**POWER SYSTEM OPERATION CORPORATION LIMITED**

**National Load Despatch Centre**

**(Designated as Nodal Agency in accordance with Regulation 5 of CERC (PSDF) Regulations, 2014)**

**(PSDF-Secretariat)**

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Ref: NLDC-PSDF/TESG-56th meeting/2020-21/ Dated:30th June, 2021

**Subject: Agenda for the 56th meeting of the Techno-Economic Subgroup (TESG) scheduled to be held on 7th July, 2021 at 3:00PM**

1. **Examination of Old Proposals submitted by Entities:** Inputs for 9proposals submitted by project entities will be examined. The observations of these proposals are as below:
2. **Proposal of UPPTCL:- Implementation of Reliable Communication and data acquisition system for OFC connectivity up to 132kV sub Stations of Uttar Pradesh Power Transmission Corporation Ltd. Proposal No. (115)**

**Estimated Cost:- ₹ 330 crore**

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| **SNo.** | **Input sought in 51st TESG / 23rd Appraisal Committee** | **Input received**  (Letter no. 18/CE(765&400kVDU)/PSDF, dated 6-2-2021 |
| 1 | As per the guidelines, the subject proposal of UPPTCL is eligible for a 50% grant only. However, M/s UPPTCL is requesting for 90% grant. During the 51st meeting of TESG held on 17.09.2019 the matter was discussed and it was observed that the Entity has not agreed for the 50% grant as informed by TESG and has not provided the BOD approval. In view of above, TESG recommended the proposal for “deemed return” and put up the same for approval of the Appraisal committee.  The matter discussed in the 23rd Appraisal Committee meeting and the committee was of the view that one more attempt shall be made to get the confirmation of the entity for accepting the 50% grant as per PSDF guidelines. If the confirmation is not given by the entity within one month of intimation the proposal may considered as deemed return.  It is therefore requested to kindly submit your acceptance for 50% Grant for the subject project within one month from the date of this letter. This is for your kind information and further necessary action please. | Entity’s Statement below described:-  This is to communicate in-principle acceptance of UPPTCL for PSDF grant amounting to 50% of project cost, as desired. In view of major augmentation in the UP Network in past three years, a through revision of the DPR submitted earlier is also underway to arrive at present day requirement. The revised scheme along with DPR shall be submitted shortly to PSDF secretariat after obtaining approval of Board of Directors |

1. **Proposal of TSTRANSCO, Telangana for Implementation of SAMAST (Scheduling, Accounting, Metering and Settlement of Transactions in Electricity) in Telangana. (Proposal No. 185)**

**Estimated Cost - ₹84.54 crore**

**Revised Estimated Cost- ₹52.52 crore**

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| **2** | **Input sought in 53st TESG** | **Input received**  [(Lr.No. CE (SLDC)/SE(EBC)/DE-1(EBC)/F. No. SAMAST/D. No. 457/20 Dt. 31.12.2020)](Telanagana-185/Telangana%20SAMAST%20Proposal%20No%20185.pdf) |
| **1** | The inputs furnished by the entity were examined by TESG during its 51st meeting held on 17.09.2019.  It was observed that TSTRANSCO is not following the CEA Metering Regulations. The TESG had decided that the entity shall be asked to submit revised DPR in accordance with the CEA Metering Regulations.  The Entity had responded vide letter dated 27.06.2020 wherein it has stated that the DPR of TSTRANSCO is in line with the approved DPR of APTRANSCO and the modification required to be done to conform with the CEA Metering Regulations may necessitate an additional expenditure of ₹ 60 Crores primarily towards replacement of CT and CVTs. After protracted deliberations, TESG opined that the proposal of APTRANSCO was considered at the initial stage of examination of SAMAST proposals and the experience of TESG to deal with such proposals was limited at that point of time. However, this may not be used as a justification by the TSTRANSCO for non-submission of the revised DPR in accordance with the CEA Metering Regulations.  **The TESG was of the view that the entity should follow the CEA Metering Regulations and any additional expenditure required to be incurred for conformity with the same, must be borne by the Entity. The Entity shall revise the DPR for installation of the meters in accordance with CEA Metering Regulation.** | The Entity has submitted that as the G-T and T-D boundary points in Telangana were demarcated prior to CEA metering regulations, major modifications to the existing network have to be carried out in order to comply with 1he CEA metering regulations 2006.  Most of the P1Rs in the existing substations do not have 0.2s class CTs on HV side. Further, there are no separate PTs for individual PTRs. For metering purpose voltage input is being taken from bus PT.  Similarly, for the state-run generating stations, the HV side of generating Transformer is considered as boundary point whereas as per CEA Metering Regulations 2006 it is clearly mentioned that the metering arrangement shall be made on all outgoing feeders for main and check meters. Further, the standby meters are to be placed on HV side of generator Transformer.    For T-D points replacing existing CTs with 0.2s class CTs and erection of separate PTs for individual PTRs and for G-T points erection of CTs and PTs at the outgoing feeders and shifting of meter, so as to comply with the CEA metering regulations 2006 will incur huge cost which may be much more than estimated 60 Crores.  In addition to the financial burden, carrying out the above modifications will cause a lot of disturbance on 132 KV Bus of substations and generator switchyards. In most of the above cases ground clearances are minimum and availability of space is less to take up the erection work. Obtaining line clearance for the above works for long durations is also not possible considering the 24 Hrs uninterrupted power supply policy of the government of Telangana ·  Further, it would be very difficult to implement SAMAST in the state of Telangana without getting PSDF funds for the project including the metering module.  Hence, in order to implement SAMAST without any hindrance it is once again requested to consider the already submitted DPR which is in line with the DPR of APTRANSCO and grant PSDF funds accordingly. |
| **Observation on inputs received:** | | |
| 1 | NLDC Observations | Entity mentioned that the substations are old and metering scheme was installed before CEA regulations notification. In view of this the Entity request can be considered. |
| 2 | PSETD CEA Observation | NIL |
| **3** | CTU Observations | NIL |
| 4 | PowerGrid Observations | NIL |

**NPC Observation:**

**Entity should follow CEA metering regulations.**

**DP&R division Observation:**

* 1. Metering arrangement and Accuracy Class of CT and PT associated with meters need to be as per Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and  there can not be any relaxation regarding its implementation.
  2. With respect to funding from PSDF or any other source, comments of DP&R division may be treated as nil.

