building	650	55	415	95	139812
16		Chand Bhan	Station Building	200	15	415	20	42960
17		Goneana	Station Building	300	20	415	21	73044
18		Ludhiana	Station Building	1800	150	11000	1290	2818881
19			PF No. 1	4200	350			
20			PF No. 2 & 3 Shed	4100	340			
21			PF No. 4 & 5 Shed	1600	130			
22			PF No. 6 & 7 Shed	1800	150			
23			PRS Building	350	30			
24			Officer Rest house	280	25			
25			RPF Barack	80	5			
26			Power Cabin	350	30			
27			Power House	200	10			
28			Railway Hospital	250	20			
29			Guard Running	500	40			
30			ADEN Complex	280	20			

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31	LDH-JUC-ASR	Jalandhar City	C & W Office	300	25	11 KV	1180	213439
32			Station Building	300	25			
33			GRP Thana	40	5			
34			RMS &	240	5			
35			Officer rest house	210	10			
36			Goods Office	45	5			
37			BRI office, GRP & RPF Barack	85	5			
38			Power Cabin	400	35			
39			Power House,	80	5			
40			Railway Hospital	75	5			
41			DMU Shed/ Sr. DME Complex	143	10			
42			RPF Barack &	120	10			
43			Accounts complex, Officers rest house	400	35			
44			Jalandhar Cantt	Bridge Workshop JRC	300				25	11000	1980	93060
45	Sura Nussi	Station Building	50	5	220	20	4154	
46	Kartarpur	Station Building	75	5	220	45	9552	
47	Hamira	Station Building	50	5	220	23	4814	
48	Dhilwan	Station Building	400	35	220	41	5746	
49	Beas	Station Building	600	50	11000	243	42976	
50	Butari	Station Building	72	5	415	38	72984	
51	Tangra	Station Building	210	15	415	45	43524	
52	Jandiala	Station Building	204	15	415	81	82656	
53	Amritsar		PF No. 1	1783	150	11000	1450	1312200
54			PF No. 2-3	1800	150			
55			PF No. 4-5	960	80			
56			Station building	2700	225			
57			Passenger Hall	676	55			
58			PRS Building	1000	80			
59			Shed A,B,C,D	4600	380			
60			RPF Barack	600	50			
61		B-Block Hospital	7000	580				
62	Pathankot		PRS Building PTK	240	20	11000	710	705775
63			Running Room	300	5			
64			Station Building	1200	100			

65		Railway Health unit	500	40			
66		ORH	210	15			
67		Power	200	15			
68	Pathankot Cantt.	Station Building	800	65	415	266	247200
69		PRS Building	240	20			
70	Madhopur Punjab	Station Building	120	5	415	5	43716
71	Kathua	Station Building	150	15	11000	14	61320
72	BUDHY	Station Building	313	25	415	64	31200
73	Chhan Arorian	Station Building	317	25	415	72	45864
74	Chak Dayala	Station Building	81	10	220	17	8280
75	Hira Nagar	Station Building	304	25	415	81	57600
76	Ghagwal	Station Building	350	30	415	89	19715
77	Samba	Station Building	555	90	415	184	259102
78		RE Building Samba	410	35			
79	Vijaypur Jammu	Station Building	311	25	415	133	249118
80	Bari Brahman	Station Building	398	30	415	226	267120
81	Jammu Tawi	Station Building	1860	155	11000	4120	329460
82		PRS Building	860	70			
83		RLY. Hospital	450	35			
84		Officers Rest House	506	40			
85		Guard & Driver Running Room	732	60			
86		TTE Running Room	265	20			
87	Platform No. 1 & 2 Shed Area	9650	805				
88	Udhampur	Station Building	300	50	11000	253	876420
89		RPF Barack	180	15			
90		Health unit	100	5			
			Sub-Total	5270			11162293

* 1 MW Solar Power Plant at Amritsar is already proposed and same is not included in proposed plan.

MB Division							
S.No	Section	Intallation Location at Railways	Approximate roof top space available as per survey(Sq Meter)	Proposed Power Pack Capacity (KWp)	Connecting Voltage(V)	Connected Load(KW)	Annual Power Consumption (kwh)
1	BE-MB-LKO(Ex)	RPF Barrack,MB	200 Sq. Mtrs.	10	11000	1500	32400
2		Station Building, MB	2700 Sq. Mtrs.	250			1080000
3		PF Shelters, MB	7000 Sq.Mtrs	600			1080000
4		RMU station	430 Sq. Mtrs.	40	415	500	240000
5		PF Shelters, RMU	4000 Sq.Mtrs	350			240000
6		Station Building,MIL	280 Sq.Mtrs	20	415	25	240000
7		Station Building,PMR	280 Sq.Mtrs	25	415	25	240000
8		Station Building,CBJ	280 Sq.Mtrs	25	415	25	240000
9		Bareilly PRS	780 Sq.Mtrs.	70	415	25	151200
10		PF Shelters & Station , BE	7500 Sq.Mtrs.	650		890	1020000
11		Running Room ,BE	377 Sq. Mtrs.	35		108000	
12		Shahjahanpur	625 Sq.Mtrs.	55	11000	800	840000
13		PF Shelters, SPN	3000 Sq. Mtrs	250			840000
14		Godown & Office HRI	280 Sq. Mtrs.	25	11000	500	48000
15		Station Building, HRI	400 Sq. Mtrs.	35			480000
16		PF Shelters, HRI	2500 Sq. Mtrs	200			480000
17		PF Shelters & Station, BLM	2500 Sq. Mtrs	200	415	400	480000
18		Station Building,KNT	170 Sq.Mtrs	15	415	33	15600
19		Station Building,SEO	250 Sq.Mtrs	25	415	27	48636
20		Najibabad Station	850 Sq.Mtrs.	75	11000	78	281460
21		Running Room,NBD	373 Sq.Mtrs	20		20	30000
22		Station Building,RK	1035 Sq.Mtrs	25	415	25	108000
23		PRS Building,RK	400 Sq.Mtrs	10		10	36000
24		Station Building,JWP	240 Sq.Mtrs	20	415	30	66000
25		PRS Building,HW	730 Sq.Mtrs	50		50	240000

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26	MB(Ex)-HW- DDN	Station Building,HW	900 Sq.Mtrs	80	11000	250	360000	
27		New Washing Line,HW	800 Sq.Mtrs	70		100	360000	
28		Station Building,RKSH	140 Sq.Mtrs	10	415	30	48000	
29		Station Building,RWL	245 Sq.Mtrs	20	415	40	81600	
30		Station Building,DWO	100 Sq.Mtrs	10	415	10	72000	
31		Station Building,HRW	270 Sq.Mtrs	25	415	25	60000	
32		Station Building,DDN	195 Sq.Mtrs	20	11000	445	360000	
33		PRS Building,DDN	335 Sq.Mtrs	30		100	360000	
34		Ind Booking Office, DDN	215 Sq.Mtrs	20		50	240000	
35		Station Building,AO	280 Sq.Mtrs	20		415	20	240000
36		MB(Ex)-CH- ALJN	Station Building,CH	1500 Sq.Mtrs	80	11000	80	240000
37			ZRTI Building,CH	5300 Sq.Mtrs	150		150	240000
38			Running Room,CH	245 Sq.Mtrs	10		10	19200
39			Power Cabin,CH	500 Sq.Mtrs	45		75	180000
40	Station Building,BJ		378 Sq.Mtrs	10	415		10	13200
41	Station Building,DN		265 Sq.Mtrs	10	415	10	18000	
42	Station Building,BBA		382 Sq.Mtrs	10	415	10	24000	
43	Station Building,RG		502 Sq.Mtrs	20	415	20	30000	
44	Station Building,DIB		380 Sq.Mtrs	19	415	19	24000	
45	Station Building,AUR		280 Sq.Mtrs	10	415	10	18000	
46	Station Building,SSKA		260 Sq.Mtrs	20	415	20	24000	
47	Station Building,AFR		280 Sq.Mtrs	25	415	25	30000	
48	Station Building,DUB		280 Sq.Mtrs	25	415	25	30000	
49	Station Building,KEG		200 Sq.Mtrs	20	415	25	26400	
			Sub-Total		3839		11763696	

UMB DIVISION								
S.No.	Section	Intallation Location at Railways		Approximate roof top space available as per survey(Sq Meter)	Proposed Power Pack Capacity (KWp)	connecting Voltage(V)	Connected load (KW)	Annual Power Consumption (kwh)
1	UMB-LDH(Ex)	Ambala Cantt	Old Station bldg	1925	160.00	11KV	5509	7577088
2			UTS & 1st class W/R	430	35.00			
3			New W/H bldg	240	20.00			
4			PF 1	1833.49	150.00			
5			PF 2/4	1788.9	150.00			
6			PF 2/3	819.28	65.00			
7			PF 6/7	2496	200.00			
8		Ambala Cantt	DRM office A Block	900	75.00	11KV	208	Combined with S.No.10
9			DRM office B Block	1054	80.00			
10			DRM office C Block	477.16	35.00			
11			DRM office D Block	554.6	20.00			
12		Ambala City	Station Bldg	365	30.00	415V	55	499949
13		Shambhu	Station Bldg	240	20.00	415V	32	48066
14		Rajpura	Station Bldg	950	80.00	11 KV	250	750000
15		Sarai Banjara	Station Bldg	150	10.00	415V	73	40000
16			PF-2/3 Shed	375	30.00			
17		Sadhugarh	ASM, SS & Relay Room	320	25.00	415V	40	3989
18		Sirhind	Station Bldg	2478.55	205.00	11KV	265.3	51692
19		Govindgarh	Station Bldg S&T room	411.74	35.00	415V	101.98	14480
20		Khanna	Station Bldg	1966	105.00	415V	105	16013
21		Chawapail	ASM, SS & Relay Room, W/Hall	605.9	50.00	415V	57.6	4925
22		Doraha	Station Bldg S&T room	640.82	50.00	415V	115	15542
23	SRE-UMB(Ex)	Saharanpur	Station Bldg	440	35.00	33 KV	3781.5	4845000
24			PF No. 2/3 & 6	930	75.00			
25		Pilakhani	Station Bldg	65	5.00	416V	33	27686
26		Sarsawa	Station Bldg	110	5.00	415V	6	7419
27		Kalanaur	Station Bldg	50	5.00	415V	31	23139
28		Jagadhari	Station Bldg	1015.24	85.00	415V	375	547140
29		Jagadhari	Station Bldg	411.3	35.00	415V	4525	5449440
30		Darazpur	Station Bldg	227.95	20.00	415V	20	24432
31		Mustafabad	Station Bldg	141.5	30.00	415V	60	41558
32		Barara	Station Bldg	292.29	25.00	415V	85	35212

33	UMB(Ex)- CDG-KLK	Kesri	Station Bldg	152	10.00	415V	50	17059			
34		Dhulkot	Station Bldg	368	20.00	415V	22	302959			
35		Lalru	Station Bldg	368	30.00	415V	27	65236			
36		Dhappar	New Bldg	368	30.00	415V	32	54507			
37		Ghaggar	Station Bldg	368	30.00	415V	75	67932			
38		Chandigarh	Station Bldg	1700	140.00	11KV	1533	922705			
39			PF -2/3	2176	180.00						
40			PF -4/5	2176	180.00						
41			Station Bldg PKL side	120	10.00						
42			Loco lobby	160	10.00						
43			Power house STN	336	30.00						
44			Power house Colony	120	10.00						
45			Chandigarh	PRS Bldg	196				15.00	11KV	550838
46				ORH	361				30.00		
47				TTE R/Room	79				5.00		
48		RPF Barrack		160	10.00						
49		CDO Complex		481	40.00						
50		Power house W/Line		120	10.00						
51		Sick line shed		2500	210.00						
52		Hospital		320	25.00						
53		TA camp	1489	15.00	415V	16	15806				
54		Chandimandir	Station Bldg	250	20.00	415V	50	3930			
55		Kalka	Station Bldg	3780	315.00	415V	2093	2532000			
56		Kalka	PF No. 1. shed	2400	200.00						
57		Kalka	PF No. 2/3 shed	2100	175.00						
58		Kaulli	Station Bldg	105	10.00	415V	27.50	49000			
59			Patiala	Parcel, Porch and Pass.hall	738	60.00	415V	250	550000		
60				PF-1 Shed	2163	180.00					
61				PRS Bldg	240	20.00					
62		Chhintawala	Station Bldg	54	5.00	415V	19.2	41000			
63		Dhuri	Station Bldg	509	40.00	11 KV	406.42	498871			
64			Rest houses	80	5.00						
65			PTF shed	230	20.00						
66	DUI Running room		248	20.00							
67	Tapa	Station Bldg	398	30.00	415V	70.52	113195				
68	Barnala	Station Bldg	385	30.00	415V	140.08	257101				
69		RPF office	96	10.00							
70	Hadiyaya	Station Bldg	71	5.00	415V	38.14	36684				

