

**POWER SYSTEM OPERATION CORPORATION LIMITED**

**National Load Despatch Centre**

**Office Address: B-9, 1<sup>st</sup> Floor, Qutub Institutional Area, Katwaria Sarai, New Delhi - 110016**

**Tel: 011-26524521, 26536959 Fax: 011-26524525, 26536901**

Ref: NLDC-PSDF/TESG-46 meeting/2018-19/1160

Dated 4<sup>th</sup> December, 2018

To,

**As per distribution list**

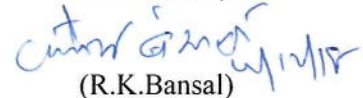
**Subject: PSDF- MOM of 46<sup>th</sup> meeting of the Techno Economic Sub Group (TESG) of PSDF held on 31<sup>st</sup> October, 2018**

Sir,

The 46<sup>th</sup> meeting of the Techno Economic Sub Group (TESG) of PSDF was held on 31<sup>st</sup> October, 2018 at CEA, New Delhi.

Minutes of the meeting duly approved by Chief Engineer (NPC), CEA and Chairman of the Subgroup are enclosed please.

Yours faithfully



(R.K.Bansal)

Convener Techno Economic Subgroup &  
Consultant-NLDC

Encl. :a/a

**Distribution List:**

**Members of the Subgroup**

1. Chief Engineer –NPC / Director(NPC) / Director (PSE&TD) -- CEA
2. GM (Engg. S/S) / GM (CTU-Planning) / Sr. DGM (Cost Engg.) -- POWERGRID
3. GM (SO), NLDC- POSOCO

**Copy for kind information to**

1. Chairperson, CEA
2. Member (GO&D), CEA
3. Chief Engineer(OM) MOP
4. CMD, POSOCO / Director (System Operation), POSOCO / CGM, NLDC-POSOCO

**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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**Office Address: B-9, 1<sup>st</sup> Floor, Qutub Institutional Area, Katwaria Sarai, New Delhi - 16**

**Fax: 011-26524525, 26536901**

**Website: <https://psdfindia.in/>. Email: [psdf@posoco.in](mailto:psdf@posoco.in) ; [nldc.psdf@gmail.com](mailto:nldc.psdf@gmail.com)**

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Ref: NLDC-PSDF/TESG-46<sup>th</sup> Meeting/2018-19/

Dated: 3<sup>rd</sup> Dec, 2018

**Subject: PSDF- Minutes of 46<sup>th</sup> meeting of the Techno-Economic Subgroup (TESG) held on 31<sup>st</sup> October, 2018**

The 46<sup>th</sup> meeting of the Techno Economic Sub Group (TESG) of PSDF was held on **31<sup>st</sup> October, 2018**. The meeting was chaired by Chief Engineer (NPC), CEA. List of the participants is enclosed as **Annexure-I**.

Shri Pardeep Jindal, CE (NPC), CEA welcomed the members of the TESG and other participants to the 46<sup>th</sup> meeting of TESG.

The agenda was taken up for deliberations as follows:

**A. Review of status of examination of the proposals examined during the earlier meetings of TESG.**

The TESG reviewed the status of submission of the inputs submitted by the project entities in respect of Thirteen (13) proposals examined in the earlier meetings. The project wise deliberations are as below:

**1. DoP, Mizoram - Installation of Reactive Power Solution at 132kV Substation in Mizoram.  
(Proposal No: 139)**

Estimated cost- Rs 16.88 crores

Date of submission of DPR: 16<sup>th</sup> Mar 2017

The proposal was taken up for discussion in 32<sup>nd</sup>, 34<sup>th</sup>, 36<sup>th</sup> and 44<sup>th</sup> TESG Meetings. The discussions are as below:

The observations of the sub group in 32<sup>nd</sup> TESG meeting held on 12.05.2017 are as below:

- i. The requirement has been supported with load flow study report with present scenario and proposed scenario. However, the Load flow study (N-0) with capacitor installation is not provided. Also Load flows are not proper.
- ii. The cost estimates was based on the rate of recent LoAs of UPCL with an increment of 15% to factor difficulty in execution in remote / hilly areas.
- iii. The scheme along with studies has been approved and recommended by NERPC.
- iv. Contingencies are not eligible expenditure for funding from PSDF.

The proposal was further reviewed in 34<sup>th</sup> TESG meeting held on 29.09.2017 and following inputs were sought from the entity:

- i. study report based on which the requirement has been projected
- ii. location wise details of existing capacitor banks with age and healthiness report
- iii. Present voltage profile at 11 kV / 33 kV
- iv. projected voltage levels after installation of capacitors
- v. schematic for automatic power factor correction
- vi. SLDC report
- vii. STU approval
- viii. Basis of cost estimates
- ix. Grant from any other scheme of GOI (IPDS, DDUGVY)

Correspondences: NLDC communication letter dated 23.10.2017 for submission of inputs.

The proposal was reviewed in 36<sup>th</sup> TESG Meeting held on 12.01.2018. It was observed that no inputs were furnished by the entity and decided to send a reminder to the entity to furnish the inputs.

The proposal was further reviewed in the 44<sup>th</sup> TESG Meeting held on 28.08.2018. TESG observed that there has been no response to the various communications seeking the inputs from the entity. Therefore, 44<sup>th</sup> Meeting of TESG decided that the proposals shall be recommended to the Appraisal Committee for considering as 'deemed returned'.

**However, the inputs submitted by the entity vide letter dated 8.10.2018 were examined by the subgroup in the meeting and it was observed that the load flow studies submitted by the entity were incomplete, as the summation of flows at bus is non-zero. Also, in the annexure provided by the entity, it is given that in Zuangtui sub-station, the minimum voltage before and after capacitor installation is same.**

**It was decided to seek the following inputs from the entity:**

- (i) Soft copy of the DPR
- (ii) Revised load flows study (N-0) with and without capacitors.
- (iii) Duly filled format A5/STU approval.
- (iv) Board/Govt. approval for the proposal seeking grant from PSDF.
- (v) Present and projected voltage profile at 33/11 kV side of Transformer at peak and off-peak hours in table form and in load flow study.
- (vi) Schematic for Automatic Power Factor Correction.