1. **Proposal of MSEDCL: -Reactive Power Management by Installing Capacitor Bank at 33/22/11 KV Substation. Proposal No. (217)**

**Estimated Cost: - ₹ 381.57 crore**

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| **SNo.** | **Input sought in 51st TESG** | **Input received**  [(Letter no.Ref. No. CE(PP)/PSDF/RPM/00766](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Maharashtra-217\Letter%20to%20Convenor%20(NLDC)_11.01.2021.pdf) |
| 1 | Sample voltage measurements before and after switching of the existing capacitor banks in the state of Maharashtra. | Result obtained after installation of the SIS type capacitor banks:  After installation of sub-station type capacitor banks at various s/s locations in the Maharashtra state, it is observed that there is considerable improvement in line voltage, decrease in line current giving load relief and improvement in power factor. Some statistical examples in this respect are furnished herewith as [Annexure-A](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Maharashtra-217\Annexures_Reply%20to%20Convenor%20(NLDC)_11.01.2021.pdf). |
| 2 | The basis of choosing rating of capacitor banks. | Please find below the technical details for capacitor bank selection:  Total required KVAR for System= P{tan[cos- 1 (Φ1 )] - tan[(cos- 1 (Φ2)]}  Where, P = Active Power (kW), Φ1 = Initial Power Factor (without Injected Capacitive kVAr), Φ2= Desired Power Factor (with Capacitive kVAr Injected)  Considering, 5000 kVA Power Xer with 80%Conn. Load with Φl = 0.8 & Diversity Factor =2,  Maximum load on the Power Xer will be: P = 5000 x (80/100) x 0.8 x (l/2)= 1 600 kW Now, for the desired unity Power Factor i .e. Φ2 = 1.0  Total KVAR required for System = P {tan[cos-1 (Φ 1 )] - tan[(cos·1(Φ2)]}  = 1600 {tan[cos-1 (0.8))})] - tan[( cos-1 ( 1 .0)}  = 1600 {tan 36.87° - tan 0°}  = 1600 {0.75 - O}  = 1200 kVAr (i.e.1.2 MYAR)  Hence, capacitor banks of 1 1 k V, 1 .2 MVAR rating for Sub-Stations of 5000 kVA capacity and similarly capacitor banks of 1 1 kV, 2.4 MVAR rating for Sub-Stations of 10,000 kVA capacity are proposed by MSEDC L for the reactive power management. |
| 3 | Justification for proposing 2 sets of 11 kV 1.2 MVAR capacitor banks at some locations instead of one unit of 2.4 MVAR capacitor bank (it results in extra expenditure of Rs 18 lakhs per capacitor bank). | Clarification for proposing 2 no. of 1 1 kV, 1 .2 MVAR for Sub-Stations having 10,000 kVA capacity:  Some MSEDCL sub-stations of 10 MVA capacities are installed with 02 no. of power transformers each of 5000 kVA rating. These power transformers cater power to two separate buses and each bus feeds to radial Ag feeders emanating from it. Hence, at such sub-stations where power transformers do not operate in parallel, it is inevitable to propose 02 nos. of 1 1 kV 1 .2 MVAR capacitor banks (1 no. per each power transformer) for the desired reactive power management.  It is humbly requested to consider the compliance furnished as above and expedite the process of giving sanction to the MSEDC L's proposal.  It is also conveyed that, TESG has suggested to consider requirement of capacitor banks only where the voltage level is at 0.9 pu or below from the nominal voltage, i .e. less than 1 0 k V. Based upon this criterion, out of the proposed 1462 nos. of capacitor banks the eligible quantity is getting reduced to 657 nos. only.  However, 1t is pertinent to humbly mention here that, as conveyed earlier vide letter under ref.(2), the proposed 1462 no. of capacitor banks of net 1 858.80 MYA r capacity are to be installed at l 144 no. of substations located in Ag dominated rural areas in Maharashtra and mainly catering highly inductive agricultural load through long length Ag feeders having poor voltage regulation. Hence, to improve voltage profile and reduce loading and losses of the distribution system in the state, MSEDCL needs to install all of the proposed capacitor banks at the Ag dominated substations.  Also, as per Part IV Regulation no.2 of CEA (Technical standard for connectivity in Grid) Regulation, 2007, "the distribution licensees shall provide adequate reactive compensation to compensate the inductive reactive power requirement in their system, so that it will not depend upon grid for reactive power support. The power factor for distribution system and bulk consumers shall not be less than 0.95 ".  In view of the above and it is again requested to consider all of the proposed i .e. 1462 no. of capacitor banks with total capacity of 1858.80 M YA R to finalize requirement of MSEDC L.  It is pertinent to humbly mention here that the proposal is in process of approval since last two years. The rates are increased in last two years. Hence, the estimated cost mentioned in submitted DPRs is on lesser side now. The Revised Cost of submitted DPR-1 is now amounting to Rs. 333.33 Cr as shown in the following table.   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Sr.No. | Rati ng of Capacitor Bank | Total Proposed Qty. of Capacitor Banks vi de DPR-I (Set) | Quantity of Cap. Banks Qualified as per TESG criteria (Nos.) | Balanced Quantity of Capacitor Banks (Nos.) | Existing Rate per Cap. Bank (Set) in Rs. Lacs | Cost of Balanced Quantity as per TESG criteria in Rs. Lacs | Cost of Eligible Quantity as per TESG criteria in Rs. Lacs | Revised Cost of the submitted DPR-1 in Rs. Lacs | | a | b | C | d | e | f | g = f x e | h = f x d | i = g + h | | I | I I kV,1.2 MVAr | I 374 | *610* | 764 | *22.43* | 1 7139.63 | *13684. 78* | 30824.4 1 | | 2 | I I kV ,2.4 MVAr | 80 | *42* | 38 | *26 53* | 1 008 .09 | *1 114.21* | 2 I 22.30 | | 3 | 22 kV,1.2 MVAr | I | *1* | 0 | *46 36* | 0 | *46 36* | 46.36 | | 4 | 22 kV,2.4 MVAr | 7 | *4* | 3 | *48 56* | 1 45.67 | *194.23* | 339.9 | | Total | | 1 462 | *657* | 805 | ... | 1 8293.40 | *15039.5 8* | 33332.98 |   (Note: Please refer to Annexures - B & C for the rates considered in above table.)  However, due to the exigency of the work to be executed for system improvement, it is requested to give approval in the first phase to the quantity of capacitor banks qualifying as per TESG criteria i e. 657 nos. (843.6 MVAR) of capacitor banks with revised cost amounting to Rs. I 50.40 Cr as seen in the above table. It is also requested to consider balance qty. of the total submitted data/ DPR-I i.e. 805 nos. ( 101 5.20 MVAR) of capacitor banks amounting to Rs. 182.93 Cr as seen in above table, for approval in the next phase. However, contemporary rates may be considered for giving approval in next phase. It is humbly requested to expedite the approval process for the MSE DC L's proposed scheme of capacitor banks installation.  In addition to the above, it is also requested to consider and sanction DPR-II submitted by MSEDCL vide letter under ref.(4) for Installation of capacitor banks at 1 1 k V and 22 k V Feeders, worth Rs. 70.61 Crores for the approval. |
| **Observation on inputs received:** | | |
| 1 | NLDC Observations | Entity has submitted the requisite inputs |
| 2 | PSETD CEA Observation | NIL |
| 3 | CTU Observations | NIL |
| 4 | PowerGrid Observations | NIL |

NPC observations:

* As change in location is not allowed so entity may confirm space availability for 657 capacitor banks (Attached) which are eligible for PSDF funding.
* Entity may confirm any locations if required based on the less than 0.9pu voltage criteria.