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71	RPJ(Ex)-DUI-RTI	Rampuraphul	Station Bldg	47	5.00	415V	105.4	189638
72		Lehramohabal	Station Bldg	75	5.00	415V	53.65	21888
73		Bhucchu	Station Bldg	58	5.00	415V	51.21	22464
74		Bhatinda Cantt	Station Bldg	110	10.00	415V	64.61	24192
75		Bhatinda	Station Bldg	1620	135.00	11 KV/0.415 KV	2510	218304
76			Hospital	518	40.00			48960
77			T/exch	270	20.00			28800
78			RRI Parcel	6112	135.00			129600
79			Guard RR	110	35.00			69120
80			Driver RR	495	40.00			120960
81			ORH	491	20.00			103680
82			CDO Complex	550	510.00			149760
83			DEN OFFICE	209	10.00			28800
84		SUB STN	600	50.00	31680			
85		Balluana	Station Bldg	62	5.00	415V	34.08	14400
86		Giderbah	Station Bldg	301	25.00	415V	53.63	27648
87			PF	128	10.00			
88		Malot	Station Bldg	413	35.00	415V	78.23	44928
89		Abohar	Station Bldg	271	20.00	415V	348.73	60480
90		Kilawali Punjab	Station Bldg	89	5.00	220V	12.34	14976
91		Panjkosi	Station Bldg	100	10.00	415V	12.8	27072
92	Electric Loco Shed, SRE	Electric Loco shed Saharanpur	10 Meter Double story building	819	85	11000	880	400000
93			Admin Building	610	65			
94			Canteen	350	35			
95			Training School	323	35			
96			Electric Sub Station	198	20			
97			ACOS building	1291	130			
			Sub-Total	5635.00			27878943	

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Annexure VII - (vi)

Annexure-I

S.N.	Div n./ WS /Shed	State	Installation Location at Railways	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)	
1	Agra	UP	DRM Building Agra	378	35.00	440 V	400	4850000	
2			Rly Hospital Agra	250	18.00	440 V	150	1800000	
3			Running room Agra	250	25.00	440 V	150	1200000	
4			Running room Idgah	150	15.00	440 V	20	240000	
5			Idgah Station	1200	120.00	440 V	12	145500	
6			Running room Mathura	150	15.00	440 V	30	360000	
7			Mathura Stn. PF No.1	1200	120.00	440 V	30	360000	
8			Mathura 2nd Entry gate	1000	100.00	440 V	18	210500	
9			Kanha ORH, Mathura	150	15.00	440 V	20	240000	
10			Bihari Banke ORH, Mathura	100	10.00	440 V	18	210400	
11			Agra Fort Station	800	80.00	440 V	80	960500	
12	Rajasthan		Dholpur Station	250	25.00	440 V	20	240000	
13	WS/JHS	UP	Wagon Repair Workshop, Jhansi	38500	3850.00	11 kV	21060	4030280	
14	RSK STLI	MP	Production Shed No. 2 & 3	17000	1700.00	11 kV	4312	2730716	
15	JHS	UP	DRM office JHS	3000	300.00	440	700	134400	
16			Railway Hospital JHS	1010	100.00	440	250	750000	
17			New ORS JHS	150	15.00	440	30	43200	
18			DMIC building DSI shed JHS	445	44.50	440	200	360000	
19			DTC DSL JHS	105	10.00	440			
20		MP		Parcel office to new FOB PF no 1 at GWL	1310	130.00	440	250	720000
21				Roof of UP/PRS on PF 1 GWL	470	47.00	440		
22				Railway hospital GWL	300	30.00	440	25	75000
23				ORH at KUJR	55	5.00	440	15	16200
24				Rlw station building KUJR	280	28.00	440	20	57600
25				CATR station building	100	10.00	440	15	28800
26				Admin. Block building	1241.1	124.11	440		
27		PPIO & other	1435.32	143.53	440				
28		BTC	622.496	62.25	440				
29		ELS /JHS	UP	Receiving ward new	756.88	75.69	440		
30				Receiving ward old	573	57.30	440		
31				Canteen	576.905	57.69	440		
32				Time office	325	32.50	440		
33				Mill wright, Sub-station building	256.5	25.65	440		

North Central Railway

Annexure vii - (a)

S.N.	Div n./ WS /Sh ed	State	Installation Location at Railways	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
34	ALD	UP	MZP PF 01 station building	1301.5	130.00	440	100	
35			CETA school CNB building roof	3650	365.00	440	30	
36			CETA Hostel CNB building roof	3000	300.00	440	40	
			Old Driver Running Room Central CNB	857	85.70	440	45	
37			Driver Running Room GMC	841	84.10	440	50	
38			Guard Running Room GMC	1100.34	110.03	440	40	
39			New driver Running Room CNB	789.03	78.90	440	50	
40			Guard Running Room Central CNB	705.21	70.52	440	30	
41			ALJN Hospital	513.06	51.306	440		
42			Khurja Running Room	829.1	82.91	440	40	
43			MZP Electric substation	209.5	20.95	440	5	
44			MZP OHE office	224.91	22.49	440	10	
45			BDL station building	158.65	15.87	440	40	
46			Officer Rest house BDL	178.42	17.84	440	8	
47			GOY Railway Station building roof	461.39	46.14	440	35	
48			New Coaching Complex CNB building roof	520	52.00	440	250	
49			Officer's Rest house CNB building roof	250	25.00	440	30	
50			ALJN Railway Station building roof RMS office east end	407	40.70	440	170	
51			ALJN PRS building	332.28	33.23	440	10	
52			ALJN Parcel Office	136.5	13.65	440	12	
53			ALJN Electrical (SSE) office	371	37.10	440	5	
54			Khurja Officer's Rest house	158.39	15.84	440	3	
55			Dadri Running Room	353.1	35.31	440	20	
56			Dadri New construction at station	319.95	32.00	440	10	
			MWH Station Building	580.86	58.09	440		
			RUB Station Building	590	59.00	440		
			FTP Hospital	390	39.00	440		
			BKO Station Building	600	60.00	440		

North Central Railway

Annexure vii - (vi)

S.N.	Div n./ WS /Sh ed	State	Installation Location at Railways	Approx rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
57	ETC/ CNB		ETC/CNB	3000	300.00	230	100	300000
58	TM S/C NB		Shed & Building	2234	223.40	440		
59	ELS /C NB		Store building	379	37.90	440		
60		Admin. Block building	525	52.50	440			
61		AMM chamber side building	516		51.60	440		
62		Wards side building			0.00	440		
63		Proposed building for new Admin. Block	765	76.50	440			
64		Covered area of new PPO building	250	25.00	440			
				Total	101887.39	10175.8		

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N.G. Rly

Annexure ■ vii (vii)

Details of available roof top spaces in NER-Railway buildings suitable for harnessing solar energy.

S.N.	Divn.	Installation location at Railways	Approximate Rooftop space available as per survey (Sq.Mtr)	Proposed Power pack Capacity (KWp)	Whether Net metering is available or Not in the State/UT	Connected Electrical Load KW	Type of roof- RCC Flat/ RCC Sloping/ Tinned Roof sloping/ Asbestos sloping
1	IZN	Izzatnagar Railway Station and other associated buildings	1140	100 KWp	YES	65	RCC FLAT
2	IZN	Bareilly City Railway Station and other associated buildings	698.54	50 KWp	YES	29	RCC FLAT
3	IZN	Baherl Railway Station and other associated buildings	976	50 KWp	YES	20	RCC FLAT
4	IZN	Kasganj Railway Station and other associated buildings	555	50 KWp	YES	100	RCC FLAT
5	IZN	Mathura Cantt Railway Station and other associated buildings	700	50 KWp	YES	50	RCC FLAT
6	IZN	Hathras City Railway Station and other associated buildings	750	50 KWp	YES	20	RCC FLAT
7	IZN	Fatehgarh Railway Station and other associated buildings	689.85	50 KWp	YES	30	RCC FLAT
8	IZN	Kannauj Railway Station and other associated buildings	1709	50 KWp	YES	25	RCC FLAT
9	IZN	Pilibhit Railway Station and other associated buildings	768.79	50 KWp	YES	80	RCC FLAT
10	IZN	Kathgodam Railway Station and other associated buildings	4300	150 KWp	YES	380	RCC FLAT
11	IZN	Haldwani Railway Station and other associated buildings	1300	100 KWp	YES	300	RCC FLAT
12	IZN	Lalkuan Railway Station and other associated buildings	3400	100 KWp	YES	150	RCC FLAT
13	IZN	Kashipur Railway Station and other associated buildings	3000	50 KWp	YES	37.5	RCC FLAT
14	IZN	Farrukhabad Railway Station and other associated buildings	1394	50 KWp	YES	10	RCC FLAT
15	IZN	Divisional Hospital/Izzatnagar	4460	200 KWp	YES	200	RCC FLAT

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N.C. Rly

Annexure VII (vii)

S.N.	Divn.	Installation location at Railways	Approximate Rooftop space available as per survey (Sq.Mtr)	Proposed Power pack Capacity (KWp)	Whether Net metering is available or Not in the State/UT	Connected Electrical Load KW	Type of roof- RCC Flat/ RCC Sloping/ Tinned Roof sloping/ Asbestos sloping
16	IZN	DRM Office/IZN and associated Buildings	6660	200 KWp	YES	250	RCC FLAT
17	IZN	Diesel Shed/Izzatnagar	4415	300 KWp	YES		RCC FLAT
18	IZN	DEMU Shed/CBJ	4868	300 KWp	YES		RCC FLAT
19	BSB	Manduadih Railway Station and other associated buildings	2160	150 KWp	YES	100	RCC FLAT
20	BSB	Aunrihar Railway Station and other associated buildings	636	50 KWp	YES	60	RCC FLAT
21	BSB	Ghazipur City Railway Station and other associated buildings	1212.75	100 KWp	YES	125	RCC FLAT
22	BSB	Mau Railway Station and other associated buildings	1900	150 KWp	YES	46	RCC FLAT
23	BSB	Azamgarh Railway Station and other associated buildings	1100	50 KWp	YES	32	RCC FLAT
24	BSB	Allahabad City Railway Station and other associated buildings	7606.81	600 KWp	YES	66	RCC FLAT
25	BSB	Jhansi Railway Station and other associated buildings	629.18	50 KWp	YES	19	RCC FLAT
26	BSB	Madhosing Railway Station and other associated buildings	2095.95	100 KWp	YES	30	RCC FLAT
27	BSB	Ballia Railway Station and other associated buildings	1083.39	100 KWp	YES	115.8	RCC FLAT
28	BSB	Siwan Railway Station and other associated buildings	800	50 KWp	YES	250	RCC FLAT
29	BSB	Thawe Railway Station and other associated buildings	1100	50 KWp	YES	26	RCC FLAT
30	BSB	Kaptanganj Railway Station and other associated buildings	880	50 KWp	YES	30	RCC FLAT
31	BSB	Deoria Sadar Railway Station and other associated buildings	2000	100 KWp	YES	25	RCC FLAT
32	BSB	Chhapra Railway Station and other associated buildings	12155	500 KWp	YES	20	RCC FLAT
33	BSB	DRM Office/BSB and associated Buildings	1200	50 KWp	YES	293 KW	RCC FLAT

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N-C Rly

Annex vii(vii)