**The TESG decided that the above observations would be communicated to the entity. The proposal shall be further examined after submission of the inputs by the entity. The entity may be called for detailed presentation on the scheme after receipt of the inputs.**

## **2. MSPCL - Installation of Reactive Power Solution on 33/11kV Substation in Manipur. (Proposal No: 204)**

Estimated cost- Rs 56.81 crores

Revised cost- Rs 27.28 crores

Date of submission of DPR: 12<sup>th</sup> Jan, 2018

The proposal was taken up for discussion in 39<sup>th</sup> and 44<sup>th</sup> meetings of TESG. The discussions are as below:

In the 39<sup>th</sup> Meeting of TESG held on 20.03.2018, the following input were sought from the entity:

- (i) Study report based on which the requirement has been projected
- (ii) Location wise details of existing capacitor banks with age and healthiness report
- (iii) Present voltage profile at 11 kV / 33 kV
- (iv) Projected voltage levels after installation of capacitors
- (v) Schematic for automatic power factor correction
- (vi) SLDC report
- (vii) STU approval
- (viii) Basis of cost estimates
- (ix) If any Grant from any other scheme of GOI (IPDS, DDUGVY) to be provided
- (x) Soft copy of the DPR
- (xi) Physical and financial milestones (compliance in accordance with format A3 of the guidelines)
- (xii) The documents to be signed by the Authorized signatory.

This proposal was reviewed in the 44<sup>th</sup> TESG Meeting held on 28.08.2018 wherein it was observed that there has been no response to the various communications seeking the inputs from the entity. It was decided to send a reminder to the entity for the submission of the inputs by 15<sup>th</sup> October 2018.

**The inputs submitted by the entity vide letter dated 8.10.2018 were examined by TESG. The estimated cost has been revised to Rs. 27.28 crore. It was observed that the load flow studies submitted by the entity were incomplete, as the flows are not shown in the study. Also, 3% contingencies and 11.75% Departmental expenses are not eligible for funding under PSDF.**

**It was decided to seek the following inputs from the entity:**

- (i) Revised load flows study (N-0) with and without capacitors.
- (ii) Location wise details of existing capacitor banks with age and healthiness report.
- (iii) Board/Govt. approval for the proposal seeking grant from PSDF.
- (iv) Present and projected voltage profile at 33/11 kV side of Transformer at peak and off-peak hours in table form and in load flow study.
- (v) A6 shall be Signed by authorized person.

(vi) If any Grant from any other scheme of GOI (IPDS, DDUGVY).

**The TESG decided that the above observations would be communicated to the entity. The proposal shall be further examined after submission of the inputs by the entity. The entity may be called for detailed presentation on the scheme in TESG meeting after receipt of the inputs.**

**3. MSETCL, Maharashtra: Installation of Capacitor Banks at HV level at various EHV substations under Aurangabad, Amravati, Karad, Nasik, Nagpur and Pune zone in MSETCL. (Proposal No: 175)**

Estimated cost- Rs 79.32 crores

Date of submission of DPR: 9<sup>th</sup> August 2017

The proposal was taken up for discussion in 36<sup>th</sup>, 38<sup>th</sup> and 44<sup>th</sup> TESG Meetings. The discussions are as below:

In the 36<sup>th</sup> TESG Meeting held on 12.01.2018, the following input were sought from the entity:

- (i) Study Report.
- (ii) Location wise details
- (iii) Voltage profile.
- (iv) Projected voltage levels after installation of capacitors.
- (v) SLDC reports.
- (vi) RPC reports.
- (vii) STU approval.
- (viii) Basis of cost estimates.

In the 38<sup>th</sup> TESG meeting held on 26.02.2018, reviewed all capacitor schemes and decided that further examination may be carried out after submission of the above details by the entity.

The proposal of MSETCL (175) were reviewed by the TESG during the 44<sup>th</sup> meeting held on 28.8.2018 and observed that there are multiple DPRs from the TRANSCO and DISCOMs. It was decided that the requirement needs to be optimized and assessment should be carried out in a comprehensive manner together for transmission and distribution, for the entire State or at least for one distribution transmission circle.

**The above observations were communicated to the entity vide letter dated 10.10.2018. In the meanwhile, the entity had submitted some of the inputs vide their letter dated 25.9.2018.**

**The inputs were examined and it was observed that inputs furnished by entity are not as per the decision of the 44<sup>th</sup> meeting of TESG.**

**The TESG decided that the above observations would be communicated to the entity. The proposal shall be further examined after submission of the inputs by the entity.**

**4. TANTRANSCO, Tamil Nadu - Supply, Erection, Testing & Commissioning of 2 Nos. of 400kV, 80 MVAR Bus reactor with associated equipment's for 400/230-110 kV AIS SS at Kamudhi under total turnkey contract in Madurai Region of Tamil Nadu. (Proposal No: 188)**

Estimated cost- Rs 17.27 crores

Date of submission of DPR: 30<sup>th</sup> October 2017

The proposal was taken up for discussion in 37<sup>th</sup> and 45<sup>th</sup> Meetings of TESG. The discussions are as below:

In the 37<sup>th</sup> Meeting of TESG held on 19.01.2018, the following inputs were sought from the entity:

- i. Soft copy of the DPR
- ii. Physical and Financial milestones
- iii. Basis of rates based on TANTRANSCO cost data. A copy of the same to be provided.
- iv. study report based on which the requirement has been projected
- v. Clearance of the SCPSP to be provided.
- vi. SLD of the substation with substation layout to be provided.
- vii. STU approval
- viii. Format A6 on stamp paper
- ix. Contingencies, labour welfare cess, not eligible for funding.

Subsequently NLDC sent a letter dated 16.05.2018 for submission of inputs.