1. **Proposal of JUSNL, Implementation of SAMAST (Scheduling, Accounting, Metering & Settlement of Transactions in Electricity) for sanction from PSDF Proposal No. (266)**

**Estimated Cost – Rs. ₹215.89 crore**

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| **SNo.** | **Input sought in 51st TESG** | **Input received**  [(Letter no. 911 GM, C&M (NWBP)/JUSNL](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Inputs-Jharkhand-266%20SAMAST\1_JUSNL%20Reply%20SAMAST.pdf) |
| 1 | 42 nos. of existing GSS (41 JUSNL + 1 SHPS JUUNL) which have total cost including yearly inflation indices and turnkey rate is INR 67.43 Cr. | Fresh DPR Submitted by entity. |
| 2 | 86 nos. of upcoming GSS having total 860 ABT meter + spare 180 ABT meter (10% spare of total with accessories) is INR 104.4 Cr |
| 3 | Hardware & Software requirement for SAMAST is INR 9.68 Cr. |
| 4 | Capacity Building & Training cost (@2% of Existing GSS cost) is INR 1.34 Cr. |
| 5 | Total DPR cost for SAMAST including all above is 182.9 Cr. The representatives of Jharkhand also attended the meeting and gave a presentation about their proposal. After discussions, following observations were conveyed to the entity and inputs clarifications were sought: |  |
| i. | Basis of load projection in coming years. It should be based on EPS 2019. | Load Flow Study JUSNL FY 21-22 attached as ''Annexure F ([Part-1](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Inputs-Jharkhand-266%20SAMAST\Load%20Flow%20Study%20-%20JUSNL%20Part-1.pdf) & [Part-2](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Inputs-Jharkhand-266%20SAMAST\Load%20Flow%20Study%20-%20JUSNL%20Part-2.pdf))" |
| ii. | The proposal includes 86 nos. upcoming GSS. The stations likely to come by March, 2020 may be identified and the present status of installation may be provided. | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **SI.**  **No** | **GSS** | **Voltage level (KV)** | **Commissioning Status**  ***YIN*** | **Charging Status** | **Date to Charging through Incoming Ckt.** | | 1 | Giridih | 220/132 | y | Charged | 18.08.2020 | | 2 | Garhwa [Bhagodih) | 220/132 | y | Charged | 18.08.2020 | | 3 | Jasidih | 220/132 | y | Charged | 18.08.2020 | | 4 | Jamua | 220/132 | y | Charged | 18.08.2020 | | 5 | Saria | 220/13.2 | y | Charged | 18.08.2020 | | 6 | Govindpur | 220/132 | y | Charged | 26.09.2019 | | 7 | Godda | 220/132 | y | Charged | 03.08.2019 | | 8 | Chandankiyari | 220/132 | y | Back Charged | By end of FY 20-21 | | 9 | Bahragora | 220/132 | y | | 10 | Ratu [Burmu) | 220/132 | y | | 11 | Jainamore [Bokaro1 | 220/132 | y |   Out of 86 proposed GSS, 11No. of GSS has been charged and details is as mentioned in below Table A. Rest 75 Nos. of GSS under commissioning and expected to be completed by next year. |
| iii | The interface meters are being funded as per the benchmark cost @ Rs 36000/- per meter approved by the Appraisal Committee. An upper cap of benchmark cost of Rs 10 crore has been approved by the Appraisal Committee, for Hardware, Software and other components. The cost estimates shall be considered as per these costs. | DPR for SAMAST is being revised for 53 GSS only, which have previously charged 42 GSS & newly charged 11GSS as shown in above Table A. Total ABT meter count for 53 GSS is 632 and 19 no. ABT meter as 3% spare is considered; hence total meter count is 651 nos. In cost estimation for DPR-SAMAST, erection cost has been considered in reference to the SoR -18-19 (including inflation rate 9%) of JUSNL Costing of DPR is bifurcated mainly in four component, ABT meter, ABT meter Accessories, Hardware & Software portion and Training & capacity building. Summary of DPR is hereunder in Table B. (attached below)   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Summary of cost estimation for SAMAST project under JUSNL for 53 GSS (Considering Projection Type ABT Meter)** | | | | | | | | | | | **Sl. No.** | **Particulars** | **ABT Meter Unit price (As approved by Appraisal Committee PSDF)** | | **Total Excluding Taxes** | [**GST@18%**](mailto:GST@18%25) | | **Total price for Turnkey Project in INR (Incl. Taxes)** | | | A1 | For ABT meters & 3% spare only (632+19) 651 Nos. | 36,000 | | 48,648,671 | 8,756,761 | | 57,405,432 | | | A2 | For Accessories of ABT meter | - | | 302,560,086 | 54,460,815 | | 357,020,902 | | | A | ABT meter & Accessories Sub Total (A1+A2) | - | | 351,208,757 | 63,217,576 | | 414,426,334 | | | B | Hardware & Software | - | | 87,297,407 | 15,713,533 | | 103,010,940 | | | C | Training & Capacity Building for SAMAST | - | | 7,104,800 | 1,278,864 | | 8,383,664 | | | **Grand Total (A+B+C+D)** | | |  | **796,819,721** | **143,427,549** | **940,247,272** | | |
| iv | Grid network map is to be provided by the entity. It shall include the following (a sample copy of Grid Map/SLD of other entity is attached for your ready reference):  Depiction of interface meter points in Grid network map/SLD. Existing and Proposed Meters on the Grid network map/SLD. Ownership of the lines/sub stations in Grid network map/SLD. | Grid Connectivity of all 53 grids are attached as [Annexure B](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Inputs-Jharkhand-266%20SAMAST\Annex%20B_Grid%20Connectivity%20JUSNL_ABT%20Location.pdf)"  "Individual SLD of each grid is attached as [Annexure C](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Inputs-Jharkhand-266%20SAMAST\Annex%20C_SLD%20of%2053%20Nos.%20GSS.pdf) with marking of ABT Meters." |
| v | Physical and Financial Milestones to be provided. | Physical and Financial Milestones has been provided as [Annexure D](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Inputs-Jharkhand-266%20SAMAST\Annex%20D_Physical%20%20Financial%20Milestones%20Chart.pdf)". |
| vi | The number of the different power utilities in the state of Jharkhand as tabulated below may be provided by the entity:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **State** | **Name and no.  of Discoms** | **Name and no.  of Generators** | **IPP/CPP** | **Open Access Customers** | |  |  |  |  |  | | Name of Power Utilities, CPP, IPP, OA Consumer shown below in Table- C   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **State** | **Name and no. of Discoms** | **Name and no. of Generators** | **IPP/CPP** | **Open Access Customers** | | Jharkhand | **In Jurisdiction of Jharkhand SLDC**  1.Jharkhand Bijli Vitran Nigam Ltd (JBVNL)  **In Jurisdiction of DVC SLDC**   1. Damodar   Valley Corporation   1. TATA Steel 2. JUSCO 3. Bokaro Power Supply (Sail area) | **2 nos.**  1.Tenughat Thermal Power Plant (TTPS)  2. Sikidri Hydro Power Plant (SHPS) | **IPP: 2 No.**  1.Inland Power  2.Adhunik Alloys Power  **CPP: 4 Nos.**  1.Usha Martin,  Adityapur (Now TATA Sponge)  2.Usha Martin Namkum  3.Aditya Birla  4.Rungta mines | Indian Railways | |
| vii | List of interface points in table form: i.e., (G-T interface points/T-D interface points) | G-T Interface points mentioned below "Table-D   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **G-T Interface Points** | | | | | | | **Sr. No.** | **Generator Name** | **Owned By** | **Grid Substation**  **Connectivity (GT Interface)** | **No. of Units X Unit Capacity MW)** | **Total Installed Capacity (In MW}** | | 1 | TTPS (Tenughat Thermal Power Station) | JUSNL | Tenughat (SC) | 1x210  1x210 | 420 | | 2 | SHPS (Sikdri Hydro Power Stationl | JUUNL | Sikdri (DC) | 1x65  1x65 | 130 | | 3 | Inland Power (IPP) | Inland Power | Sikllri (DC) | 1x63  1x63 | 126  / | | 4 | Adhunik Alloys (IPP) | Adhunik Power | Ramchandrapur (SC) | 1x30 | 30 | | 5 | Usha Martin-Namkum (CPP) (Now TATA Sponge) | TATA Steel | Adityapur-1 (DC) | 1x30  1x30  1x30  1x25  1x15 | 130 | | 6 | Usha Martin- Namkum (CPP) | Usha Martin | Namkum (SC) | 1x10  1x10 | 20 | | 7 | Aditya Birla Power (CPP) | ABCIL | Garhwa (SC) | 1x30  1x30 | 60 | | 8 | Rungta Mines (CPP) | Rungta Mine | Chaibasa – 1 (DC) | 1x20  1x20 | 40 | |
| Viii | The representatives of Jharkhand may modify the DPR in line with the above observations | **Submitted** |
| **Observation on inputs received:** | | |
| 1 | NLDC Observations | Entity has submitted the requisite inputs |
| 2 | PSETD CEA Observation | NIL |
| 3 | CTU Observations | NIL |
| 4 | PowerGrid Observations | NIL |