S.N.	Divn.	Installation location at Railways	Approximate Rooftop space available as per survey (Sq.Mtr)	Proposed Power pack Capacity (KWp)	Whether Net metering is available or Not in the State/UT	Connected Electrical Load KW	Type of roof- RCC Flat/ RCC Sloping/ Tinned Roof sloping/ Asbestos sloping
34	LJN	Lucknow Jn. Railway station and associated buildings	3100	50 KWp	YES	588	RCC FLAT
35	LJN	Gorakhpur Railway Station and other associated buildings	2000	150 KWp	YES	775	RCC FLAT
36	LJN	ASH station and associated buildings	600	50 KWp	YES	50	RCC FLAT
37	LJN	Gomtinagar station & associated buildings	700	50 KWp	YES	50	RCC FLAT
38	LJN	BST Railway station and associated buildings	590	50 KWp	YES	95	RCC FLAT
39	LJN	Gonda station and associated building	2203	150 KWp	YES	275	RCC FLAT
40	LJN	Officer Rest house Gonda	580	50 KWp	YES	25	RCC FLAT
41	LJN	Administrative buildings Gonda	3510	250 KWp	YES	100	RCC FLAT
42	LJN	Gonda Hospital	1000	50 KWp	YES	75	RCC FLAT
43	GKP WS	Workshop + Offices	6824	200 KWp	YES	11672	RCC FLAT
		TOTAL		5150 KWp			

SN	Divn/ Sub-Divn.	State	Site/ Location name	Approx roof top space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
1	2	3	4	5	6	7	8	9
1	Tinsukia	Assam	Dibrugarh Rly. Stn. (DBRG)	586.5	50	400	45 KW	3,15,360
2	.. DO ..	.. DO ..	Carriage shed, DBRT	1375.5	50	400	200 KW	2,92,000
3	.. DO ..	.. DO ..	Power House, DBRT	845	100	400	1400 KW	98,11,200
4	.. DO ..	.. DO ..	Power House, DBRG	501.39	100	400	400 KW	28,03,200
5	.. DO ..	.. DO ..	Carriage lifting shop, DBWS	1309	100	400	210 KW	3,06,600
6	.. DO ..	.. DO ..	Bogie repairing shop, DBWS	2183	100	400	170 KW	2,48,200
7	.. DO ..	.. DO ..	Wheel turning shop, DBWS	1627	200	400	1053 KW	15,37,380
8	Katihar	West Bengal	New-Jaipalgunj Rly. Stn. (NJP) [PF-1A to 5]	1464	100	400	1150 KW	80,59,200
9	.. DO ..	Bihar	Katihar Rly. Stn. (KIR) [PF-1A to 5]	905	50	400	195 KW	13,66,560
10	Guwahati Sub-Divn.	Assam	Kamakhya station	2735	200	400	260 KW	18,22,080
11	.. DO ..	.. DO ..	Administrative & Lab. Building, Diesel Shed/New Guwahati	794	55	400	1255 KW	21,98,760
12	.. DO ..	.. DO ..	DTTC/Hostel/NGC & Wagon office/ New Guwahati	738	50	400	587 KW	41,13,696

NW Rly

Annexure VII - (ix)
Annexure-I

Harnessing of Solar Energy of 100MW on rooftop of Zonal Railways with CFA/VGF from MNRE.

S. No.	Division	Name and type of building	Connected electrical load of the premises in KW/MW	Present tariff of the DISCOM/SEB for the said Railway premises	Whether Net metering is available or not in the state /UT	Available Shadow rooftop area on which solar panels can be mounted (in meter square)	Type of Roof: RCC flat/ RCC sloping / Tinned roof sloping / Asbestos sloping	Assessed capacity of solar potential in kWp/MWp as per MNRE guidelines (in kWp)	Remarks
1	All div.	Ajmer	900 kW	6.25	Available	7000	Tinned roof sloping	500	Rajasthan
2		Hospital	160 kW	6.25	Available	900	RCC	100	Rajasthan
3		Abu road	600 kW	6.25	Available	6000	Tinned roof sloping	500	Rajasthan
4		Beawar	100 kW	6.25	Available	750	RCC	60	Rajasthan
5		Bhilwara	80 kW	6.25	Available	2000	Tinned roof sloping	25	Rajasthan
6		Sojat Road	55 kW	6.25	Available	560	RCC	40	Rajasthan
7		Jawai Bandh	30 kW	6.25	Available	350	RCC	24	Rajasthan
8		Nasirabad	22 kW	6.25	Available	158	RCC	10	Rajasthan
9		Saradhna	8 kW	6.25	Available	188	RCC	13	Rajasthan
10		Pushkar	84 kW	6.25	Available	113	RCC	10	Rajasthan
11		Mangaliyawas	8 kW	6.25	Available	158	stone slabe	8	Rajasthan
12		Khemli	25 kW	6.25	Available	429	RCC	20	Rajasthan
13		Debari	27 kW	6.25	Available	269	RCC	19	Rajasthan
14		Zawar	03 kW	6.25	Available	153	RCC	8	Rajasthan

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ANNEXURE IV (A)

N.W. Rly

15	Jaysamand Road	10 kW	6.25	Available	158	RCC	8	Rajasthan
16	Dungarpur	21 kW	6.25	Available	258	RCC	18	Rajasthan
17	Keshavnagar	23 kW	6.25	Available	290	RCC	14	Rajasthan
18	Sirohi Road	17 kW	6.25	Available	1230	RCC	15	Rajasthan
19	Banas	17 kW	6.25	Available	270	RCC	14	Rajasthan
20	Swarupganj	17 kW	6.25	Available	422	RCC	14	Rajasthan
21	Bhimana	10 kW	6.25	Available	197	Patti type	8	Rajasthan
22	Kivrali	21 kW	6.25	Available	224	Dome type	15	Rajasthan
23	Morthla	13 kW	6.25	Available	191	Patti type	10	Rajasthan
24	Maval	16 kW	6.25	Available	192	Patti type	13	Rajasthan
25	Iqbalgarh	27 kW	6.25	Available	273	Patti type	20	Rajasthan
26	Chitrasani	14 kW	6.25	Available	258	Dome type	11	Rajasthan
27	Karjoda	16 kW	6.25	Available	258	Patti type	13	Rajasthan
28	Ghosunda	7 kW	6.25	Available	148	RCC	10	Rajasthan
29	Kapasan	7 kW	6.25	Available	152	RCC	10	Rajasthan
30	Fatehnagar	7 kW	6.25	Available	151	RCC	10	Rajasthan
31	Bhimtal	5 kW	6.25	Available	167	RCC	10	Rajasthan
32	Kharwa	7 kW	6.25	Available	150	RCC	10	Rajasthan
33	Pipalaj	7 kW	6.25	Available	188	Stone slab	10	Rajasthan
34	Haripur	18 kW	6.25	Available	1290	RCC	14	Rajasthan

Sl. No.	Guriya	17 KW	6.25	Available	650	Material	State
36	Chandawal	17 KW	6.25	Available	728	RCC	Rajasthan
37	Bagrinagar	17 KW	6.25	Available	579	RCC	Rajasthan
38	Bhesana	18 KW	6.25	Available	806	RCC	Rajasthan
39	Dhreshwar	18 KW	6.25	Available	519	RCC	Rajasthan
40	Auwa	18 KW	6.25	Available	804	RCC	Rajasthan
41	Banta	17 KW	6.25	Available	807	RCC	Rajasthan
	Raghunathgarh						
42	Bhinwalya	17 KW	6.25	Available	725	RCC	Rajasthan
43	Somesar	14 KW	6.25	Available	872	RCC	Rajasthan
44	Khimel	18 KW	6.25	Available	202	RCC	Rajasthan
45	Jawali	17 KW	6.25	Available	171	RCC	Rajasthan
46	Mori bera	14 KW	6.25	Available	224	RCC	Rajasthan
47	Kothar	18 KW	6.25	Available	229	Patti type	Rajasthan
48	Nana	16 KW	6.25	Available	318	Dome type	Rajasthan
49	BKN div. RTGH station building	20 KW	6.25	Available	285	RCC	Rajasthan
50	CUR Station Building	20 KW	6.25	Available	244	RCC	Rajasthan
51	BKN PRS	35 KW	6.25	Available	1200	RCC	Rajasthan
52	BKN washing line	10 KW	6.25	Available	312	RCC	Rajasthan
53	BKN Hospital	20 KW	6.25	Available	550	RCC	Rajasthan
54	BKN DRM Office (New building)55	76 KW	6.25	Available	1000	RCC	Rajasthan

DW NW RLY

55	Parcel Officer SGNR	5 kW	6.25	Available	342	RCC	25	Rajasthan
56	New +Old Waiting Hall SGNR	50 kW	6.25	Available	563	RCC	40	Rajasthan
57	HMH Station building	30 kW	6.25	Available	350	RCC	20	Rajasthan
58	HSR Hospital	4 kW	6.46	Available	315	RCC	20	Haryana
59	HSR Station Building	40 kW	6.46	Available	650	RCC	50	Haryana
60	JP Station PF 4/5	1500 kW	6.25	Available	4000	AC sheet	500	Existing AC sheet shelter on PF 4/5 is proposed to be replaced with Galvalume sheet, in works programme. Rajasthan
61	Central Hospital JP	1500 kW	6.25	Available	1000	RCC	100	Rajasthan
62	Sikar Station	200 kW	6.25	Available	662	RCC	50	Rajasthan
63	Gandhinagar	80 kW	6.25	Available	500	RCC	50	Rajasthan
64	Rewari	900 kW	6.25	Available	500	RCC	50	Rajasthan
65	Kishangarh	80 kW	6.25	Available	500	RCC	50	Rajasthan
66	Ringus	25 kW	6.25	Available	100	RCC	10	Rajasthan
67	Sanganer	30 kW	6.25	Available	100	RCC	10	Rajasthan
68	Gatore Jagatpura	25 kW	6.25	Available	100	RCC	10	Rajasthan
69	Durgapura	60 kW	6.25	Available	100	RCC	10	Rajasthan
70	Rai-Ka-Bagh Palace	50	6.25	NIL	330	RCC FLAT	20	Rajasthan
71	Banar	30	6.25	NIL	225	RCC FLAT	10	Rajasthan

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Sl. No.	Locality	Area (sq. ft.)	Rate (Rs.)	Material	Volume (cu. ft.)	Remarks	State
73	Jajiwai	10	6.25	NIL	162	RCC FLAT	Rajasthan
74	Asranda	10	6.25	NIL	187	RCC FLAT	Rajasthan
75	Kherisalwa	10	6.25	NIL	175	RCC FLAT	Rajasthan
76	Mahamandir	15	6.25	NIL	50	RCC FLAT	Rajasthan
77	Mandor	25	6.25	NIL	195	RCC FLAT	Rajasthan
78	Marwar mathaniya	50	6.25	NIL	170	RCC FLAT	Rajasthan
79	Tivari	07	6.25	NIL	181	RCC FLAT	Rajasthan
80	Bhagat-Ki-Khoti	25	6.25	NIL	450	RCC FLAT	Rajasthan
81	Basni	20	6.25	NIL	120	RCC FLAT	Rajasthan
82	Salawas	15	6.25	NIL	180	RCC FLAT	Rajasthan
83	Hanwanti	15	6.25	NIL	200	RCC FLAT	Rajasthan
84	LUNI Jn.	25	6.25	NIL	230	RCC FLAT	Rajasthan
85	Rohat	15	6.25	NIL	220	RCC FLAT	Rajasthan
86	Kairla	15	6.25	NIL	220	RCC FLAT	Rajasthan
87	Pali marwar	50	6.25	NIL	400	RCC FLAT	Rajasthan
88	Bomadra	25	6.25	NIL	195	RCC FLAT	Rajasthan
89	Rajkiawas	20	6.25	NIL	172	RCC FLAT	Rajasthan
90	Satlana	18	6.25	NIL	172	RCC FLAT	Rajasthan
91	Dudia	20	6.25	NIL	107	RCC FLAT	Rajasthan
92	Dundara	20	6.25	NIL	189	RCC FLAT	Rajasthan
93	AJIT	13	6.25	NIL	172	RCC FLAT	Rajasthan
94	Samdari Jn.	70	6.25	NIL	821	RCC FLAT	Rajasthan
95	Bamsin	15	6.25	NIL	96	RCC FLAT	Rajasthan
96	Rakhi	15	6.25	NIL	96	RCC FLAT	Rajasthan
97	Mokalsar	15	6.25	NIL	312	RCC FLAT	Rajasthan
98	Baliwara	15	6.25	NIL	96	RCC FLAT	Rajasthan