The proposal was reviewed in the 45<sup>th</sup> meeting of TESG held on 19.09.2018. In the meeting, NLDC informed that, the entity had submitted the inputs on 11.09.2018. As the inputs were not circulated to the sub-group members, it was decided to examine the inputs in the next meeting of TESG.

**The inputs were examined in the meeting and it was observed that the entity had provided the inputs sought except the following:**

- i. Soft copy of the DPR
- ii. Physical and Financial milestones
- iii. Legible SLD in A3 sheet with marking.
- iv. Board approval seeking funding from PSDF.

**The TESG decided that the entity would be advised to furnish the pending inputs. Excluding ineligible component (Labour Welfare Fund), the estimated cost works out to be Rs. 17.133 Crores. The proposal was found to be generally in order & it was decided that it may be placed in next meeting of Appraisal Committee.**

**5. TANTRANSCO, Tamil Nadu: Supply, Erection, Testing & Commissioning of 1 Nos. of 400kV, 125 MVAR Bus reactor with associated equipments for 400/230-110 kV SS at Kayathar under total turnkey contract in Tirunelveli Region of Tamil Nadu. (Proposal No: 193)**

Estimated cost- Rs 9.58 crores

Date of submission of DPR: 6<sup>th</sup> December 2017

The proposal was taken up for discussion in 39<sup>th</sup> and 45<sup>th</sup> Meeting of TESC. The discussions are as below:

In the 39<sup>th</sup> Meeting of TESC held on 20.03.2018, the following inputs were sought from the entity:

- i. Soft copy of the DPR
- ii. Undertaking on stamp paper
- iii. Basis of cost estimates, TANTRANSCO cost data and other support documents
- iv. SLDs with proper markings
- v. Recommendations of Standing Committee on Power System Planning of CEA
- vi. STU approval (compliance in accordance with format A5 of the guidelines)
- vii. BOD approval for the proposal seeking grant from PSDF
- viii. Contingencies, labour welfare cess, not eligible for funding.

Further NLDC sent a letter dated 09.04.2018 for submission of inputs.

The proposal was reviewed in the 45<sup>th</sup> meeting of TESC held on 19.09.2018. In the meeting, NLDC informed that, the entity had submitted the inputs on 11.09.2018. As the inputs were not circulated to sub-group members, it was decided to examine the inputs in the next meeting of TESC.

**The inputs submitted by the entity were examined in the meeting and it was observed that the entity has provided the inputs except the following:**

- i. Soft copy of the DPR
- ii. Physical milestones
- iii. Legible SLD in A3 sheet with marking.
- iv. Board approval seeking funding from PSDF.
- v. In format A1, the authorized person is different from the person mentioned in format A6 (Undertaking).
- vi. A1 to A6 formats signed by Authorized person.

**The TESC decided that the entity would be advised to furnish the pending inputs. Excluding ineligible component (Labour Welfare Fund), the estimated cost works out to be Rs. 9.51 Crores. The proposal was found to be generally in order & it was decided that it may be placed in next meeting of Appraisal Committee.**

**6. TANTRANSCO, Tamil Nadu: Supply, Erection, Testing & Commissioning of 2 Nos. of 400kV, 125 MVAR Bus reactor with associated equipment's for 400kV GIS SS at Manali under total turnkey contract in Chennai North Region of Tamil Nadu. (Proposal No: 198)**

Estimated cost- Rs 18.77 crores

Date of submission of DPR: 22<sup>nd</sup> December 2017

The proposal was taken up for discussion in 39<sup>th</sup> and 45<sup>th</sup> Meetings of TESC. The discussions are as below:

In the 39<sup>th</sup> Meeting of TESC held on 20.03.2018, the following inputs were sought from the entity:

- i. Soft copy of the DPR
- ii. Undertaking on stamp paper
- iii. Basis of cost estimates, TANTRANSCO cost data and other support documents
- iv. Recommendations of Standing Committee on Power System Planning of CEA for 400 kV GIS Manali
- v. SLDs with proper markings
- vi. STU approval (compliance in accordance with format A5 of the guidelines)
- vii. BOD approval for the proposal seeking grant from PSDF
- viii. Contingencies, labour welfare cess, not eligible for funding.

Further NLDC sent a letter dated 09.04.2018 for submission of inputs.

The proposal was reviewed in the 45<sup>th</sup> meeting of TESC held on 19.09.2018. In the meeting, NLDC informed that, the entity had submitted the inputs on 11.09.2018. As the inputs were not circulated to sub-group members, it was decided to examine the inputs in the next meeting of TESC.

**The inputs were examined in the meeting and it was observed that the entity has provided the inputs except the following:**

- i. Soft copy of the DPR
- ii. Legible SLD in A3 sheet with marking.
- iii. Board approval seeking funding from PSDF.
- iv. In format A1, the authorized person is different from the person mentioned in format A6 (Undertaking).
- v. A1 to A6 formats signed by Authorized person.
- vi. Recommendations of Sothern Region Standing Committee on Transmission (SRSCT) of CEA for 400 kV GIS Manali.

Excluding Contingencies, Establishment & supervision charges and price escalation charges, the estimated cost works out to be Rs. 15.90 Crores.



**The TESG decided that the entity would be advised to furnish the pending inputs. The proposal would be further examined after receipt of the inputs.**

**7. TANTRANSCO, Tamil Nadu: Supply, Erection, Testing & Commissioning of 1 Nos. of 400kV, 125 MVAR Bus reactor with associated equipments for 400kV SS at Alamathy under total turnkey contract in Chennai North Region of Tamil Nadu. (Proposal No: 202)**

Estimated cost- Rs 11.55 crores

Date of submission of DPR: 9<sup>th</sup> January 2018

The proposal was taken up for discussion in 39<sup>th</sup> and 45<sup>th</sup> Meetings of TESG. The discussions are as below:

In the 39<sup>th</sup> Meeting of TESG held on 20.03.2018, the following inputs were sought from the entity:

- i. Soft copy of the DPR
- ii. Undertaking on stamp paper
- iii. Basis of cost estimates, TANTRANSCO cost data and other support documents
- iv. SLDs with proper markings
- v. Recommendations of Standing Committee on Power System Planning of CEA
- vi. STU approval (compliance in accordance with format A5 of the guidelines)
- vii. BOD approval for the proposal seeking grant from PSDF
- viii. Contingencies, labour welfare cess, not eligible for funding.