NPC Observations:

1. The revised cost 52.58 Crs
2. Revised cost includes Consultancy, Storage, T&P, Finance charges, Contingencies charges, Over head charges and project management charges which are not eligible under PSDF funding.
3. Board approval for PSDF funding may be provided.
4. Energy accounting meters 228 nos included are not eligible under PSDF funding
5. Board approval for PSDF funding may be provided.
6. The entity shall assess the requirement of intra-state interface meters as per CEA Metering Regulations. No spare maters will be funded from PSDF.
7. In case of T-D interface points in substation entity place meters on incoming feeders and outgoing feeders even though meters placed on PTRs. The same may be clarified.
8. Ownership of each proposed meter location may provided.
9. Meters will be funded for only existing SS. Not to the upcoming substations.
10. PT and CTs will not funded under PSDF. The entity may divide cost abstract in to two parts. One is number of meters and other is Hardware & software.
11. The interface meters are being funded as per the benchmark cost approved by the Appraisal Committee.  Further, an upper cap of benchmark cost of Rs 10 crore has been approved by the Appraisal Committee for the Hardware, Software and other components. The Cost Estimates shall be considered accordingly. The Entity may submit its acceptance for the same.
12. The Entity is to provide the grid network map (preferably in A3 sheet) of the Intra State system. The grid map shall include the existing and proposed interface meters(including Main, Standby and Check meters) at the following locations:
13. At Generating Stations (All outgoing feeders including bus sectionalizer or tie line between two stages of generating stations having different tariffs or different ownership or both, Generator Transformers and Station Auxiliary Transformers are to be depicted on the map)
14. At the ICTs.
15. On a line between the two substations(the licensees at both end of the line may be depicted on the map)
16. For Consumers directly connected to the Intra-State Transmission System or Distribution System, who has been permitted open access by the Appropriate Commission
17. Any other associated system.
18. **Proposal of UPPTCL,, Implementation of SAMAST (Scheduling, Accounting, Metering & Settlement of Transactions in Electricity) for sanction from PSDF Proposal No. (288)**

**Estimated Cost - ₹127.64 crore**

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| **1** | **Input sought in 53st TESG** | NLDC Observations | NPC Observations |
| 1  1 | Entity has submitted the metering scheme for the G-T Interface and T-D interface.   1. **G-T interface:**   As per the metering scheme of the entity, it has proposed a redundant meters (in addition to Main and Check meters) on the feeder which is not mandatory as per CEA metering regulation 2006. For example, the metering scheme for Alaknanda Hydro Project is given below:   |  |  |  |  | | --- | --- | --- | --- | | **Alaknanda Hydro Project** | | | | | **Component in Generating Station** | **Number of System component** | **Numbers of meters proposed by Entity** | **Required Number of meters as per CEA metering regulation 2006** | | 400 kV feeder | 4 | 12 | 8 | | Generating Transformer | 4 | 4 | 4 | | Station Transformer | 1 | 1 | 1 |  1. **T-D Interface:**   As per the metering scheme of the entity, it has proposed meters on the feeders. However, it is recommended to install interface meters at the Inter Connecting Transformer at T-D points. This will significantly reduced the number of meters at the T-D points.  As per CEA Metering Regulations 2006, Consumers directly connected to the Intra-State Transmission System or Distribution System who has been permitted open access by the Appropriate Commission or any other system, the location and number of the interface meters shall be decided by the Appropriate Commission.  Entity is requested to provide the list of location and number of the interface meters decided by the Appropriate Commission. Same is to be shown on on its grid map (preferably in A3 sheet).  **Entity is requested to provide the revised metering scheme for interface meters in line with the above observation and CEA Metering Regulations 2006 & its amendments.** | **Input received**  ([Letter no. 4263 Dir (O)/SAMAST dated 10.11.2020)](UPPTCL%20SAMAST%20_%20288/Inputs%20with%20Annexures%20UPPTCL%20SAMAST%20Proposal%20no%20288.pdf)  Entity has submitted the Revised Metering Scheme in line with the CEA Regulations  Attached at [Annexure – 1](UPPTCL%20SAMAST%20_%20288/Annexure-1.png) of Reply. | Justification for interface meter points   1. Metering scheme has been reviewed as per CEA Metering Regulations 2006 and its amendments.   With this the DPR cost has been revised by the entity from Rs.127.64 Crore to Rs. 24.98 Crore.  Inputs pending:  Entity is requested to provide the list of location and number of the interface meters for Open Access consumers decided by the Appropriate Commission. It is to be shown on its grid map. |
| 2 | Entity has requested 100% PSDF funding. However, as per the PSDF guidelines, entity is eligible for 90% Funding. Therefore, revised Board consent for 90% funding is to be provided by the entity. | [Submitted (Annexure-2 of Reply)](UPPTCL%20SAMAST%20_%20288/Inputs%20with%20Annexures%20UPPTCL%20SAMAST%20Proposal%20no%20288.pdf) | 2. Revised consent of BoD for acceptability of 90% funding from PSDF has been obtained and resolution is attached. |
| 3 | Entity is requested to submit the Physical and Financial Milestone. | [Submitted (Annexure-3 of Reply)](UPPTCL%20SAMAST%20_%20288/Inputs%20with%20Annexures%20UPPTCL%20SAMAST%20Proposal%20no%20288.pdf) | 3. Entity has submitted the Timeline of the project. NLDC is requested to send the format of Physical and Financial Milestone to the Entity. |
| 4 | Entity is to provide the grid network map (Preferably in A3 sheet) of the Intra State system. The grip map shall include the existing and proposed interface meters (including Main, Standby and Check meters) at the following location:   1. At Generating Stations (All outgoing feeders including bus sectionalizer or tie line between two stages of generating stations having different tariffs or different ownership or both, Generator Transformers and Station Auxiliary Transformers may also be depicted on the map) 2. At the ICTs. 3. On a line between the two substations(the licensees at both end of the line may be depicted on the map) 4. For Consumers directly connected to the Intra-State Transmission System or Distribution System who has been permitted open access by the Appropriate Commission 5. Any other system. | [Submitted](UPPTCL%20SAMAST%20_%20288/All%20SLD%20Diagram%20Updated(With%20File%20Name)/All%20SLD%20Diagram%20Updated(With%20File%20Name)) | 4. The SLDs provided in hard copy were not marked. Further, the soft copy od SLDs is password protected. |
| 5 | Entity is requested to provide the list which may include the breakup of Main, Standby and Check meters:   1. At each Generating Stations. 2. At each ICTs. 3. On each line between the two substations 4. For each Consumers directly connected to the Intra-State Transmission System or Distribution System who has been permitted open access by the Appropriate Commission 5. Any other system. | [Submitted](UPPTCL%20SAMAST%20_%20288/All%20SLD%20Diagram%20Updated(With%20File%20Name)/All%20SLD%20Diagram%20Updated(With%20File%20Name)) | 5.Not provided. |
| 6 | Entity has proposed interface meters for upcoming system also. These meters may be excluded from the scope of the scheme as the components for future expansion are not admissible for PSDF funding. | Excluded | 6.The proposed interface meters for upcoming system have been deleted. |
| 7 | Entity has requested training cost of ₹1 crore for 38 personnel for 5 years (at rate of ₹20 lakhs per year) which was not eligible for funding. | Excluded | 7.The training cost of Rs 1 crore for 38 personnel for 5 years has been deleted |
| 8 | Specifications of existing and proposed Interface meters are to be provided by the entity along with details of the communication system to be used for scheme of SAMAST | [Submitted (Annexure-6 of reply)](UPPTCL%20SAMAST%20_%20288/Inputs%20with%20Annexures%20UPPTCL%20SAMAST%20Proposal%20no%20288.pdf) | 8.The specification of existing and proposed interface meter is attached (Annexure-6) and the communication system to be used for transfer of data from DCU TO CDCD would be OFC/GSM/GPRS2G/4G. The facility for connecting the DCU to GPRS / 4G modem shall be provided. Optional connectivity with FO system also be considered. |
| 9 | Entity may also ensure cyber security of the system in line with the various Acts and regulations. | [Submitted (Annexure-7 of Reply)](UPPTCL%20SAMAST%20_%20288/Inputs%20with%20Annexures%20UPPTCL%20SAMAST%20Proposal%20no%20288.pdf) | 9.The provision for cyber security management has already been made at Sr. no. 7 page 20 of DPR which was sent earlier. |
| **Observation on inputs received:** | | |  |
| 1 | NLDC Observations | Entity has submitted all the required inputs – No further observations. DPR Cost revised from 127.64 crore to 24.97 crore. |  |
| 2 | PSETD CEA Observation | NIL |  |
| 3 | CTU Observations | NIL |  |
| 4 | PowerGrid Observations | NIL |  |