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99	Bhishangarh	15	6.25	NIL	96	RCC FLAT	10	Rajasthan
100	Jalore	30	6.25	NIL	252	RCC FLAT	10	Rajasthan
101	Marwar Bagra	30	6.25	NIL	96	RCC FLAT	05	Rajasthan
102	Bakra Road	18	6.25	NIL	96	RCC FLAT	05	Rajasthan
103	Modran	35	6.25	NIL	260	RCC FLAT	20	Rajasthan
104	Bheempura	20	6.25	NIL	96	RCC FLAT	05	Rajasthan
105	Ledarmer	13	6.25	NIL	96	RCC FLAT	05	Rajasthan
106	Marwar Bhinmal	20	6.25	NIL	300	RCC FLAT	20	Rajasthan
107	Khadeen	15	6.25	NIL	96	RCC FLAT	05	Rajasthan
108	Malwara	15	6.25	NIL	96	RCC FLAT	05	Rajasthan
109	Raniwara	30	6.25	NIL	205	RCC FLAT	10	Rajasthan
110	Marwar Ratanpur	15	6.25	NIL	234	RCC FLAT	10	Rajasthan
111	JARI	20	6.25	NIL	234	RCC FLAT	10	Rajasthan
112	Dhanera	20	6.25	NIL	355	RCC FLAT	10	Rajasthan
113	Ramsan	18	6.25	NIL	234	RCC FLAT	10	Rajasthan
114	Jenal	20	6.25	NIL	234	RCC FLAT	10	Rajasthan
115	Parlu	20	6.25	NIL	65	RCC FLAT	05	Rajasthan
116	Janiyana	20	6.25	NIL	70	RCC FLAT	05	Rajasthan
117	Baltora Jn.	30	6.25	NIL	200	RCC FLAT	18	Rajasthan
118	Tilwara	18	6.25	NIL	60	RCC FLAT	05	Rajasthan
119	Gole	23	6.25	NIL	65	RCC FLAT	05	Rajasthan
120	Bhimarlai	15.80	6.25	NIL	65	RCC FLAT	05	Rajasthan
121	Baitu	25	6.25	NIL	70	RCC FLAT	05	Rajasthan
122	Barmer	175	6.25	NIL	400	RCC FLAT	40	Rajasthan
123	Bhachbhar	23	6.25	NIL	60	RCC FLAT	05	Rajasthan
124	Ramsar	15	6.25	NIL	65	RCC FLAT	05	Rajasthan
125	Gagariya	4.40	6.25	NIL	65	RCC FLAT	05	Rajasthan

Sl. No.	Location	Area (sq. ft.)	Rate (Rs./sq. ft.)	Material	Volume (cu. ft.)	Structure	Remarks
127	Munabao	100	6.25	NIL	600	RCC FLAT	Rajasthan
128	Merta Road	85	6.25	NIL	450	RCC FLAT	Rajasthan
129	Nokha	25	6.25	NIL	225	RCC FLAT	Rajasthan
130	Nagaur	30	6.25	NIL	650	RCC FLAT	Rajasthan
131	Gotan	30	6.25	NIL	100	RCC FLAT	Rajasthan
132	Marwar Mundwa	10	6.25	NIL	60	RCC FLAT	Rajasthan
133	Udramsar	10	6.25	NIL	65	RCC FLAT	Rajasthan
134	Palana	10	6.25	NIL	65	RCC FLAT	Rajasthan
135	Surpura	10	6.25	NIL	50	RCC FLAT	Rajasthan
136	Khajwana	10	6.25	NIL	65	RCC FLAT	Rajasthan
137	Marwar Chhapri	35	6.25	NIL	65	RCC FLAT	Rajasthan
138	Ren	15	6.25	NIL	65	RCC FLAT	Rajasthan
139	Degana	60	6.25	NIL	150	RCC FLAT	Rajasthan
140	Gachhipura	30	6.25	NIL	120	RCC FLAT	Rajasthan
141	Basroli	20	6.25	NIL	120	RCC FLAT	Rajasthan
142	Borwar	20	6.25	NIL	96	RCC FLAT	Rajasthan
143	Makrana	45	6.25	NIL	220	RCC FLAT	Rajasthan
144	Kuchaman city	20	6.25	NIL	150	RCC FLAT	Rajasthan
145	Naya khardia	15	6.25	NIL	90	RCC FLAT	Rajasthan
146	Nawa City	60	6.25	NIL	108	RCC FLAT -	Rajasthan
147	Sambhar Lake	20	6.25	NIL	72	RCC FLAT	Rajasthan
148	BIDYAD	3	6.25	NIL	72	RCC FLAT	Rajasthan
149	Kiroda	15	6.25	NIL	90	RCC FLAT	Rajasthan
150	Khatu	20	6.25	NIL	90	RCC FLAT	Rajasthan
151	Khunikhuna	12	6.25	NIL	90	RCC FLAT	Rajasthan
152	Didwana	20	6.25	NIL	150	RCC FLAT	Rajasthan

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NW Rly

Annexure VII - (ix)

153	Ladnun	20	6.25	NIL	150	RCC FLAT	10	Rajasthan
154	Sujangarh	40	6.25	NIL	150	RCC FLAT	10	Rajasthan
155	Talchhapar	15	6.25	NIL	90	RCC FLAT	05	Rajasthan
156	Parihara	15	6.25	NIL	90	RCC FLAT	05	Rajasthan
157	Jaislmer	170	6.25	NIL	320	RCC FLAT	20	Rajasthan
158	Thaiyat Hamira	8	6.25	NIL	80	RCC FLAT	05	Rajasthan
159	Jetha chandan	6	6.25	NIL	108	RCC FLAT	05	Rajasthan
160	Shri Bhadriya Lathi	10	6.25	NIL	104	RCC FLAT	05	Rajasthan
161	Odhaniya Chacha	8	6.25	NIL	60	RCC FLAT	05	Rajasthan
162	Ashapura Gomat	9	6.25	NIL	200	RCC FLAT	10	Rajasthan
163	Pokaran	17	6.25	NIL	350	RCC FLAT	10	Rajasthan
164	Ramdevra	24	6.25	NIL	100	RCC FLAT	05	Rajasthan
165	Marwar Bithri	7	6.25	NIL	80	RCC FLAT	05	Rajasthan
166	Phalodi Jn.	48	6.25	NIL	200	RCC FLAT	20	Rajasthan
167	Shaitan Singh Nagar	7	6.25	NIL	72	RCC FLAT	05	Rajasthan
168	Marwar Lohawat	8	6.25	NIL	80	RCC FLAT	05	Rajasthan
169	Samrau	5	6.25	NIL	110	RCC FLAT	05	Rajasthan
170	Bhikamkor	8	6.25	NIL	300	RCC FLAT	10	Rajasthan
171	Osiyan	10	6.25	NIL	180	RCC FLAT	10	Rajasthan
Grand Total							4064	

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Southern Rly

Annexure VII (x)

Southern Railway- Enclosure to letter no.E.28/III/Solar dt. 22.09.2016

S.No.	Installation location in Railway	Approx. Roof top space available as per survey in sq.m.	Proposed power pack capacity in kWp	Connecting voltage	Connected load in Kw	Annual power consumption in kWh
1	TPJ- TPJ Jn	5880	500	11 kV	1438	3830080
2	TPJ-VM Jn	745	50	22 kV	70	1596040
3	MDU-MDU Jn	5860	50	11 kV	665	2856480
4	MDU- VPT Jn	600	50	11 kV	60	415670
5	MDU-TEN Jn	3800	50	11 kV	100	788680
6	SA-SA Junction	6200	50	11 kV	200	787700
7	SA-ED Jn & RH	2556	250	11 kV	690	4884180
8	SA-CBE Junction	4804	50	11 kV	160	826240
9	SA-Tirupur Jn	1150	50	11 kV	110	340363
11	MAS- AJ Jn	20500	100	11 kV	102	729640
12	MAS-AVD station	7600	200	11 kV	808	1350080
13	MAS-TBM Station	15740	150	11 kV	140	1348192
14	MAS- CGL Jn	18000	100	11 kV	350	659935
15	MAS- KPD Jn	12270	100	11 kV	365	998440
16	MAS- JTI Jn	20200	100	11 kV	105	1495440
17	TVC- TVC Central	14800	400	11 kV	4264	2124165
18	TVC- ERN Jn	18600	100	11 kV	153	261824
19	TVC- NCJ Jn	10800	100	11 kV	345	605992
20	TVC- TCR station	12200	100	11KV	741	728424
21	PGT- PGT Dn/office	3567	50	11 kV	70	586976
22	PGT- PGT Jn	11500	100	11 kV	309	772740
23	PGT- CAN station	9600	100	11 kV	55	814116
24	PGT-CLT station	14400	100	11 kV	222	1176752
25	PGT-MAQ Jn	7900	100	11 kV	136	440826
26	GOC Shops	10920	1000	11 kV	29000	6926288
	Total proposed Power pack capacity is 4000 kWp		4000			

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SCR- Details of tentative locations for proposed 6 MWp Rooftop solar PV system

(Apart from the 4 MWp for which RFP due on 28.9.16 in the Railway).

Sl. No	Installation location at Railways			Approx. Roof space available as per survey (In Sq.m.)	Proposed power pack capacity in Kwp	Connected load (kW)	Annual power consumption (kWh)	
	Division/ Shops	Station	Name of the Building					
1	Secunderabad	Warangal	WL/Station Bldg	884	70	67	299492	
2			WL/PWI Office	193				
3			WL/SSE Works Office	278				
4	Hyderabad	Kurnool City	Kurnool Town Station Building	836	50	172	534544	
5		Mahbubnagar	Mahaboobnagar Station Building	1116	70	140	338419	
6		HQs		ZRTI, Moula-All	9152	1100	464	796835
7				STTC, Moula-All	2661			
8				RPSF-7 th Battalion	3142			
9				RPF-TC Moula-All	2361			
10				TA Camp	1353			
11		Hyderabad		Railway Central Hospital, Lallaquda	4258	1500	2990	1463283
12				IRISET Building	8434			
13				Railway Degree College	4756			
14				Railway Junior College	2560			
15				CITARA of Accounts	1811			
16				STTC Building	3609			
17			Mixed High School, Lallaguda	4000				
18		Nizamabad	Nizamabad Station Building	1335	80	259	945314	
19		Vijayawada	Nellore	East Station Building	527	70	105	76440
20				West Station Building	304			
21				Dy.SS Office	270			
22	ADEN/NLR Office			126				
23	HI Office			120				
24	ADEE/TRD/NLR Office			138				
25	ORH			165				
26	Anakapalle			Station Building	349				50	93	106560
27		Booking Office	532					
28	Gudur		Station Building	480	50	74	117600	
29			ORH	150				
30			Health Unit	150				
31			SSE/OHE Office	72				
32			SSE/Signal Office	60				
33	Rajahmundry		East Booking Office	250	50	23	30000	
34			Health Unit	686				

South Central Railway

Annexure VII - (xi)

Sl. No	Installation location at Railways			Approx. Roof space available as per survey (In Sq.m.)	Proposed power pack capacity In Kwp	Connected load (kW)	Annual power consumption (kWh)
	Division/ Shops	Station	Name of the Building				
35	Guntakal	Pakala	Station Building	552	60	94	95820
36			JEE office	364			
37			OHE Office	197			
38		Renigunta	Station Building	1441	340	585	699310
39			New Station	1156			
40			Running Room	235.35			
41			ADEN, ASTE, DEE/TRD Offices	169			
42			Health Unit	421.03			
43			Rail Kalyan	597.2			
44			RPF Barracks	739.2			
45			GRP Station	235.33			
46			Microwave Station	187.87			
47			SSE/PW OFFICE	252.35			
48			Rly Inst	536.62			
49			ASC & RPF Office	291.0			
50		Adoni	Station Building	1527	100	42	129725
51		Anantapur	Station Building	998	130	202	351399
52			ADEN Office	183			
53			RPF office	775			
54			SSE/P.Way office	185			
55		Dharmavaram	Stn Bldg and VRR/Store	412.06	250	250	499076
56			Rly Inst & Co.Op Store	134.57			
57			Health Unit	301.05			
58			NVRR Dining hall	101.24			
59			PF Refreshment hall	10.52			
60			TTE's Rest room	142.75			
61			Parcel Booking Office	252.75			
62			PF 4& 5 Converted as waiting halls	186.66			
63			Railway Primary school	101.89			
64			GRP Office	264.42			
65			Running Room	1350			
66			Supervising rest room	136.74			
67	RMS Office		117.6				
68	OFFICERS REST HOUSE		100				
69	CSI Office		145.2				
70	IOW's Office& stores		165.55				
71	DY SS office& Relay room on PF 1		447.91				
72	New Station Bldg on PF 1	884.12					