Further NLDC sent a letter dated 09.04.2018 for submission of inputs.

The proposal was reviewed in the 45<sup>th</sup> meeting of TESG held on 19.09.2018. In the meeting, NLDC informed that, the entity had submitted the inputs on 11.09.2018. As the inputs were not circulated to sub-group members, it was decided to examine the inputs in the next meeting of TESG.

**The inputs were examined in the meeting and it was observed that the entity has provided the inputs sought except the following:**

- i. Soft copy of the DPR
- ii. Legible SLD in A3 sheet with marking.
- iii. Board approval seeking funding from PSDF.
- iv. In format A1, the authorized person is different from the person mentioned in format A6 (Undertaking).
- v. A1 to A6 formats signed by Authorized person.

**The TESG decided that the entity would be advised to furnish the pending inputs. Excluding ineligible component (Contingencies, Establishment & Supervision charges and Labour Welfare Fund), the estimated cost works out to be Rs. 9.96 Crores. The proposal**

was found to be generally in order & it was decided that it may be placed in next meeting of Appraisal Committee.

**8. TANTRANSCO, Tamil Nadu: Supply, Erection, Testing & Commissioning of 1 Nos. of 400kV, 125 MVAR Bus reactor with associated equipments for MPTS Stage III GIS switchyard under total turnkey contract in Erode Region of Tamil Nadu. (Proposal No: 205)**

Estimated cost- Rs 12.73 crores

Date of submission of DPR: 29<sup>th</sup> January 2018

The proposal was taken up for discussion in 39<sup>th</sup> and 45<sup>th</sup> Meetings of TESC. The discussions are as below:

In the 39<sup>th</sup> Meeting of TESC held on 20.03.2018, the following inputs were sought from the entity:

- i. Soft copy of the DPR
- ii. Undertaking on stamp paper
- iii. Basis of cost estimates, TANTRANSCO cost data and other support documents
- iv. SLDs with proper markings
- v. Recommendations of Standing Committee on Power System Planning of CEA
- vi. STU approval (compliance in accordance with format A5 of the guidelines)
- vii. BOD approval for the proposal seeking grant from PSDF
- viii. Contingencies, labour welfare cess, not eligible for funding.

Further NLDC sent a letter dated 09.04.2018 for submission of inputs.

The proposal was reviewed in the 45<sup>th</sup> meeting of TESC held on 19.09.2018. In the meeting, NLDC informed that, the entity had submitted the inputs on 11.09.2018. As the inputs were not circulated to sub-group members, it was decided to examine the inputs in next meeting of TESC.

**The inputs were examined in the meeting and it was observed that the entity has provided the inputs sought except the following:**

- i. Soft copy of the DPR
- ii. Legible SLD in A3 sheet with marking.
- iii. Board approval seeking funding from PSDF.
- iv. In format A1, the authorized person is different from the person mentioned in format A6 (Undertaking).
- v. A1 to A6 formats signed by Authorized person.

**The TESC decided that the entity would be advised to furnish the pending inputs. Excluding ineligible component (Contingencies, Establishment, Labour and Transport charges, Supervision charges and Labour Welfare Fund), the estimated cost works out to**

be Rs. 9.31 Crores. The proposal was found to be generally in order & it was decided that it may be placed in next meeting of Appraisal Committee.

**9. OPTCL, Odisha: Protection Upgradation and installation of Substation Automatic System (SAS) for seven nos of 220/132/33kV Substations (Balasore, Bidanasi, Budhipadar, Katapali, Narendrapur, New-Bolangir & Paradeep). (Proposal No: 209)**

Estimated cost- Rs 41.10 crores

Date of submission of DPR: 12<sup>th</sup> March 2018

The proposal was taken up for discussion in 39<sup>th</sup> and 45<sup>th</sup> Meetings of TESC held on 20.03.2018 and 19.09.2018 respectively.

The extracts of MoM of 39<sup>th</sup> Meeting of TESC is reproduced below:

- a) *Following inputs to be provided by the entity as preliminary observations*
- i. *Entity to provide protection audit report on regional basis for justifying the requirement.*
  - ii. *SLD with proper marking*
  - iii. *Physical and Financial milestones*
  - iv. *Cost estimates to be reviewed with present market rate.*
  - v. *Cost of table & desk are ineligible for funding*
  - vi. *Quantity of MPG test block to be reviewed by PGCIL.*
  - vii. *Further examination shall be carried out after furnishing of the report by OPTCL.*
- b) *The entity may also be conveyed that- “The above are preliminary observations of TESC. Our detailed comments on engineering, design & cost aspects of this DPR would be conveyed after getting the inputs from CEA and PGCIL”*

Correspondence Details: NLDC communication letter dated 9.4.2018 for submission of Inputs.

The extracts of MoM of 45<sup>th</sup> Meeting of TESC is reproduced below:

*Inputs submitted by the entity were provided to members of TESC a day before the meeting. The same shall be examined in the next meeting.*

**The scheme was further examined by the sub-group in the meeting. The observation of TESC is given below:**

- i. The entity submitted the Third Party Protection Audit report.
- ii. Physical and financial milestones are yet to be provided as per format A3.
- iii. The cost (Rs 34 lacs), of Color laser printer, Table, desk, Chair etc. are ineligible for funding from PSDF. Excluding the cost of these items the project cost comes out to be Rs. 40.76 crores.