1. **Proposal of MePTCL:- Up-gardation & integration of Remote Terminal Units (RTUs) for improvement of telemetry status of various sub-stations in Meghalaya Proposal No. (289)**

**Estimated Cost:- ₹2.55 crore**

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| **8** | **Input sought in 23rd Appraisal Committe** | **Input received**  ([Letter no. MePTCL (T)/TT-139 (Pt-V)/2020-21/17, dated 18-](Meghalaya-289/Upradation%20and%20integration%20of%20RTU%20-%20proposal%20289.pdf) |
| 1 | Contingencies @3% is to be excluded from the cost estimate as it is not allowed under funding from PSDF. | The Contingencies @3% has been removed from the DPR in line with the  guidelines of PSDF. A revised DPR is enclosed. |
| 2 | Duly signed copy of Appraisal report (Management approval) is to be provided. | Board of Director Approval letter is enclosed.(as per Letter of 18-February-2021) |
| 3 | Cost justifications/ basis of cost estimates is to be provided. | Since all the RTU installed in Meghalaya Power System are of GE Make and to  ensure the compatibility with the existing set-up, the rate of the equipment has been furnished based on offered rate of the corresponding OEM. Additional rack has been proposed on this project to cater the additional cards procured. With this project all the Digital inputs specifically isolators and breakers of every substations of Meghalaya will be telemetered, which will increased the telemetry availability and visibility of the Meghalaya power system at the control centre for smooth monitoring of the power system. |
| 4 | Duly filled Format A5 is to be provided by entity. | Duly filed Format A5 copy enclosed. |
| 5 | Details of existing Telemetry equipment along with existing analogue and digital, Input / output point and number of inpur output cards is to be provided. | Enclosed as per Annexure -1 |
| 6 | SLD / schematic diagram of the scheme is to be provided. | Enclosed as per Annexure -2 |
| 7 | Date of commissioning of existing telemetry systrm/RTUs where upgradation and integration of RTU is proposed is to be provided. | Enclosed as per Annexure -1 |

Observations of NPC Division:

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| --- |
| * + - * 1. **Observation /Requirements :**   **General Observations** |
|  |

1. Estimated cost of the project is revised to Rs. 2.49 Crs.
2. PSDF support sought for 100% under MoP guidelines 5.1(c).
3. 24 nos of substation at 132kV level are considered in the project. Entity may provide the breakup of substations i.e. no of Existing substations /under construction /proposed (future) substations.
4. **Copy of Appraisal report (Management approval), protection audit report are to be provided.**
5. **Board Approval seeking grant from PSDF is to be provided.**
6. In Format A1 time of completion is mentioned as 32 Months .Entity needs to clarify whether it is 32 Month or 18 Months.
7. **It seems that the project is related to reliable communication therefore the grant may be considered for 50% of approved estimated cost.**
8. **There are 23 existing DI cards at 24 substations which are commissioned between 2013-2019.Entity had sought 32 more DIU in this DPR.**
9. **The RTUs are commissioned between 2013-2019. This does not fall under R&U projects as per PSDF guidelines. It seems business as usual.**
10. **The justification on requirement of cards based on I/O points may be examined during the TESG meeting.**
11. **Substation covered in this DPR are already having RTU/DI units.**
12. **Observation on inputs furnished by entity.**

|  |  |  |
| --- | --- | --- |
| **S.NO** | **Input sought in 53rd meeting** | **Input furnished by entity.** |
| 1 | Contingencies @3% is to be excluded from the cost estimate as it is not allowed under funding from PSDF | Entity has revised the Cost Estimates after excluding contingency. |
| 2 | Duly signed copy of Appraisal report (Management approval) is to be provided. | **Not provided. It is provided for Proposal No 290**. |
| 3 | Cost justifications/ basis of cost estimates is to be provided | Entity informed that the rate of the equipment has been furnished based on offered rate of the corresponding OEM. However, **Supporting documents has not been provided for cost estimate.** |
| 4 | Duly filled Format A5 is to be provided by entity. | Provided by entity |
| 5 | Details of existing Telemetry equipment along-with existing analogue and digital, I/O point and cards to be provided. | Provided (24 no RTUs commissioned between 2013-19 with 23 nos of DI cards.\_  Entity has sought 32 more DIU cards in this DPR |
| 6 | SLD / schematic diagram of the scheme is to be provided. | **SLD is provided but schematic diagram is not provided. No of DIU may be marked on SLDs.** |
| 7 | Date of commissioning of existing telemetry system/RTUs where upgradation and integration of RTU is proposed is to be provided. | Provided by entity.(RTU commissioned between 2013-2019) |