South Central Railway

Annexure VII - (xi)

Sl. No	Installation location at Railways			Approx. Roof space available as per survey (In Sq.m.)	Proposed power pack capacity In Kwp	Connected load (kW)	Annual power consumption (kWh)
	Division/ Shops	Station	Name of the Building				
73	Guntakal	Dhone	Station Building	747.83	150	242	417823
74			Health Unit	453.92			
75			TTE Rest House	263			
76			ADEN Office	102.5			
77			IOW's Office	134.16			
78			RPF Barracks	176			
79			New Running room	850			
80		Gooty	Station Building	736	110	171	159080
81			C&W Trg Centre	245			
82			Health Unit	566			
83			Sr DME Office	526			
84			Nursery School	409			
85			Officers Club	298			
86			Rly Institute	668			
87		Community Hall	409	100	28	54410	
88		Kadapa	Station Building				120
89			ADEN Office				158
90			S&T Office				90
91			Elec Office				113
92			SCRMU Office				760
93			Sangh Office				360
94			Health Unit	262			
95			TTE Rest House	285			
96			RPF Barracks	292			
97			New Station Building	201.48			
98			Rail Subham	1596			
99			SSE/PW & Works Office	341			
100			Raichur	Station Building	2430	370	250	1238763
101		Other Offices		2154			
102	Health Unit	458					
103	Running Room	664					
104	Yadglr	Station Building	1560	80	108	131708	
105	Guntur	Guntur	Guntur Railway Station	6072	400	450	288000
106	Nanded	Aurangabad	Station Building on PF No.1	2000	150	150	636819
107			ORH	400			
108		Jalna	Station Building on PF No.1	1200				80	52	404032
109	Rayanapadu shops	Rayanapadu	Admn bldg	1200	110	159	102386
110			canteen	500			
111	Tirupati shops	East Colony, Tirupati	Railway Hospital	726	170	163	30012
112			BTC hostel	819			
113			Rail Kalyan	653			
114			RPF barracks	620			
115		West Colony, Tirupati	Officers Rest House	255			
116	Administrative Office Building		2001	140	98	39260	

TOTAL

108291

6080

NOTE: The above Rooftop spaces / solar capacities are tentative.

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South Eastern Railway

Annexure VII - (xii)

Formate for details of Non Traction load of SER with connected Load of 6 MW & above for Renewable Energy Projects

Sl. No.	Rly	Division	Location of connected load		Discom	Connected load & Contract Demand (as per Consumer agreement with Discom) 6 MW & above only	Voltage level 11/22/ 33 KV	Annual Electricity consumption (in KWh)	Annual Energy Bill (in Rs.)	Avg. Energy Cost (in Rs./ Unit)	Quantum of Existing Roof Top Solar (MW)	Approx. Available roof top space (Sqmt.)	Proposed approx. Roof top solar capacity (MWp)
			Name of Premises	State									
1	SER	Chakradharpur	Jharsuguda FRWP	Odisha	WESCO	200kW	11KV	1200000	6580596	5.48	Nil	476	26kWp
2	SER	Kharagpur	Kharagpur Station	West Bengal	WBSEDCL	180kW	11KV	1166400	7931520	6.8	Nil	28000	1850kWp
3	SER	Kharagpur	Balasore Station	Odisha	WESCO	24kW	11KV	183800	963900	5.25	Nil	5795	375kWp
4	SER	Kharagpur	Digha Station	West Bengal	WBSEDCL	16kW	11KV	86400	567520	6.8	Nil	2686	175kWp
5	SER	Kharagpur	Fansura Station	West Bengal	WBSEDCL	46kW	11KV	259200	1762560	6.8	Nil	8976	590kWp
6	SER	Ranchi	Ranchi Station	Jharkhand	JSEB	245kW	11KV	981100	6923540	6.95	Nil	2249	145kWp
7	SER	Ranchi	Hatia Station Building	Jharkhand	JSEB	150kW	33KV	467580	3249684	6.95	Nil	1890	120kWp
8	SER	Ranchi	Hatia DRH Building	Jharkhand	JSEB	176kW	33KV	447036	3106896	6.95	Nil	1610	100kWp
9	SER	Ranchi	Hatia Coaching Depot	Jharkhand	JSEB	30kW	33KV	97100	671845	6.95	Nil	540	33kWp
10	SER	Ranchi	Hatia Rly Hospital	Jharkhand	JSEB	32kW	33KV	96120	681934	6.95	Nil	610	35kWp
11	SER	Kharagpur (Workshop)	Different Shops	West Bengal	WBSEDCL	2000kW	33KV	2304000	15114240	6.56	Nil	40000	2550kWp
12	TOTAL PROPOSED SOLAR PLANT CAPACITY (MWp)											6000kWp	

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SECRET

Annexure-III (xii)

List of Selected Sites of Railways in Bilaspur Division, SECR

S.N.	Div.	State	Station	Site/Location name	Approx. Rooftop space available as per survey (Sq.Mtr.)	Proposed power pack capacity (KWp)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWb)
1	BSP	M.P.	APR	RPF Barrack	233	20	11000	104	446304
				RPF Post	255	20			
2		M.P.	BUH	Pannel Building	266	20	415	30	44459
3		M.P.	SDL	Combined Guard Lobby & CCC Office	534	50	11000	500	2399100
				Sub-Division Office	500	50			
				Officer Rest House	584	50			
				Staff Rest House	736	70			
4		M.P.	GGT	Pannel Building	240	20	415	18	26676
5	C.G.	KRBA		KRBA Station	500	50	11000	200	1331808
				KRBA Running room	208	20			
				KRBA Running room	225	20			
6	C.G.	GAD		Station building	1253	120	33000	60	123408
7	C.G.	RIG		Station Complex	2182	180	11000	414	1801500
8	C.G.	JDI		station building	240	20	415	13	18672
9	C.G.	JMG		station building	72	10	415	18	26675
10	M.P.	BJRI		Battery	69.35	130	33000	120	504432
				Relay	102.2				
				1st class,2nd class waiting room	101.53				
				Lobby	163.8				
				LT Room	119.25				
				SS Room	209.25				
				SS Room	52.5				
				Booking office	127.4				
				BJRI Running Room	42.75				
				-Do-	31				
				-Do-	55.35				
				-Do-	56.7				
				-Do-	100.05				
				-Do-	44.1				
-Do-	37.8								
11	C.G.	CHRM		Station building & Qrts.	163.48	20	415	21	30528
12	C.G.	DTL		Station building & Qrts.	309.4	30	415	26	38768
13	C.G.	BRH		Station building & Qrts.	310.31	30	415	48	71134
14	M.P.	KTMA		Station building & Qrts.	309.4	30	415	29	42680
15	M.P.	HRV		Station building & Qrts.	336.87	30	415	16	23118
16	M.P.	MZH		Station building & Qrts.	346.75	30	415	24	35567
17	C.G.	KJZ		Station building & Running room	680	70	11000	90	256716
18	C.G.	BSPR		Station building & Qrts.	240	20	415	42	62242
19	C.G.	ABKP		Station building & Qrts.	360	30	415	24	35567
20	C.G.	MDGR		Station building & Qrts.	80	10	11000	400	1885716
21	C.G.	AKT		Station building & Qrts.	105	10	11000	65	349188
22	C.G.	NIA		Station building & Qrts.	216	20	415	30	44162

SECRET

Annexure-~~BP~~ VI (iii)

List of Selected Sites of Railways in Nagpur Division, SECR										
S.N.	Div.	State	Station	Site/Location name	Approx. Roof top space available as per survey (Sq.Mtr.)	Proposed power pack capacity (kWp)	Connecting voltage (V)	Connected load (kW)	Annual power consumption (kWh)	
1	NGP	M.S.	NGP	DRM Bldg/NGP	1275	106	11000	462	1700000	
2		M.S.	G	2nd class waiting hall/Gondia	306	26	11000	500	1823484	
				Parcel office + Loco lobby/Gondia	483	40				
				PRS building/Gondia	115	10				
				RMS building/Gondia	280	23				
				RRI (East)/Gondia	106	10				
				Multi Function complex/Gondia	300	25				
				DEMU shed/Gondia	144	12				
				IOH Shed /Gondia	198	17				
				Dormitory + TTE Rest House/Gondia	175	15				
				SSEE/Works Office/Gondia	120	10				
				SSE/Tele Office/Gondia	104	10				
				Hospital/Gondia	200	17				
				SSE/OHE/PSI Office/Gondia	300	25				
				SSE/Signal Office/Gondia	282	24				
			GC Office/Gondia	602	50					
			SSE /C&W/TL Office (Pit line)/Gondia	300	25					
3		C.G.	RJN	Station Building	630	53	11000	280	588156	
4		M.S.	BRD	Station Building	749	62	415	30	128724	
5		C.G.	DGG	Station building including Crew Lobby and PRS	638	53	11000	250	1734072	
			Dongargarh RRD Depot	342	29					
6		M.S.	ITR	Station building	136	11	11000	60	312000	
7		M.S.	RTK	Station Building	280	23	415	15	23000	
8		M.S.	CFT	Station Building & PRS Building	200	17	415	40	182881	
9		M.S.	TMR	Station Building	645	54	11000	100	489648	
10		M.P.	BTC	Station Building & PRS	473	40	11000	100	308700	
11		M.S.	SNV	Station Building	200	15	415	15	15200	
12		M.S.	MME	Station Building	180	15	415	20	62951	
13		M.S.	Mount Road/NGP	NGP ORH including Gymnasium	500	42	11000	160	817260	
			R/Room (Dining hall + Kitchen)/NGP	180	15					
14		M.S.	MIB/NGP	Hospital/MIB	986	82	11000	1200	5101428	
			Mangal Mandap/NGP	150	13					
			SSEE Office /Supply	400	33					
15		M.P.	CWA	New Station Building	1166	97	11000	160	772284	
			Electrical substation/ Chhindwara	153	13					
			Parcel office/ Chhindwara	266	22					
			Dy. CBE (Con) office/ Chhindwara	144	12					
16		M.S.	Ajni/NGP	Health unit /Ajani	270	23	11000	100	730272	
17		M.P.	NIR	Indoor Hospital/Nainpur	490	41	11000	250	1229280	
			PWI office/ Nainpur	105	10					
			BRI office/ Nainpur	105	10					
			Outdoor Hospital/ Nainpur	140	12					
			PRS building/ Nainpur	150	13					
			GC office/ Nainpur	100	10					
18		C.C.	MUA	Station Building, Waiting Hall & SSI Building	196	15	415	10	6566	
				Total	15264	1280		3752		

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List of Selected Sites of Railways in Raipur Division , SECR

S. N.	Div.	State	Station	Site/Location name	Approx. Rooftop space available as per survey (Sq.Mtr.)	Proposed power pack capacity (KWp)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
1	R	C.G	DPH	Station building	133	10	415	42	15000
2			BYL	Station building	160	15	415	54	60000
3			DGS	Station building	200	15	415	17	24000
4			TLD	Station building	100	10	11000	91	130000
5			MDH	Station building	126	10	415	15	7200
6			SZB	Station building	245	25	415	30	19200
7			KMI	Station building	220	20	415	22	27000
8			BQR	Station building	245	25	415	38	54000
9			LKE	Station building	140	10	415	12	52800
10			WRS	DRM Office Building	900	75	33000	2000	8504772
	Coony/ Raipur	CLUB	250	25					
		Transit	180	15					
		Tiny. Tot school	150	10					
		RPF Barrack	450	45					
		RSD Running Room	108	10					
		GSD	250	25					
		Rly. Hospital	180	15					
		RSD Building	90	10					
		S&T Office	225	20					
		RPF Reserve Camp	225	20					
		Station building/URK	120	10					
11		DURG	SS NO.-1	120	10	11000	500	1745508	
			C&W Office	126	10				
			C&W Store	126	10				
			C&W Washing Line	150	20				
			T/L Washing Line	60					
			C&W Washing Line	252	25				
12		BMY (Bhilai Marsh aling yard)	BMY Hospital	420	40	33000	1000	7476804	
			Ward Hostel & ARM Office	200	20				
			Receiving Substation/Bhilai	90	10				
			Crew Lobby /BMY	150	15				
			Diesel Shed	500	50				
			MEMU Shed	840	75				
			BMY School	800	60				
			Total	8531	765		3821		

SEC Rly

Annexure-vii
(xiii)