**The proposal was found to be generally in order & may be placed in next meeting of Appraisal Committee.**

**10. PSTCL, Punjab: Design, Testing, Manufacture, supply and stringing of HTLS conductor along with replacement of ACSR Zebra/Panther to provide relief to the over- loaded lines. ( Proposal No: 211)**

Estimated cost- Rs 7.46 crores

Date of submission of DPR: 14<sup>th</sup> March 2018

The proposal was taken up for discussion in 39<sup>th</sup> & 45<sup>th</sup> Meeting of TESC held on 20.03.2018 & 19.09.2018 respectively.

The preliminary observations of the 39<sup>th</sup> TESC were as follows:

- i. Load flow study of the existing network and proposed network
- ii. Location wise peak load and projected load in near future
- iii. Terminal equipment rating, to assess the capability for meeting higher projected loads
- iv. Basis of cost estimates
- v. Tower healthiness report
- vi. Soft copy of the DPR
- vii. Physical and financial milestones (compliance in accordance with format A3 of the guidelines)
- viii. STU approval (compliance in accordance with format A5 of the guidelines)
- ix. Proposal submitted under para 5.3 of the guidelines. This clause is a supportive clause to be read with clause 5.1 of the guidelines. The entity may clearly specify the clause with justifications
- x. The documents including undertaking to be signed by the Authorized signatory.

Correspondence Details: NLDC communication letter dated 09.04.2018 for submission of Inputs

PSTCL vide letter dated 21.05.2018 had submitted the above inputs, except the following:

- a) Load Flow Studies of present and expected loads,
- b) Formats (A1 to A6) duly filled and signed by the Authorized Representative,
- c) Single Line Diagram along with location of towers.

The inputs received from PSTCL were further examined by TESC in its 45<sup>th</sup> Meeting held on 19<sup>th</sup> September 2018. The following were the observations of TESC:

- i. The entity, vide their letter dated 21.5.2018 has submitted a dump of the load flow studies. However, network topology, supported with the studies is required to be submitted.
- ii. The objective of the proposal, i.e. the congestion under the present conditions and removal of the same, needs to be established.
- iii. A reminder shall be sent by NLDC to the entity to submit the response within 30 days. The entity may be invited to present the study result in the TESC Meeting.

In the meantime, PSTCL has furnished the SLDs for future case considering expected loads in 2022, duly indicating the line loadings and requested for a meeting to clarify the observations of TESC on the project proposal to expedite the process.

In this regard, the entity came for discussion on 22<sup>nd</sup> October 2018 in the office of Chief Engineer, NPC Division, CEA. After deliberations, the following inputs were sought from PSTCL:

- a) Scheme details showing the proposed configuration of conductors on the tower.
- b) All Formats (A1 to A6): Duly filled and signed by the Authorized Representative.
- c) Modified Tower Healthiness Certificate, stating that the Towers are healthy for stringing HTLS Conductors as well as for differential loading due to different type of conductors on the two circuits of lines.
- d) Single Line Diagram (SLD) along with location of towers
- e) Load Flow Studies (Hard as well as soft copies) considering present and projected future loads.

It was further observed that PSTCL may furnish recommendations of Northern Region Standing Committee on Transmission (NRSCT) of CEA on for the re-conductoring scheme. The record notes of the discussion is enclosed at **Annexure-II**.

**In the meeting, TESG observed that recommendation of NRSCT is yet to be furnished. It was decided the entity may advised to furnish the recommendation of NRSCT (Northern Region Standing Committee on Transmission). The proposal would be further examined after receipt of the recommendation of NRSCT.**

**11. WBSETCL, West Bengal: Project for establishment of reliable communication and data acquisition at different substation at WBSWTCL. (Proposal No: 222)**

Estimated cost- Rs 80.39 crores

Revised Cost – Rs 77.03 crores

Date of submission of DPR: 10<sup>th</sup> May 2018.

The proposal was taken up for discussion in 42<sup>nd</sup> and 45<sup>th</sup> Meetings of TESG held on 24.07.2018 & 19.09.2018 respectively.

The extracts of 42<sup>nd</sup> Meeting of TESG is given below:

The scope of the proposal includes 1809 km OPGW on 30 nos. of transmission lines and 135nos.RTUs.

The entity gave a presentation about their scheme.

TESG observed that the cost estimates are based on the previous LoAs and budgetary offers. 10% escalation is considered in cost estimates. These are to be compared with the latest SoR of PGCIL.

The entity was advised to provide the following details:

- i. *Target for financial and physical milestones.*
- ii. *Duly filled format A5.*
- iii. *Contingencies are not eligible for funding from PSDF. This may be excluded from the estimate.*

- iv. *Network topology comprising of existing and proposed communication network in colored preferably in A3 sheet.*
- v. *Cost estimates may be provided as per PGCIL SoR.*
- vi. *Cost of RTUs is Rs. 25 lakhs/ unit., whereas the cost given in PGCIL SoR is Rs. 10 lakh /unit. The cost of RTUs is to be revised as per PGCIL SoR.*
- vii. *List of Substations where RTUs are proposed to be installed.*
- viii. *In the cost estimates the cost is considered for any other item not specifically covered above but required for successful execution and commissioning are to be excluded.*

*The entity was asked to furnish the inputs and revised cost estimates by 25<sup>th</sup> August 2018 for further examination of the proposal by TESC.*

NLDC communication letter dated 7.8.2018 for submission of Inputs.

The scheme was reviewed in 45<sup>th</sup> meeting of TESC. The extracts of 45<sup>th</sup> Meeting of TESC are given below:

*Inputs submitted by the entity were provided to TESC members recently. The same shall be examined in the next meeting.*

**The inputs were examined by the TESC during the meeting. The observations of TESC are given below:**

- i. Physical and financial milestones are yet to be provided by the entity.
- ii. Contingency, is not eligible for funding from PSDF. Excluding it, the project cost comes out to be Rs 74.72 crs.
- iii. The entity has taken the cost of RTU as Rs. 38 Lakhs and TESC was of the view that the RTU cost was higher side. The representative of PGCIL was requested to provide some latest rates of RTU. The rates of RTUs shall be modified after getting the inputs from PGCIL and accordingly, the cost estimates shall be finalized.