**B . Abstract Quantity of Substation Equipment:**

|  |  |  |
| --- | --- | --- |
| **S.No** | **Description of Equipment** | **Qnty.** |
| **a.** | **Hardware** |  |
| 1 | DIU 200 | 32 |
| 2 | Pre-fab cable long with connector for DIU cards | 32 |
| 3 | C264 (40T) racks with CPU and Power supply | 24 |
| 4 | Spares for DIU 200 | 1 |
| 5 | Spares for C264 (40T) racks with CPU and Power supply | 1 |
| **b.** | **Services** |  |
| 1 | Database updation at RTU end | 24 |
| 2 | Testing & Commissioning of upgraded RTUs including end to end testing control centre. | 24 |
| 3 | Database updation , displays and necessary changes at control center end for 24 substations | 1 |
| 4 | End to end testing at CC end 24 substations | 1 |

**C. Quantity wise broad estimate :**

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Description** | **Amount**  **(in Rs. Crores)** |
| 1 | Supply DIU cards & Equipment (I) | 1.35 |
| 2 | Installation, Testing and Commissioning work (II) | 0.76 |
| 3 | GST on I & II 18% | 0.38 |
|  | **Grand Total** | **2.49** |

**Observations of PSET&D**

Utility may clarify whether requirement of 33 Nos. DIU card and 25 Nos. C264 (40T) racks with CPU & Power supply is replacement of existing equipment or it is additional requirement for the integration of additional input/output points.

1. **Proposal of OPTCL:- Implementation of SAMAST (Scheduling, Accounting, Metering & Settlement of Transactions in Electricity) SLDC-Odisha Proposal No. (292)**

**Estimated Cost:- ₹ 30.09 crore**

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| **5** | **Input sought in 53rd TESG** | **Input received**  [(Letter no. Ref. No. SGM (PS)-PL-429/2016/4537(4)](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\1_Letter%20of%20CLD,%20SLDC,%20Odisha.pdf) |
| 1 | Entity has proposed 1683 number of interface meters at 561 number of interface points (No. of interface meters 561\*3= 1683) | Submitted |
| 2 | PSDF support sought is 100%. However, eligible for 90% support from PSDF. Hence, BoD consent for 90% funding is to be submitted. | [Submitted](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\OPTCL%20BoD%20Approval.pdf) |
| 3 | The interface meters are being funded as per the benchmark cost @ Rs 36000/- per meter approved by the Appraisal Committee. An upper cap of benchmark cost of Rs 10 crore has been approved by the Appraisal Committee for the Hardware, Software and other components. The cost estimates shall be considered as per the costs approved by the Appraisal Committee. Entity may provide the acceptance of the above approved cost. | [Beanchmark Cost accepted in BOD approval](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\OPTCL%20BoD%20Approval.pdf) |
| 4 | Entity is requested to provide the grid network map of the Intra State system. The grip map may include the existing and proposed interface meters(including Main, Standby and Check meters):   1. At Generating Stations (All outgoing feeders including bus sectionalizer or tie line between two stages of generating stations having different tariffs or different ownership or both, Generator Transformers and Station Auxiliary Transformers may also be depicted on the map) 2. At the ICTs. 3. On a line between the two substations(the licensees at both end of the line may be depicted on the map) 4. For Consumers directly connected to the Intra-State Transmission System or Distribution System who has been permitted open access by the Appropriate Commission 5. Any other system | Submitted  [TPCODL DISCOM METER ON SLD](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\TPCODL%20DISCOM%20METER%20ON%20SLD.pdf)  [WESCO DISCOM METER ON SLD](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\WESCO%20DISCOM%20METER%20ON%20SLD.pdf) |
| 5 | The entity shall assess the requirement of intra-state interface meters as per CEA metering regulations. |  |
| 6 | The number of the different power utilities in the state of Odisha as tabulated below may be provided by the entity:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | State | Name and no. of DISCOMS | Name and no. of Generators | IPP/ CPP | Open Access Customers | | Odisha |  |  |  |  | | [Submitted](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\Power%20Utilities%20of%20Odisha.xlsx) |
| 7 | List of interface points in table form: i.e., (G-T interface points/T-D interface points). | [Submitted](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\METER_LIST.xlsx) |
| 8 | Break up of Main, Check and Standby meters. |
| 9 | Physical and Financial Milestones. | [Submitted](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\Physical%20_%20Financial%20Milestones.pdf) |
| 10 | Revised Format A5 & A6 | Submitted [A5](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\Format%20A5.pdf) & [A6](file:///C:\Users\aadip\Documents\PSDF\2021.05.24_TESG-55\Inputs%20submitted%20by%20Entities_55TESG\Odisha-292\Format%20A6-Undertaking.pdf) |

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| --- | --- | --- |
| **Observation on inputs received:** | | |
| NLDC Observations | Entity has submitted the requisite inputs |
| PSETD CEA Observation | NIL |
| CTU Observations | NIL |
| PowerGrid Observations | NIL |

NPC Observations:

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| --- | --- | --- |
| **S.NO** | **53rd TESG Observations sent to entity** | **Input provided by entity** |
| 1 | The Entity has proposed 1683 number of interface meters at 561 number of interface points (No. of interface meters 561\*3= 1683). The entity shall assess the requirement of intra-state interface meters as per CEA Metering Regulations. | The entity **NOT** assessed the requirement of intra-state interface meters as per CEA Metering Regulations.  **Entity May clarify Why additional meters on feeders required as already meters placed on PTRs.**  **And meters for Audit will not be funded from PSDF.** |
| 2 | The Entity has requested for 100% PSDF funding. However, as per the PSDF guidelines, entity is eligible for 90% Funding. Therefore, revised consent of Board for acceptability of 90% funding from PSDF for the said project/scheme, is to be provided by the entity. | **Board approval for 90% of 16.05 crs provided.** |
| 3 | The interface meters are being funded as per the benchmark cost @ Rs 36000/- per meter approved by the Appraisal Committee.  Further, an upper cap of benchmark cost of Rs 10 crore has been approved by the Appraisal Committee for the Hardware, Software and other components.   The Cost Estimates shall be considered accordingly.The Entity may submit its acceptance for the same. | **Acceptance Provided** |
| 4 | The Entity is to provide the grid network map (preferably in A3 sheet) of the Intra State system. The grid map shall include the existing and proposed interface meters(including Main, Standby and Check meters) at the following locations:   1. At Generating Stations (All outgoing feeders including bus sectionalizer or tie line between two stages of generating stations having different tariffs or different ownership or both, Generator Transformers and Station Auxiliary Transformers are to be depicted on the map) 2. At the ICTs. 3. On a line between the two substations(the licensees at both end of the line may be depicted on the map) 4. For Consumers directly connected to the Intra-State Transmission System or Distribution System, who has been permitted open access by the Appropriate Commission 5. Any other associated system. | **Entity provided the required data and grid SLDs but meters locations not as per CEA metering regulations.** |
| 5 | The details of the different power utilities in the state of Odisha, is to be provided by the entity in the following tabular format: | **Provided** |
| 6 | The Entity is required to submit the Physical and Financial milestones for the subject project proposal. | Physical and Financial milestones **NOT** provided. **Only timeline provided** |
| 7 | The list of interface points (i.e., G-T interface points/T-D interface points) is to be submitted by the entity in tabular form. | Provided |
| 8 | The break up of Main, Check and Standby meters, is to be provided. | Provided |
| 9 | Duly filled in Revised Format A5 and Format A6 is to be provided by the entity. | Provided |
| 10 | The Entity may also ensure cyber security of the system in line with the various Acts and Regulations. | **-** |