S.N.	Div.	State	Station	Site/Location name	Approx. Rooftop space available as per survey (Sq.Mtr.)	Proposed power pack capacity (KWp)	Connecting Voltage (V)	Connect ed Load (kW)	Annual Power Consumption (kWh)
23	BSP	C.G.	KGB	S.M. Building	380	30	415	43	63576
				OHE Office	196	15			
				Repeter Station	340	28			
24	C.G.	BSP		RPF Barrack 1- Ladies barreck	170	20	33000	3378	26702400
				2-Armory	300	30			
				3-New Double Story Barrack -249	249	20			
				4-Cloths Store	248	20			
				Rly. Hindi Medium School	610	60			
25	C.G.	CPH		Dormitary First Class Ladies & Gentes & Main Entrance.	544	50	33000	150	851220
				VIP, Dy.SS & Child Lib. Room	181	20			
				2nd Class Waiting Hall & PRS Room	225	20			
				RPF Office	182	20			
				GRP Office	37				
				Cooling Room	30				
26	M.P.	JTI		Station & Qrts.	339	30	415	38.1	56463
27	M.P.	VKR		Station	336	30	415	27	40013
28	C.G.	IIRB		Station	340	30	415	15.6	23118
29	C.G.	PND		Station & Qrts.	610	60	33000	94	541080
30	C.G.	KOI		Station	350	30	415	28.2	41791
31	C.G.	KGS		Station & Qrts.	339	30	415	22.8	33789
32	M.P.	NIQ		Station	335	30	415	24	35567
33	M.P.	UMR		IPS + Relay + Battery Room, PRS Waiting Hall	195	20	11000	90	181992
34	M.P.	CHD		SM Room, IPS + Relay + Battery Room	230	20	415	48	71134
35	C.G.	BEF		Station & Qrts.	182	15	415	16	84663
36	C.G.	ROB		Station & Qrts.	240	20	415	10	84728
37	C.G.	KDTR		Station & Qrts.	304	25	415	15	122190
38	C.G.	UKR		Station & Qrts.	276	20	415	18	16005
39	C.G.	NGE		Station & Qrts.	276	20	415	40	56285
40	M.P.	JLW		Station	318	25	415	15	31248
41	M.P.	RPD		Station & Qrts.	277	20	415	12	108886
42	C.G.	KTO		Station & Qrts.	273.91	20	415	12	39967
43	C.G.	SIQ		Station & Qrts.	350.98	25	415	12	19780
Total					22062	1983		6399	

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South Western Railway

Annexure VII - (xiv)

Format for details of Non traction load of IR with connected load of 1 MW & above for Renewable energy projects

Sl. No	Rly Division	Location of Connected load		Discom	Connected Load & Contract Demand (as per Consumer agreement with Discom)		Voltage level	Annual Electricity Consumption (in MU)	Annual Energy Bill (in Rs)	Avg Energy Cost (in Rs/Unit)	Quantum of Existing Roof top Solar (MW)	Planned Roof top solar capacity in future (MW)
		Name of Premises	State		1 MW & above only	11/22 /33 KV						
1	SW Hubli W/S	Workshop	Karnataka	HESCOM	9844 KW / 1250 KVA	11 KV	1580395	9833267	6.22	Nil	Nil	1 MWp
2	SW Mysuru	Mysuru Rly Station	Karnataka	CESCOM	400 KW / 250 KVA	11 KV	1261461	9668259	7.66	Nil	Nil	200 KWp
3	SW Hubli	New GM Office	Karnataka	HESCOM	400 KW / 200 KVA	11 KV	439659	3453968	7.86	Nil*	Nil	150 KWp
4	SW Hubli	Belgaum Rly Station	Karnataka	HESCOM	450 KW / 140 KVA	11 KV	688108	4957761	7.20	Nil	Nil	150 KWp
5	SW Hubli	Ballari Rly Station	Karnataka	GESCOM	400 KW / 200 KVA	11 KV	702924	4959005	7.05	Nil	Nil	150 KWp
6	SW Hubli	Toranagallu Rly Station	Karnataka	GESCOM	80 KW / 50 KVA	11 KV	138142	1038673	7.52	Nil	Nil	100 KWp
7	SW Mysuru	Hassan Rly Station	Karnataka	CESCOM	130 KW / 60 KVA	11 KV	169967	1339752	7.88	Nil	Nil	100 KWp
8	SW Bengaluru	Bengaluru Cantonment Rly Station	Karnataka	BESCOM	250 KW / 300 KVA	11 KV	961058	7740783	8.05	Nil	Nil	100 KWp
9	SW Hubli	Hospete Rly Station	Karnataka	GESCOM	450 KW / 150 KVA	11 KV	692404	5171030	7.47	Nil	Nil	50 KWp
Total												2 MWp

* Work is in progress for installation of 100 KWp Roof Top by M/s CEL on East block.

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Western Railway

Annexure VII (xv) Annexure I

50 KWp at one place as per Railway Board's letter No.
2012/Elect(G)/150/4/Pt.IV dated 10.03.2015 (Annexure - I):

SN	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)	Remarks
1	2	3	4			7	9	10
	BCI	BSR running room	25	415 V	65700	960	80	
1		BL AEN office	2	415 V	5256	2000	165	
2		BL control office	100	415 V	262800	1500	125	
3		BL Hostel	5	415 V	13140	2000	165	
4		BL school Bldg	1	415 V	2628	1500	125	
5		BL TXR office	2	415 V	5256	700	60	
6						8660	720	
1	RIM	RIM- TRAINING SCHOOL				1088	90	
2		RIM- Running Room				1028	85	
3		RIM- CSI OFFICE	1536	415V.	4608000	1141.6	95	
4		RIM- ELECTRIC POWER HOUSE				744.92	60	
5		RIM- AC POWER SUB STATION				593.28	50	
6		IND- NEW STATION BUILDING UNDER CONSTRUCTION	65	415V.	180000	1030	85	
7		MHW- D SHED	175	415V.	700000	729.44	60	
8		OM- STATION BUILDING	8.5	415V.	5820	579.11	50	
9		COR- RUNNING ROOM	70	415V.	210000	1052.02	95	
10		JAO- STATION BUILDING	16.5	415V.	48576	819.25	65	
11		DWX- STATION BUILDING	50	415V.	64183	836	70	
12		IND- CDO OFFICE INCLUDING IN ALL STRUCTURE IN C&W AREA	380	415V.	242616	600	50	
13		MHW- STATION BUILDING	299	415V.	1307402	918.75	75	
			Total			11160.37	930	
1	BRC	PRTN-DRM Office	650		836203	2242	185	
2		PRTN- Railway Hospital	502	11 KV	458923	922	75	
3		BRCP- Station Building (CPRS)	1289	11 KV	1186800	1815	150	
4		ANND- Station Building	146	415 V	400380	920	75	
5		AKV- Station Building	219	415 V	253390	1516	125	
6		ND Station Building	196	415 V	284500	665	55	
7		BH Station Building	321	415 V	235100	765	60	
8		GDA Station Building	136	415 V	429560	2500	200	
						11345	925	

Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)	Remarks
		4			7	9	10
9	ADI Vranganam station building	155	415 V	226955	770	65	
10	Dhrangadra station building	28	415 V	213240	600	50	
11	Radhanpur station building	95	415 V	70855	1073	90	
12	Gandhidham station building	590.7	415 V	86937	1258	100	
13	Gandhidham ARM Building	245.1	415 V	96315	600	50	
14	Bhuj station building	39	415 V	200657	1040	85	
15	Mehsana station building	120	415 V	758196	3890	325	
16	Himmatnagar station building	20	415 V	66000	635	50	
17	Himmatnagar Health Unit	5	415 V		600	50	
18	DRM Office	906	415 V	1033729	3000	250	
19	Railway Hospital	400	415 V	296223	2489	200	
20	ADI (Concourse)	200	415 V	36500	1197	100	
21	ADI (Constn. Office) building	100	415 V	146000	705	55	
22	ADI (RRB) building	100	415 V	36500	756	60	
23	SBI station building	30	415 V	46000	605	50	
24	Gandhinagar station building	90	415 V	202858	1240	100	
					20458	1680	
25	RJT DWK : Station Building	177	415	278372	1280	100	
26	DWK : Holiday home						
27	Hapa Station Building	590	11 000	320802	720	60	
28	Hapa Health Unit				950	80	
29	Jamnagar Station Building	325	415	206367	1055	85	
30	RJT Account Office	1356	11000	1621248	690	55	
31	RJT New DRM building				650	55	
32	RJT Old DRM & Control office				1200	100	
33	RJT Railway Hospital & OPD				1950	160	
34	RJT : Station building				2190	180	
35	RJT Loco C&W office & store	514	11000	757455	810	65	
36	SUNR Station building, RPF office & new ORH, SSE/P Way/Office	226	415	268392	1650	135	
37	RJT New DPO Building	1356	415	60202	650	55	
38	RJT Commerce Section						
39	RJT Subordinate rest house				785	65	
40	RJT Engg. Training centre						

Western Railway

Annexure vii (xv)

Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)	Remarks
✓ 41	RJT: Aroa training school				7	9	10
✓ 43	BVP				14580	1195	
	DRM office, BVP	182	11KV/415V	410331	2200	180	
	BVP SECT - Rly Hospital	111	415V	123056	1292	105	
					3492	285	
✓ 1	DHD	8000	415 V	119600	1600	130	
2	Worksh op		415 V	16744	600	50	
3	Filter house ,Dahod	4840	415 V	6323	1836	150	
4	Rly School , Dahod		415 V	4354	688	55	
5	Maternity centre & IH office/ Dahod		415 V	931	628	50	
	Total				5352	435	

Western Railway

Rooftop area between 10 KWp to 50 KWp:

Annexure II

Annexure VII (XV)

SN	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
1	2	3	4			7	9
1	BCI	MEL ORH Bldg	25	415 V	65700	455	35
2		CYR Bkg Off Bldg Pt No 1	5	415 V	13140	239	20
3		GTR Transit Flat Bldg	40	415 V	105120	304	25
4		PWS power workshop	20	415 V	52560	216	15
5		BCI POH bldg	22	415 V	57816	150	10
6		MX Stadium Hostel Bldg	15	415 V	39420	210	15
7		MM MIP Yard	20	415 V	52560	319	25
8		BDTS new running room	73	415 V	191844	136	10
9		BDTS Control tower	38	415 V	99864	160	10
10		BDTS CDO office	169	415 V	444132	139.2	10
11		BDTS DFO training	8	415 V	21024	182.69	15
12		BDTS RPI barrack	20	415 V	52560	243.6	20
13		ADH old bldg	25	415 V	65700	450	35
14		BVI health unit	12.4	415 V	32587.2	145	10
15		BVI East side stn bldg	19	415 V	49932	120	10
16		UBR Waiting hall	1	415 V	2628	150	10
17		SJN Booking Off	5	415 V	13140	150	10
18		SJN Microwave tower	10	415 V	26280	250	20
19		BLD Stn bldg	5	415 V	13140	180	15
20		BLD Microwave tower	5	415 V	13140	250	20
21		VAPI East bkg off	5	415 V	13140	300	25
22		VAPI TRD Office	10	415 V	26280	500	40
23		VAPI PRS	10	415 V	26280	340	25
24		UVD Stn bldg	10	415 V	26280	150	10
25		PAD DSK cutting yd	10	415 V	26280	200	15
26		ATUI stn bldg	10	415 V	26280	400	30
27		ATUI SSP	2	415 V	5256	150	10
28		BL hospital	100	415 V	262800	250	20
29		BL I. M school	15	415 V	39420	500	40
30		BL RMS	6	415 V	15768	250	20
31		BL TRD office	1	415 V	2628	200	15
32		BL DSTE/C office	5	415 V	13140	400	30
33		BL RPF training off	2	415 V	5256	200	15
34		BL control tower	55	415 V	144540	500	40
35		BL east bkg office	20	415 V	52560	300	25
36		BL Guj school	4	415 V	10512	300	25
37		BL Add bldg TRS	325	415 V	854100	300	25
38		BL TRS Toilet	1	415 V	2628	200	15
39		BIM sig & Dy SS	46	415 V	120888	400	30
40		NVS OHH off	14	415 V	36792	200	15
41		NVS RPI off	10	415 V	26280	160	10
42		NVS Bldg no 134	20	415 V	52560	500	40
43		NVS Bldg no 135	20	415 V	52560	400	30
44		MRI waiting hall	2	415 V	5256	170	10
45		SGH panel room	21	415 V	55188	170	10