**The proposal was found generally to be in order & it was decided that it may be placed in next Appraisal Committee Meeting.**

## **12. TANTRANSCO, Tamil Nadu: Installation of 33 sets of 11kV, 2.4 MVAR Capacitor Banks (79.2MVAR) and 49 sets of 22kV, 2.4 MVAR Capacitor Banks (117.6MVAR) in various substations in Coimbatore region. (Proposal No: 184)**

Estimated cost- Rs 18.74 crores

Date of submission of DPR: 11<sup>th</sup> October 2017

The proposal was taken up for discussion in 37<sup>th</sup> Meeting of TESC held on 19.01.2018 and following inputs were sought from the entity:

- i. Soft copy of the DPR
- ii. Basis of rates earlier awards. Copy of award to be provided. Basis of escalation of 10% to be provided.

- iii. Study report based on which the requirement has been projected
- iv. Location wise details of existing capacitor banks with age and healthiness report
- v. Present voltage profile
- vi. Projected voltage levels after installation of capacitors
- vii. SLDC report
- viii. STU approval
- ix. A6 on stamp paper

The scheme was further discussed in 44<sup>th</sup> Meeting of TESG. It was observed that there are multiple DPRs from the TRANSCO and DISCOMs.

It was decided that the requirement needs to be optimized and assessment should be carried out in a comprehensive manner together for transmission and distribution, for the entire State or at least for one distribution transmission circle in Tamil Nadu.

**In the meeting, the inputs furnished by the entity vide letter dated 18.06.2018 were examined and it was observed that the inputs received from the entity were not in compliance with the required inputs sought in 44<sup>th</sup> Meeting of TESG.**

**The TESG decided that the entity would be advised to submit the details sought by the TESG in its 44<sup>th</sup> meeting. The entity may be called for detailed discussion along with the comprehensive DPR in TESG meeting, after receipt of the inputs.**

**13. TANTRANSCO, Tamil Nadu: Design, Detailed Engineering , Supply, Erection, Testing and Commissioning of 59 sets of 22kV, 2.4 MVAR Capacitor Banks and 42 sets of 11kV, 2.4 MVAR Capacitor Banks in various substations in Erode region in Tamil Nadu. (Proposal No: 221)**

Estimated cost- Rs 24.06 crores

Date of submission of DPR: 10<sup>th</sup> May 2018

The proposal was taken up for discussion in 42<sup>nd</sup> Meeting of TESG held on 24.07.2018. It is observed that the proposed capacitor banks requirement is as follows:

2.4 MVAR capacitor banks	42 sets at 11 kV
2.4 MVAR capacitor banks	59 sets at 22 kV

The entity was advised to provide the following details:

- i. Study report based on which the requirement has been projected, recommended by SRPC
- ii. Location wise details of existing capacitor banks with age and healthiness report.
- iii. Present voltage profile at 11 kV / 33 kV
- iv. Projected voltage levels after installation of capacitors.
- v. STU approval.
- vi. Cost justification.
- vii. Undertaking as per format A6 of the guidelines on stamp paper.

viii. Grant from any other scheme of GoI (IPDS, DDUGVY)

The proposal was reviewed by the TESC during the 44<sup>th</sup> meeting held on 28.8.2018. It was observed that there are multiple DPRs from the TRANSCO and DISCOMs.

It was decided that the requirement needs to be optimized and assessment should be carried out in a comprehensive manner together for transmission and distribution, for the entire State or at least for one distribution transmission circle in Tamil Nadu.

The proposals were further reviewed in 45<sup>th</sup> meeting of TESC held on 19.09.2018. The entity was requested to submit the comprehensive DPR considering the input sought in 44<sup>th</sup> meeting of TESC. The same is communicated to the entity vide letter dated 18.10.2018.

**In the meeting, the inputs furnished by the entity vide letter dated 21.08.2018 were examined and it was observed that the inputs received from the entity were not in compliance with the required inputs sought in 44<sup>th</sup> Meeting of TESC.**

**The TESC decided that the entity would be advised to submit the details sought by the TESC in its 44<sup>th</sup> meeting. The entity may be called for detailed discussion along with the comprehensive DPR in TESC meeting, after receipt of the inputs.**

#### **B. Examination of new proposals**

8 (Eight) new proposals were examined during the meeting. The proposal wise deliberations are as below:

- 1. MPPKVVCL, Jabalpur: System Strengthening Works in Bundelkhand. (Proposal No: 240)**
- 2. MPPKVVCL, Jabalpur: System Strengthening Works in Lift Wing Extremist Affected Areas (Balaghat, Mandla & Dindori Dist) . (Proposal No: 241)**
- 3. MPPKVVCL, Jabalpur: System Strengthening Works in Tribal. (Proposal No: 242)**

MPPKVVCL, Jabalpur, the DISCOM of Madhya Pradesh has submitted three proposals and the estimated cost is as below:

Proposal No – 240, Estimated cost Rs 33.08 crore.

Proposal No. – 241, Estimated cost Rs 24.82 crore.

Proposal No – 242, Estimated cost Rs 57.29 crore.

Scope of Work includes:

- (a) Construction of new 33/11kV substation
- (b) Capacity augmentation of existing power transformers and
- (c) Installation of Capacitor bank



The category of projects eligible for PSDF funding are in accordance with para 5 of the MoP guidelines. Construction of new 33/11kV substation (Part (a)) and capacity augmentation of existing power transformers (Part (b) of proposal) is not covered under these guidelines.

However, the proposal for installation of capacitors (Part (c) of proposal) get covered under para 5.1 (b) of the Guidelines. TESG during its 34<sup>th</sup> meeting held on 29.9.2017 had reviewed the capacitor proposals from other project entities wherein it was decided to seek the following details for evaluation of the capacitor proposals:

- a. Study Report.
- b. Location wise details.
- c. Voltage profile.
- d. Projected voltage levels after installation of capacitors.
- e. SLDC reports.
- f. RPC reports.
- g. STU approval.
- h. Basis of cost estimates.
- i. Board approval.