1. **Proposal of JUSNL: - Implementation of Smart grid Technologies, Wide Area Monitoring System (WAMS) at JUSNL., Proposal No. (293)**

**Estimated Cost:- ₹51.80 crore**

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| **9** | **Input sought in 23rd Appraisal Committee** | **Input received**  (Letter no. MePTCL (T)/TT-139 (Pt-V)/2020-21/17, dated 18- |
| 1 | A5 and A6 format are to be provided by the entity | Submitted |
| 2 | Schedule completion time period of the project was mentioned 12 months and 24 months at two different places in the DPR. Entity may confirm the Schedule  comoletlon time oeriod of the proiect. | Noted and updated to 18 months as we are proposing PMUs only at existing substations. |
| 3 | Physical and Financial Milestones are to be provided bv the entity. | Noted and included as Annexure – 4 |
| 4 | Entity had considered both existing and under construction Substations. PSDF fundings allowed only for existing substations. Entity may exclude under construction substations from the cost estimates of this DPR. | Noted and updated in DPR **(attached)** |
| 5 | Visibility of placement of PMUs on map is very poor. Entity may provide a map with good Visibility of PMU location. | Noted, Updated drawing included in DPR. **(attached)** |
| 6 | Entity used an algorithm for choosing the location of PMUs. Jusstification of sam is to be provided by entity. | Noted, write-up included in updated DPR. Please refer clause – 11 of DPR **(attached)** |
| 7 | PGCIL-URSTDM scheme (Installation of PMUs) is also funded from PSDF. Entity may confirm that the substation covered in the Jharkhand schemes should not be same as in the PGCIL scheme. | Proposed substations of JUSNL are not covered under PGCIL-URSTDM scheme |
| 8 | Entity has to clarify about the communication scheme/system to be used for WAMS as the communication system is the key component for successful implementation of the WAMS | OPGW based communication systems is available for some of the substations and remaining are under implemention according to Reliable Communiation Project. Same will be used for WAMS Communication system. Existing SDH FOTE will be added with MPLS-IP FOTE for PMU Communication. |
| 9 | Entity may provide the specifications of PMUs and PDC (hardware and Software) | Noted, included in DPR (attached) |
| 10 | It is suggested that the scheme may be discussed in the ERPC to confirm the locations of PMUs, quantity as per optimal placement method and MoM of the same may be provided to TESG | Noted and updated accordingly |
| 11 | Entity may provide the study report for optimum requirement of PMUs for observability as done in case of GETCO by IIT Bombay | Noted and updated.We haveapplied algorithm of IIT Bomay used in GETCO. Additionally, algorithm used by Shri Pentayya for ERLDC study is also applied. For optimization, we have recommended algorithm of IIT Bombay. Please refer clause 11 for details |
| 12 | Application Utilization of project is to be specified, i.e. specification of development of analytics etc. | Noted and included in DPR. |

**NPC Observations:**

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| --- | --- | --- |
| **Name of Scheme: Implementation of Wide Area Monitoring System (WAMS) at JUSNL Grid** | | |
| * 1. **Summary of project:** |  | |
| * + 1. **Cost of Project** | **Rs.51.80 Crs** | |
| * + 1. Name of the requesting Organization / Utility | **JUSNL** | |
| * + 1. Authorized Person For this Project / Scheme / Activity | Provided | |
| * + 1. Short Summary of Project / Scheme / Activity | Provided | |
| * + 1. Name of the Project / Scheme / Activity | Provided | |
| * + 1. Objective of the Project / Scheme / Activity | Provided | |
| * + 1. Identified Beneficiaries | Provided | |
| * + 1. Cost justification | **Not Provided** | |
| * + 1. Copy of the appraisal report | **Not Provided** | |
| * + 1. Format A5 | Provided | |
| * + 1. Protection audit report | Not required. However Study report for is required for selection of location of SS and no of PMU to be installed | |
| * + 1. Format A6 | Provided | |
| * 1. **Executing agency :** Give the details of the executing agency including their performance record, justification behind the recommendation of the particular executing agency for implementing this project/ scheme/ activity. | Provided | |
| * 1. **Funding:** The project is to be funded partly through self-contribution and partly through grant from PSDF as per categorization of the project. Both internal and external sources of funding may be specified along with respective quantum of funding. | Provided  (90% from PSDF)  (10% from JUSNL) | |
| * 1. Time line for Implementation of Project / Scheme / Activity | Provided (18 months) | |
| * 1. Technical details: |  | |
| * + 1. SLD/Schematic diagram marked with proposed modifications as per DPR | Not required | |
| * + 1. Sub-station-wise details of equipment and unit wise rates along with requirement of spares | Not required | |
| * + 1. Equipment-wise abstract of cost estimates for each sub-station | Provided | |
| * + 1. Abstract of Quantity estimate each Sub-station wise | Provided | |
| * + 1. Details of existing equipment: |  | |
| 1. Name of Feeder | Not provided | |
| 1. Equipment Name |
| 1. year of Manufacturing and make |
| 1. date of Commissioning |
| 1. voltage |
| 1. no. of cores available ( in case of CT/PT) |
| 1. type of insulation /operation |
| 1. tagged for replacement (yes/no) |
| 1. reason for replacement |
| * + 1. Implementation schedule / milestones | Provided | |
| * + - 1. target for physical milestones | Provided but not as per format | |
| * + - 1. targets for financial milestone | Provided but not as per format | |
| * 1. Various agreements and disbursement of Payment MoUs as per attached formats. |  | |
| * 1. Remarks |  | |
| **OBSERVATIONS / REQUIREMENTS :** | |
|  | |

* Estimated cost is revised to Rs.41.59 from Rs. 51.80Crs.
* PSDF support sought is 90% under MoP guidelines 5.1(c).
* Appraisal Report is to be provided.
* Approval of JUSNL Board seeking grant from PSDF is required.
* Total 70 nos PMUs are identified (14 nos in 220 kV network & 21 nos in 132 kV net work). Earlier 400kV ss were also covered. Why 400 kV is excluded in revised DPR.
* Network topography/map of JUSNL, depicting the existing PMUs/ installed PMUs (by POWERGRID under URTDSM scheme) or any other scheme and proposed PMUs (to be installed by JUSNL) in this DPR is to be provided with different colour marking.
* Study Report for optimum requirement of PMUs for observability is provided and same needs to be examined by CTU (Engineering).
* Application/ Utilization of project is to be specified, i.e., specification of development of analytics etc is provided by entity. TESG may examine it.
* Cost justification need to be provided. Documents supporting Basis of cost estimates are to be provided.
* The tentative completion schedule of under construction OPGW network where PMUs

are proposed to be installed is to be provided.

* Entity needs to provide total no of existing 400 kV/220 kV/132 kV substations alongwith proposed substations for each voltage level under JUSNL.
* Physical & Financial Milestones as per format is to be provided.

**Observations of PSET&D**

1. At per present practice, PMUs are being installed at 400kV and above substations. It is felt that funding for PMUs for 220kV and 132kV substations should be further deliberated by the committee as funds are limited and more important projects that may help in decongestion of the power network may not get funding.