Sl. No.	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
	2		4			7	9
46		BHET stn bldg	28	415 V	73584	500	40
47		BHET SSP	3	415 V	7884	200	15
48		NWU Stn	30	415 V	78840	384	30
49		KFI Stn	15	415 V	39420	384	30
50		CPD Stn	20	415 V	52560	384	30
51		NDB loco lobby	13	415 V	34164	147	10
52		NDB RR bldg	18	415 V	47304	198	15
53		AN Stn	30	415 V	78840	120	10
54		DXG Stn	28	415 V	73584	384	30
55		CHLK Stn	25	415 V	65700	384	30
56		PLD Stn	25	415 V	65700	384	30
						15358.49	1180
1	RTM	RTM - YARD MASTER OFFICE	620	415 V.	2001656	149.3	10
2		RTM - E CABIN				135.97	10
3		RTM - CPWI (S) OFFICE				564.95	40
4		RTM - GHATLA DISPENSERY				270.03	20
5		NAD - OBC & SC - ST OFFICE NEAR CIRCULATING AREA	92	415 V.	276000	150	10
6		NAD - REPETAR BUILDING IN MANDI COLONY				120	10
7		NAD - ORH IN GRASSIME SIDE				150	10
8		NAD - RAILWAY HOSPITAL IN GRASSIME SIDE				200	15
9		BOD STATION BUILDING WITH ALL ATTACHMENT COMBINED ROOF	42	415 V.	63000	200	15
10		NGW STATION BUILDING	15	415 V.	9750	245	20
11		RNJ STATION BUILDING	20	415 V.	10250	245	20
12		BNG - STATION BUILDING	35	415 V.	31045	245	20
13		BNG - OLD STATION				350	30
14		GPX - STATION BUILDING	13	415 V.	19320	228	10
15		FTD - STATION BUILDING	25	415 V.	16080	285	20
16		AJN - NEW STATION BUILDING	12	415 V.	15121	320	25
17		PIA - NEW STATION BUILDING	4	415 V.	3948	320	25

Sl. No.	Divn.	Installation Location at Railways	Collected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
1	2	3	4			7	9
18		LMNR - STATION BUILDING & TNC BUILDING	130	415 V.	189936	330	25
19		LMNR - GOODS OFFICE				423	35
20		LMNR - RPF BARRIKE				288	20
21		LMNR - DY. SS BUILDING OLD				174	10
22		LMNR - NEW STATION BUILDING				315	25
23		IND - MICROWAVE OFFICE	125	415 V.	145483	130	10
24		IND - SSE WORKS OFFICE				140	10
25		IND - RUNNING ROOM				487	40
26		IND - DY (CE) C OFFICE AT RAJKUMAR BRIDGE	594	415 V.	379848	143	10
27		RJQ - PROPOSED STATION BUILDING OFFICE GC	4	415 V.	12966	440	30
28		RAU - PROPOSED STATION BUILDING OFFICE GC	3	415 V.	13396	360	30
29		MHW - AEN OFFICE	237	415 V.	1036302	150.99	10
30		MHW - SSE SIGNAL OFFICE				350.17	30
31		MHW - RAILWAY HOSPITAL				231.31	20
32		MHW - INSTITUTE				480.22	40
33		MHW - SUB ORDINET REST HOUSE				127.72	10
34		MHW - ELECTRIC POWER HOUSE				175.44	10
35		MHW - TRAIN LIGHT				175.59	10
36		MHW - C&W SHED				127.32	10
37		PTP - STATION BUILDING	3	415 V.	2176	178.33	10
38		BWW - STATION BUILDING	7.66	415 V.	18107	158.5	10
39		COR - RPF OFFICE	123	415 V.	573792	154.81	10
40		COR - PRS				134	10
41		COR - RMS				231.66	15
42		COR - ORH				166.11	10
43		COR - POWER HOUSE				299.79	25
44		COR - RPF BARRIKE				311.79	25

Sl. No.	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
41	2	3	4			7	9
42		COR- LOBBY				184.41	15
46		CNA- STATION BUILDING	20	415v	89923	198.59	15
47		SMP- STATION BUILDING	72	415 V.	252672	158.38	10
48		GRF- STATION BUILDING	8.5	415 V.	6000	125	10
49		NBH- STATION BUILDING	52	415 V.	74280	199	15
50		NBH- S&T ROOM				180.03	15
51		JWO- STATION BUILDING	26	415 V.	43824	130	10
52		BIWK- STATION BUILDING	3.5	415 V.	3062	198.54	15
53		NMH- HOSPITAL	35	415 V.	102870	481.78	40
54		IKL- STATION BUILDING	14.5	415 V.	22644	195.24	15
55		MLG- STATION BUILDING	9.5	415 V.	24960	178.76	10
56		PIP- STATION BUILDING	12	415 V.	26892	354.61	30
57		DLD- STATION BUILDING	8	415 V.	17928	281.22	20
58		DOD- STATION	15	415 V.	33750	270.1	20
59		BRLA- STATION BUILDING	1.22	415 V.	17357	156.65	10
60		NLI- STATION BUILDING	3.5	415 V.	25512	571.99	45
61		DHWS- STATION BUILDING	15.5	415 V.	33150	137.21	10
62		PPD- TRD OFFICE	2.8	415 V.	26225	166.98	10
63		DHD- ELECTRICAL MENS	130	415 V.	59305	182.76	15
64		DHD- WIRELESS STATION				124.02	10
65		MGN- RPF BARRIKE	9	415 V.	32058	144.66	10
66		MGN- SSE PWAY OFFICE				151.05	10
67		THDR- MICROWAVE OFFICE	9	415 V.	9419	140.36	10
68		BMI- MICROWAVE BUILDING	11	415 V.	8915	140.34	10
69		BMI- TRD OFFICE				321.39	20
70		BCH- RELAY ROOM BATTERY STATION BUILDING	9	415 V.	5046	120	10
71		BCH- CPWI OFFICE				190	15
72		KSH- RELAY ROOM BATTREY ROOM	10	415 V.	29400	120	10

Western Railway

Annexure V.11 (cont)

Sl. No.	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
	2		4			7	9
73		AKD - STATION BUILDING, RELAY ROOM, BATTREY ROOM	12	415 V.	29735	222	15
74		SJP - RELAY ROOM,	30	415 V.	62418	170	10
75	SJP - TRD OFFICE	255				20	
76	SJP - RPF BARRICKE, IW OFFICE, WRMS, SC/ST OFFICE	455				35	
77	SJP - OFFICER REST HOUSE	244				20	
78		KPP - STATION BUILDING	10	415 V.	11388	206	15
79		JBX - RELAY, BATTREY ROOM	6	415 V.	5520	136	10
80		PRB - STATION BUILDING + RELAY ROOM	4	415 V.	5424	279	20
81		BKTL - STATION BUILDING	4	415 V.	8760	145	10
82		BKTL - SI-DUTY ROOM, BATTREY ROOM BEHIND STATION BUILDING				138	10
83		SEHORE - RELAY ROOM, STATION BUILDING & RPF CHOKI	45	415 V.	64116	310	25
84		SEHORE - ELCTRIC OFFICE				131	10
85		SEHORE - TRD OFFICE				125	10
86		PNWN - STATION BUILDING	4	415 V.	3372	124	10
87		PNWN - RELAY ROOM AND BATTREY ROOM				183	15
88		PUD - STATION BUILDING, BATTREY ROOM ESN DUTY ROOM	6	415 V.	4714	220	15
89		BQE - STATION BUILDING	2.13	415 V.	3264	130	10
90		BIH - STATION BUILDING	28	415 V.	23656	123	10
91		BIH - RPF OFFICE, VIP ROOM				128	10
92		BIH - RESERVATION OFFICE				185	15
93		BIH - OFFICERS REST HOUSE				170	10

Western Railway

Annexure VII (XV)

SN	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
1	2	3	4			7	9
94		UNL - RELAY ROOM	10.5	415 V	6000	146	10
95		ASL RELAY ROOM	20	415 V	20856	160	10
96		VRG - STATION BUILDING	11	415 V	57280	358	30
97		VRG - DEE OFFICE				176	10
98		VRG - ASTE OFFICE				120	10
99		KDHA - STATION BUILDING	4.5	415 V	3937	358	30
100		BLAX - STATION BUILDING	10	415 V.	8750	358	30
101		MGG - STATION BUILDING	20	415 V.	16235	358	30
102		RCJ - STATION BUILDING	6	415 V.	4335	283	20
103		UJN Holiday Home	235	415 V.	632710	140.5	10
104		UJN Lobby				162.85	10
105		UJN RRI Tower				156.1	10
106		UJN - Madhav Nagar PF - 8				369.78	30
107		UJN - TRD Office				289	20
108		UJN - Hostal				384.3	30
109		UJN - Electric Office & Work Shop				282.27	20
110		UJN - New SSE(Sig)				240.28	20
111		UJN - SSE (Sig) Construction				151.43	10
112		UJN - SSE(Cable)				231.72	20
						24989.08	1910
1	BRC	KBRV Station Building	26	415 V	80520	400	30
2		KSPR Station Building	6.5	415 V	12048	210	15
3		LKD Station Building	16	415 V	6240	131	10
4		PLJ Station Building	37	415 V	65892	410	30
5		PTD Station Building	35	415 V	69000	210	15
6		SNA Station Building	15	415 V	6920	169	10
7		TAS Station Building	18.5	415 V	8462	236	10
8		TBA Station Building	5	415 V	1005	169	10
9		TWA Station Building	5	415 V	3720	169	10
10		UMH Station Building	14	415 V	27840	195	15
11		VKG Station Building	6	415 V	4752	169	10
12		VS Station Building	6	415 V	1008	169	10
13		AGCI Station Building	10	415 V	3662	169	10
14		DB Station Building	141	415 V	133428	250	20
15		CVJ Station Building	17	415 V	8640	194	15

SN	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (In meter square)	Project Power Pack Capacity (kWp)
1	2	3	4			7	9
16		BJD Station Building	15	415 V	8920	189	10
17		VDA Station Building	31	415 V	35472	564	40
18		KANJ Station Building	12	415 V	26852	239	20
19		KIM Station Building	35	415 V	40440	130	10
20		GTX Station Building	29.5	415 V	5160	130	10
21		KSE Station Building	28.5	415 V	13440	130	10
22		KSB Station Building	134	415 V	83520	285	20
23		RAJ Station Building	7	415 V	12000	250	20
24		KRSA Station Building	15	415 V	24000	120	10
25		SVL Station Building	50	415 V	90000	337	20
26		PRTN Station Building	140	11 KV	72000	350	25
						<u>5954</u>	<u>415</u>
1	ADI	Khakhrechi station building	15	415 V	60000	306	25
2		Wadharva station building	13	415 V	18720	306	25
3		CULI station building	20	415 V	29340	306	25
4		Dhanala station building	14	415 V	36000	306	25
5		SADLA station building	9	415 V	36000	306	25
6		Sukhpur station building	20	415 V	42000	306	25
7		Devaliya station building	15	415 V	27720	306	25
8		Indra angar station building	10	415 V	20520	306	25
9		Surbari station building	12	415 V	28800	255.15	20
10		Katariya station building	10	415 V	27780	255.15	20
11		Jatpipli station building	18	415 V	20400	255.15	20
12		Vasadvva station building	22	415 V	26400	255.15	20
13		Bajana station building	15	415 V	24000	255.15	20
14		Ghanshyam garh Road station building	15	415 V	4200	206.25	15
15		Halvad station building	29	415 V	40200	387.5	30
16		Maliya Miyana station building	55	415 V	72000	360	30
17		Bhildi station building	47	415 V	114000	557	40
18		Lorwada station	20	415 V	24000	190.43	15
19		Dasa station building	13	415 V	60000	358.68	30
20		Chandisar station building	11	415 V	48000	239.79	20