Also while examining the proposals of Maharashtra, the TESG had its observations in its 44<sup>th</sup> meeting regarding multiple DPRs from the TRANSCO and DISCOMs. The TESG was of the view that the requirement needs to be optimized and assessment should be carried out in a comprehensive manner together for transmission and distribution, for the entire State or at least for one distribution/ transmission circle.

**In view of the above, the proposals may be recommended to the Appraisal Committee for considering the DPRs as ‘deemed returned’.**

**However, the entity has the option to submit a fresh DPR for installation of capacitors after carrying out the necessary comprehensive studies along with the requirements as above. The entity shall be asked to submit the DPR in accordance with formats given in the Guidelines.**

**The TESG decided that the above observations would be communicated to the entity.**

**4. APGENCO-Andhra Pradesh - Project on Installation of 1 No. 400kV, 125MVAR Bus Reactor in existing 400kV Switchyard at Dr. NTPS. (Proposal No: 243)**

Estimated cost Rs 12.95 crore

Date of submission of DPR: 20<sup>th</sup> August 2018

**The proposal was examined by the TESG. The requirement of reactor is in accordance with the recommendations of 39<sup>th</sup> SCPSP for SR. The cost estimates were also found to be matching with the similar proposals approved earlier. The proposal was found to be in order subject to submission of the following inputs by the project entity.**

- i. Soft copy of the DPR

- ii. Physical and Financial milestones
- iii. Board approval for the proposal seeking grant from PSDF to be provided

**The proposal was found to be generally in order & may be placed in next Appraisal Committee meeting.**

**5. BSPTCL, Bihar: Reliable communication and Data Acquisition upto 132kV and above in BSPTCL. (Proposal No: 244)**

Estimated cost Rs 195.07 crore

Date of submission of DPR: 12<sup>th</sup> September 2018

**The proposal was examined by the TESG. Observations as below shall be communicated to the entity:**

- i. Physical and Financial milestones in accordance with format A3 of the Guidelines to be provided.
- ii. 23 under construction Sub Stations are to be excluded from the scope.
- iii. Basis of cost estimates with supporting document is to be provided.
- iv. Breakup of cost estimates is to be provided.
- v. Detailed BoQ with technical specification of items is to be provided. (Take PGCIL SOR for 2017-18 for reference).
- vi. Abstract of quantity substation wise/ line wise is to be provided.
- vii. Equipment wise abstract of cost estimates is to be provided.
- viii. Dully filled format A5 is to be provided.
- ix. List of substations considered and lines (voltage wise) where OPGW connectivity is proposed is to be provided.
- x. Existing and proposed communication network topology is to be provided preferably in A3 sheet with colored marking.
- xi. Two-time lines i.e. 18 months (format A1) and 36 months are mentioned for same project.
- xii. In DPR at one place no of substation mentioned is 146 whereas at other place it is 151.
- xiii. Number of fibres to be specified. Upto 24 fibres are considered for PSDF funding.
- xiv. Justification for GST @ 28%
- xv. Contingency, IDC and Consultancy not considered for PSDF funding. These to be excluded from cost estimates.
- xvi. Soft copy of DPR (word and excel file) to be submitted.
- xvii. A revised DPR may be submitted as per the prescribed format A1-A6.

**The TESG decided that the above observations would be communicated to the entity. The proposal shall be further examined after submission of the inputs by the entity. The entity may be called for detailed presentation on the scheme in TESG meeting, after receipt of above inputs.**

**6. Electricity Dept., Govt. of Puducherry: Renovation, Modernization and provision of additional equipment's of the grid connected 230kV substations in U.T of Puducherry as per the remarks of Protection Audit. (Proposal No: 245)**

Estimated cost Rs 11.56 crore

Date of submission of DPR: 12<sup>th</sup> September 2018

The proposal was examined by the TESC. The entity has submitted a supplementary DPR for two numbers 230 kV substations (Villianur & Bahour). Observations as below shall be communicated to the entity:

- i. R& U project already approved on 4.8.15. Grant approved Rs 9.5 Crs. Implementation status of the project to be provided.
- ii. Soft copy of the DPR (word and excel file) is to be provided.
- iii. Basis and justification of cost estimates is to be provided.
- iv. Details of all existing equipment (as per format) with proper tagging for replacement (if any) is to be provided,
- v. Equipment wise abstract of cost estimates for each substation is to be provided.
- vi. Authorized person is different in Format A1 and A2.
- vii. Format A5, Copy of the Appraisal Report, Format A6 is to be provided.
- viii. Govt approval for the proposal seeking grant from PSDF to be provided
- ix. A revised DPR with all formats and proper font size may be provided.
- x. Internal contribution is to be provided.
- xi. All formats should be signed by Authorized officer.

**The TESC decided that the above observations will be communicated to the entity. The proposal shall be further examined after submission of the inputs by the entity. The entity may be called for detailed presentation on the scheme in TESC meeting, after receipt of above inputs.**

**7. MPPTCL, Madhya Pradesh: Installation of Phasor Measurement Units (PMUs) at strategic locations in Madhya Pradesh and integration of the same with Phasor Data Concentrator (PDC) installed under URTDSM project. (Proposal No: 246)**

Estimated cost Rs 17.8 crore

Date of submission of DPR: 24<sup>th</sup> September 2018

The proposal was examined by the TESC. Observations as below shall be communicated to the entity:

- i. The proposal includes installation of 98 PMUs.
- ii. Cost estimate are based on budgetary offer of GE & PGCIL recent award rates.
- iii. Following inputs are to be furnished by the entity:
  - a) Justification for quantity and location of PMUs
  - b) All formats should be signed by Authorized officer.

- c) Board approval for the proposal seeking grant from PSDF
- d) Study Report for optimum requirement of PMUs for observability as done in case of GETCO by IIT Bombay.
- e) Application/ Utilization of project is to be specified, i.e., specification of development of analytics etc.