2. Information regarding availability of WAMS system at 400kV and above in JUSNL network has not been provided.

1. **Proposal of PSTCL:- Provision of second phase of second DC Source at 220kV &132 kV grid ss of PSTCL, Proposal No. (295)**

**Estimated Cost:- ₹13.83 crore**

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| **7** | **Input sought in 23rd Appraisal Committee** | **Input received**  (Letter no. Memo No 174, dated : - 10-2-2021 |
| 1 | The above proposal of M/s PSTCL Punjab was examined in the 23rd Appraisal committee meeting and it was noted from the records that the first phase of 2nd DC source in Punjab was recommended by Appraisal Committee in its 13th meeting held on 6th September 2016. In the said meeting, representative from PSTCL had confirmed that no further scheme shall be submitted by PSTCL for 2nd DC source.  However, now PSTCL has again approached with second such proposal. **The Appraisal Committee decided to ask for a clarification from PSTCL regarding additional requirement of second DC source as no such requirement was envisaged earlier as confirmed by them. In case no clarification is received within a month’s time, the proposal may be treated as deemed return.**  Therefore, it is requested to kindly submit the clarification as requested by the 23rd Appraisal committee within one month from the date of issue of this letter. This is for your kind information and further necessary action please. | In this context it is submitted that there seems to be some communication gap. PSTCL had envisaged to provide 2°d DC source at all its sub stations in a phased manner. In the first phase 85 nos. 132kV & 220kV sub-stations connected with 400kV sub-stations, PGCIL, generating stations and BBMB were covered. In the second phase, remaining 72 nos. 132kV & 220kV sub-stations of PSTCL have been covered in the DPR under consideration. The installation of 2nd DC source at the sub-stations covered in 1st phase has helped in achieving safe and reliable operation of the inter connected grid system.  In view of the above, it is requested that DPR for providing 2nd DC source at remaining 72 nos. 132kV & 220kV sub-stations in the 2nd phase may kindly be approved under PSDF please. With this all the 132kV & 220kV sub-stations of PSTCL shall have 2nd DC source. |

Observations of NPC Division

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| 1. **OBSERVATIONS / REQUIREMENTS :** |
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1. First phase of 2nd DC source in Punjab was sanctioned by MoP vide sanction order dated 02.01.2017.

Entity informed that:

**PSTCL has already installed second DC source in first phase, on 85 sub-stations (65 no. 220KV & 20 no. 132KV S/S) under PSDF scheme.**

Nodal agency may inform the status of physical implementation and fund disbursements of the sanctioned scheme.

1. First phase of 2nd DC source in Punjab was recommended by Appraisal Committee in its 13th meeting held on 6th September 2016. In this meeting, representative from PSTCL confirmed that no further scheme shall be submitted by PSTCL for DC source. The relevant extract of 13th meeting of Appraisal Committee held on 6th September 2016 is reproduced below:

*“…On a query from the Committee regarding further requirement of DC supplies, it was further confirmed by the representative of PSTCL that no further scheme shall be submitted by PSTCL for DC source. …”*

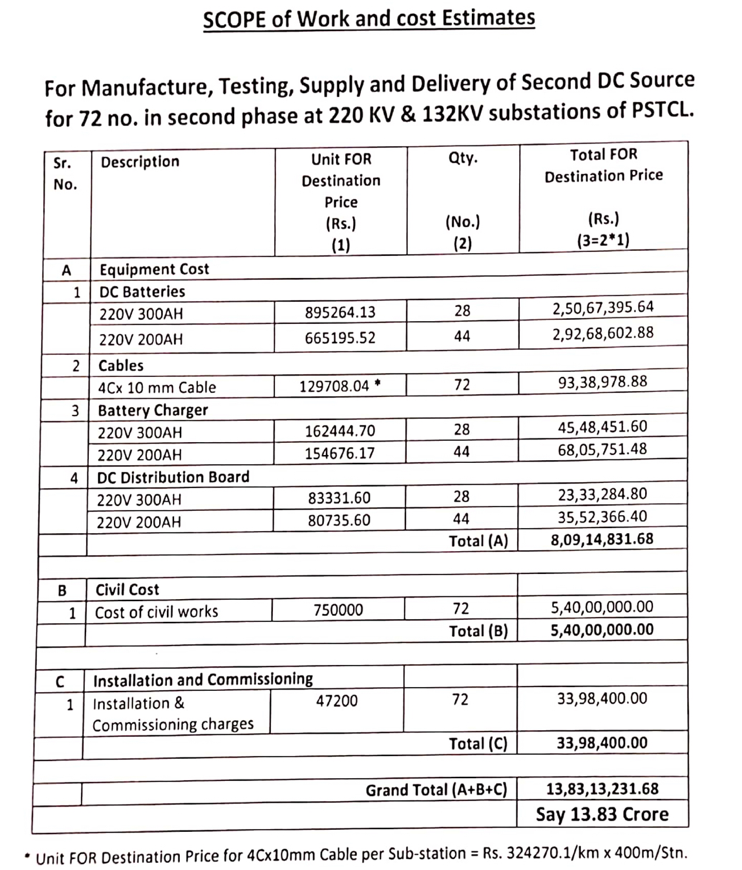
Entity vide letter(attached) has requested for consideration of DPR for funding from PSDF citing the reason that there was a mis communication on the subject matter in 13th meeting of Appraisal Committee.

Members may deliberate on consideration of the DPR.

1. Estimated cost is ₹ 13.83 crore. PSDF support sought is 90%.
2. Total no. of SS covered : 72 Nos.

Number of 220 kV SS : 28 Nos and 132 kV SS : 44 Nos.

1. In Format A1 page 1, the criteria considered by entity is 3.1© of guidelines which seems to be typo.
2. Duly filled Format A5 & A6, Third Party Protection Audit report, copy of Appraisal report needs to be submitted by the entity.
3. Board Approval seeking grant from PSDF is to be provided by the entity.
4. Entity may certify that the substations covered in this DPR is not covered in the earlier sanctioned DPR Proposal No :70.
5. 132 kV substations were not considered (Except for NER ) by the protection audit carried out at regional level after the grid disturbance in July, 2012 . Therefore, the second DC source at 132 kV may not be considered for funding from PSDF.
6. For justifying the requirement of distribution board, the entity may provide the schematic diagram.
7. The DPR includes construction of new battery room at every location. The sub group was of the view that the second battery would be accommodated in the existing space. For justifying the requirement, the entity was asked to provide the existing layout and explore the possibility of double row double tier structures arrangement for batteries.
8. Details of existing battery, battery charger and DCDB need to be provided as per format.
9. 400 m Length of control cable is considered for all proposed substations.
10. Cost may be verified by PGCIL member of TESG.
11. 10% escalation at cost of purchase order 2019 is considered in cost estimates.
12. 28%GST at Battery Bank and 18% on remaining items are considered.
13. **Observations of the Subgroup on 1st Phase :**
14. The justifications and inputs provided by the PSTCL were examined by the subgroup and it was of the view that 132 kV network though a vital link between the distribution system and the interstate transmission system, had not been considered for funding from PSDF except for few states as the protection audit for 132 kV at regional level were not conducted.
15. However, the R&U of protection system at 132 KV level may also be considered for funding, in such states wherever the R&U of 220kV and above network has been initiated.
16. PSTCL has already submitted DPR for R&U of its 220kV and above network. Accordingly, the proposal for providing the second DC source at 132 kV substations in the DPR has also been considered after examination by the subgroup. Inputs and justification provided by PSTCL has been found to be adequate.



1. **Any other agenda item with the approval of chair.**