SN	Dlyn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
1	2	3	4			7	9
21		Palanpur station building	116	415 V	70800	588	40
22		Jagudan station building	12	415 V	25200	160	10
23		Bhandu Moti Dau station building	18	415 V	2790	170	10
24		Sidhpur station building	45	415 V	84000	175	10
25		Dharowada station building	20	415 V	72000	168	10
26		Chappi station building	20	415 V	97000	170	10
27		Umardasi station building	18	415 V	48000	175	10
28		Taranga Hill station building	3	415 V	12000	188	15
29		Katol station building	92	415 V	32000	495	40
30		Jhulasan station building	12	415 V	42000	170	10
31		Dangarvada station building	11	415 V	30000	125	10
32		Ambliyan station building	14	415 V	75600	275	20
33		Jaksi station building	11	415 V	26400	255	20
34		Adraj Moti station building	11	415 V	32400	272	20
35		Kotsan Road station building	20	415 V	43200	195	15
36		Detroj station building	11	415 V	9600	260	20
37		Bhankoda station building	11	415 V	24000	292	20
38		Sardargram station building	8	415 V	9600	250	20
39		Nandol Dehgam station building	15	415 V	30000	150	10
40		TALOD station building	5	415 V	14400	150	10
41		Prantij station building	15	415 V	24000	150	10
42		Himmatnagar Running Room	10	415 V	12000	210	15
43		IDAR station building	3	415 V	6000	150	10
44		Khedbrahma station building	3	415 V	18000	150	10
45		Patan station building	20	415 V	78000	146.03	10
46		Ranuj station building	20	415 V	54000	178.28	10
47		Dhinoj station building	18	415 V	46000	177	10

SN	Divn.	Installation Location at Railways	Connected Electrical load of the premises in KW	Connecting Voltage (V)	Approximate Annual Power Consumption (kWh)	Approximate rooftop space available as per survey (in meter square)	Project Power Pack Capacity (kWp)
1	2	3	4			7	9
48		Linch station building	20	415 V	9000	193	16
49		Jotana station building	16	415 V	25800	153	10
50		ADI (New UTS) building	100	415 V	219000	500	40
51		Vatva station building	8	415 V	68400	150	10
52		Maninagar station building	20	415 V	192000	450	30
53		Chandlodiya station building	5	415 V	15600	150	10
54		Khodiyar Station Building	7	415 V	48000	440	35
						13903.71	1035
1	RJT	RJT Loco New Loco substation	514	11000	757455	121	10
2		RJT Loco Electric office				133	10
3		RJT Loco Mechanical office				120	10
4		RJT Loco Hooter room				127	10
5		RJT Loco Supervisor - TL				115	10
6		RJT Loco C&W pit line office				135	10
						751	60
1	BVP	DIHOLA JN RMS & ELECT office/Trg. School	50	415V	9614	291.84 200	20 15
2		KESHOD	15	415V	55370	153	10
3		JLR SECT HOSP	100	415V	149611	167	10
4		BVP SECT - WAFFING HALL	56	415V	51165	231 500	15 40
5		BTD SECT - WAFF HALL	40	415V	42825	159	10
		Total				1701	110
1	DHD Work shop	BTIC LCW workshop, Dahod	8000	415 V	35880	234	15
2		Computer section		415 V	43056	150	10
3		Building of TRD	4840	415 V	27840	506	40
4		Rly Apprentice Hostel, Dahod		415 V	7110	356	30
5		Canteen of Rly Hospital, Dahod		415 V	54960	203	15
6		D site Dispensary/ Dahod		415 V	5310	136	10
		Total				1585	120

w. c Rly

Annex-VII(xvi)

Sr. No	Divn/ Sub-div.	State	Site Location name	App. Minimum Roof Top (including COP) Area in Sq/Mtr.	Proposed Power Pack capacity (kW)	Connecting Voltage (V)	Sanctioned Load	Annual Power Consumption (kWh)
1	Kota	Rajasthan	BTE stn	2000	100 KWp	430	180 KW	2346459
2	Kota	Rajasthan	GGC stn	2500	200 KWp	430	300 KVA	6766198
3	Kota	Rajasthan	SWM	2500	200 KWp	430	300 KVA	4741394
4	Kota	Rajasthan	ELS/TK D	4500	500 kWp	430	395 KVA	755559
5	Jabalpur	M.P.	Central Hospital JBP	1223	200 KWp	430	419 KVA	600000
6	Jabalpur	M.P.	Tower Building, JBP	411	100 KWp	430	203 KVA	350000
7	Jabalpur	M.P.	ELS/ NKJ	3396	250 KWp	430	300 KVA	500000
8	Jabalpur	M.P.	Coaching depot (Shed area)	4050	200 KWp	430	200 KVA	650000
9	Bhopal	M.P.	ELS/ET	3000	250 KWp	430	200 KVA	920470

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RCF - Kapurthala

Annexure - VII (xvii)

S. N.	Division	State	Site/ Location name	Approx total rooftop space available as per survey (sq mtr)	Proposed Power Pack Capacity (kW)	Connecting Voltage (V)	Connected Load (kW)	Annual Power Consumption (kWh)
1	RCF, ~ Kapurthala	Punjab	Bogie Shop shed	14759	1000	11/132KV	All shops are part of RCF workshop area. Total connected load of RCF, Kapurthala is 35822.85 KW	RCF, Kapurthala has single large supply-industrial connection at 132KV from PSPCL PSTCL Total annual electricity consumption for 2015-16 is 2,67,50,750 units.
2			Furnishing Shop shed	20500	1250	11/132KV		
3			Finishing Shop shed	3360	200	11/132KV		
4			New Shell cover shed	3360	200	11/132KV		
5			AC package shed	2808	150	11/132KV		
6			Covered store shed	3600	200	11/132KV		
			Total	48387	3000			

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Details of already utilized and remaining available roof top space in Metro Railway building (Buildings/ Stations/ Platforms/ Sheds) for harnessing solar energy.

Sl	Name of Building/ Location	Connected load of the premises (in kW)	Shadow free rooftop area on which solar panels can be mounted (in Sq.m)	Type of Roof: RCC flat/RCC sloping/ Tinned roof sloping/Asbestos sloping	Assessed capacity of solar potential in KWP as per MNRE guidelines.	Remarks
1	2	3	4	5	6	7
(A). Station Buildings						
1	Noapara (KNAP)/RSS Building	400	1,050	RCC flat	70	20 KWP capacity solar power plant was provided in 2013 & 50 KWP capacity solar power plant has been commissioned on 05-07-2016. Further 5 to 6 KWP may be accommodated in the remaining space.
2	Dumdum (KDM1) TSS Building	4.7	623	RCC flat	42	Engineering clearance required.
3	Dumdum (KDM1) Station Building	90	4,100	RCC flat	273	2x50 KWP capacity solar power plant under progress by M/s CEL against Railway Board PO. TDC- Dec-16. Remaining area/ layout shall be earmarked after installation of 2x50 KWP plant.
4	Jatin Das Park (JDPK) RSS Building	10	670	RCC flat	45	Engineering clearance required.
5	Shyambazar (KSHY) RSS Building	23	493	RCC flat	33	Engineering clearance required.
6	Girish Park (GGPK) TSS Building	10	80	RCC flat	5	Engineering clearance required.
7	Central (KCEN) RSS Building	450	394	RCC flat	26	Engineering clearance required.
8	Rabindra Sarobar (KRSB) TSS Building	10	546	RCC flat	36	Engineering clearance required.
9	Mahanayak Uramkumar (KMUK) Station Building	40	6,000	RCC flat	400	400 KWP capacity solar power plant commissioned on 19-07-2016 & 150 KWP on 14-08-2016.
10	Kavi Subhash (KKVS) Station & Substation Building	55	1,700	Curved Tinned	113	50 KWP capacity solar power plant commissioned on 09-07-2016. Further 50 KWP may be provided.
11	Kavi Subhash (KKVS) ASS Building	4	200	Curved Tinned	13	Engineering clearance required.
12	Masterda Surya Sen (KMSN) RSS Building	90	300	Curved Tinned	20	Engineering clearance required.
	Sub total of (A) =	1186.7	16,156		1,077	
(B). Housing colonies						

METRO RAILWAY, KOLKATA

Annexure VII (xvii) ²

Details of already utilized and remaining available roof top space in Metro Railway building (Buildings/ Stations/ Platforms/ Sheds/ Workshops or any other suitable roof top space) for harnessing solar energy.

Sl	Name of Building/ Location	Connected load of the premises (in kW)	Shadow free rooftop area on which solar panels can be mounted (in Sq.m)	Type of Roof: RCC flat/RCC sloping/ Tinned roof sloping/Asbestos slopping	Assessed capacity of solar potential in kWp as per MNRE guidelines.	Remarks
1	2	3	4	5	6	7
13	GM's Bungalow	18	150	RCC flat	10	Engineering clearance required.
14	90 Chowrangee Road Officer's Flat	36	72	RCC flat	5	Engineering clearance required.
15	200X, S. P. Mukherjee Road Officer's Flats	80	72	RCC flat	5	Engineering clearance required.
16	6, R. M. Road Officer's Flats	40	96	RCC flat	6	Engineering clearance required.
17	98, Ashutosh Mukherje Road staff quarters	24	50	RCC flat	3	Engineering clearance required.
18	47, D. P. S Road staff quarters	15	40	RCC flat	3	Engineering clearance required.
19	Kalighat (KKHG) RPF office	60	80	RCC flat	5	Engineering clearance required.
20	6 DP5 Building, Rabindra Sarobar (KRSB)	40	200	RCC flat	13	Engineering clearance required.
21	Kavi Subhash (KKVS) RPF Barrack	9	525	RCC flat	35	Engineering clearance required.
22	Belgachia (K&EL) (36) Belgachia Building	260	240	RCC flat	16	Engineering clearance required.
23	Dum Dum staff quarters	128	40	RCC flat	3	Engineering clearance required.
	Sub total of (B) =	711	1,565		104	
(C). Service Buildings						
24	Canteen at KNAP	22	232	RCC flat	15	Engineering clearance required.
25	SHED-No.7/NOA Carshed	16	242	RCC flat	16	Engineering clearance required.
26	Tapan Sinha Memorial Hospital (IPD & OPD) Building	1250	300	RCC flat	20	PO placed for 14.5 kWp capacity solar power plant as per available shadow <small>Reference: 2006</small>
27	KKVS Dog Kennel Building	6	120	RCC flat	8	Engineering clearance required.
28	KKVS RRI Panel Building	14	48	RCC flat	3	Engineering clearance required.
	Sub total of (C) =	1308	942		63	
(D). Office Buildings						
29	CEE(RS) Office Building at KNAP	55	292	RCC flat	19	Engineering clearance required.
30	Dy.CEE(RS) Office Building at KNAP	32	264	RCC flat	18	Engineering clearance required.
31	Fire Office Building at KNAP	12	116	RCC flat	8	Engineering clearance required.
32	Metro Rail Bhawan building	500	350	RCC flat	23	10 kWp capacity solar power plant already provided & remaining 200 sq.m can not be utilised due to shadow.
	Sub total of (D) =	599	1,022		68	

METRO RAILWAY, KOLKATA

Annexure VII - (xvii)³

Details of already utilized and remaining available roof top space in Metro Railway building (Buildings/ Stations/ Platforms/ Shed /workshops or any other suitable roof top space) for harnessing solar energy.

SI	Name of Building/ Location	Connected load of the premises (in kW)	Shadow free rooftop area on which solar panels can be mounted (in Sq.m)	Type of Roof/RCC flat/RCC sloping/ Tinned roof sloping/Asbestos slopping	Assessed capacity of solar potential in KW/p as per MNRE guidelines.	Remarks
1	2	3	4	5	6	7
(E). Carshed:						
33	Roof top space at Noapara (KNAP) Carshed	500	37,500	RCC quarter circle south facing	2,500	RFQ for IMWp invited for installation on curved concrete roof of sheds. Engineering drawing of shed structure is being studied for finalization installation modality. Remaining space shall be used after finalization of installation design /modality. Photograph attached.
34	Roof top space at KIVUK Carshed	100	4,000	Tinned roof sloping	267	Engineering clearance required.
35	Roof top space at KKV5 Carshed	100	4,000	Tinned roof sloping	267	Engineering clearance required.
			Sub total of (E) =		3,033	
(F). Elevated Station:						
Total Roof top areas of six elevated stations [Noapara (KNAP), Netaji (KNTJ), Masterda Surya Sen (KMSN), Gitanjali (KGTN), Kavi Nazrul (KKNZ) & Shahid Khudiram (KSKD)]						
36		1000	12,000	Curved Tinned	800	Engineering clearance required. Access to rooftop is required to be designed. Photograph attached.
			Sub total of (F) =		800	
			Total		5,146	
			Total utilised Space (in Sq.m) = 7,950			
						Total non-utilised Space (in Sq.m) = 57,585

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