**The TESG decided that the above observations would be communicated to the entity. The proposal shall be further examined after submission of the inputs by the entity. The entity may be called for detailed presentation on the scheme in TESG meeting, after receipt of above inputs.**

**8. MPPTCL, Madhya Pradesh: Installation of ABT compliant meter having facility of 5 minute integration on existing interface points on MPPTCL. (Proposal No: 247)**

Estimated cost Rs 6.68 crore

Date of submission of DPR: 24<sup>th</sup> September 2018

The proposal was examined by the TESG. The entity intends to install 755 nos. interface meters for five minute integration. The proposal for implementation of intra state ABT has already been approved on 17.3.16 and a Grant of Rs 3.6 Crs was sanctioned. The following observations shall be communicated to the entity:

- i. All formats should be signed by Authorized person.
- ii. Justification for interface meters (755 nos) to be provided
- iii. Location wise details on Network map for installation of ABT meters to be provided. (The metering scheme should be in line with the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and Amendment 2010.)
- iv. Present status of meters.
- v. Dully filled A5 Format to be provided
- vi. Board approval for the proposal seeking grant from PSDF to be provided
- vii. Spare meters not eligible under PSDF funding.

**The TESG decided that the above observations would be communicated to the entity. The proposal would be further examined after submission of the inputs by the entity. The entity may be called for detailed presentation on the scheme in TESG meeting, after receipt of above inputs.**

**9. CE(NPC) thanked all the TESG members and other participants for fruitful discussion.**

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## PSDF\_46th Meeting of the Techno Economic Subgroup

Date: 31.10.2018

Venue: NRPC

Sl.No	Name	Designation	Organization	Mobile No.	Email.ID	Sign
1	PARDEEP JINDAL	CE (NIC)	CEA	9818768460	jindal_parddeep@yahoo.co.in	
2	IRFAN AHMAD	DIR (NPC)	CEA	98103332410	irfan_ahmad@yahoo.co.in	
3	Y.K. Swarnkes	Director	CEA	9810327346	yswarkes@yahoo.co.in	
4	K.P. MADHAN	DD (NPC)	CEA	8444403698	kp.madhu@gmail.com	
5	Saurabh Mishra	DD (NPC)	CEA	7827433175	cmprce@yahoo.co.in	
6	K. Satsukumar	AD (NPC)	CEA	8307949855	ksatce@yahoo.co.in	
7	Deepankar Rao	AD (NPC)	CEA	011-26868681 (37)	cmprce@yahoo.co.in	
8	Karan Sauran	AD (BSED)	CEA	9808177760	karan.sauran@gmail.com	
9	R.V. Bhaugul	Consultant	PoSCO	9171246956	bhaugul2011@gmail.com	
10	P.S. Das	GM	CTU, PowerGRID	94333041837	psdas@powergrid.co.in	
11	Azhok Joshi	GM	POWERGRID	9910378057	ajoshi@powergrid.co.in	
12	Manohar Singh	Manager	"	9899809918	manohar@powergrid.co.in	
13	N. NALIN RAO	DGM	POSCO	8527097022	nallasau@posco.in	
14	T. Bheemesh	Sr Engg	POSCO	9599118541	tbheemesh@posco.in	



भारत सरकार/Government of India

विद्युत मंत्रालय/Ministry of Power

केंद्रीय विद्युत प्राधिकरण/Central Electricity Authority

**राष्ट्रीय विद्युत समिति प्रभाग/National Power Committee Division**

No.: 1/PSDF-DPR/NPC/CEA/2018/1075-1078

Date: 24.10.2018

To

**Sh. Rakesh Sharma,**

Deputy Chief Engineer, PSTCL

Office of Chief Engineer, Shakti Sadan,

Patiala, Punjab

**Subject:** Record notes of discussion of the meeting with PSTCL held on 22.10.2018-reg.

Record notes of discussion in the meeting held on 22<sup>nd</sup> October 2018 with representatives from PSTCL regarding their proposal, for replacement of ACSR Zebra/Panther with HTLS conductor seeking grant from PSDF is enclosed, for information and necessary action please.

PSTCL is requested to take up the proposed system strengthening scheme with PSPA-I Division of CEA for recommendation of Northern Region Standing Committee on Transmission (NRSCT), and submit the recommendations to Nodal Agency of PSDF (NLDC) with a copy to NPC Division, CEA.

Encl.: as above.

*(Signature)*  
24/10/18  
(इरफान अहमद/Irfan Ahmad)  
निदेशक/ Director

Copy to:

1. Sh. N.Nallarasan, DGM,NLDC, POSOCO
2. Sh. R.K. Bansal, Convener TESSG & Consultant, NLDC, POSOCO
3. Chief Engineer (PSPA-I), CEA, New Delhi

पोसोको / POSOCO  
कटवारिया सराय / KATWARIA SARAI  
29 OCT 2018

**Central Electricity Authority**  
**National Power Committee (NPC) Division**

**Record notes of discussion in the meeting held on 22<sup>nd</sup> October 2018 with representatives from PSTCL regarding their proposal, for replacement of ACSR Zebra/Panther with HTLS conductor seeking grant from PSDF.**

A meeting was held in the office of Chief Engineer, NPC Division, CEA with representatives from PSTCL on 22<sup>nd</sup> October 2018 for clarifications on the observations of Techno-Economic Subgroup (TESG) on the Scheme: "Design, testing, manufacture supply and stringing of HTLS conductor along with replacement of ACSR Zebra/Panther to provide relief to the over-loaded lines (211)" submitted by PSTCL for grant from PSDF. The following officers were present in the meeting:

1. Pardeep Jindal, Chief Engineer (NPC), CEA
2. Irfan Ahmad, Director (NPC), CEA
3. K.P. Madhu, Deputy Director, (NPC), CEA
4. Saurabh Mishra, Deputy Director, (NPC), CEA
5. Deepanshu Rastogi, Assistant Director-I, (NPC), CEA
6. K. Satish Kumar, Assistant Director-II, (NPC), CEA
7. Rakesh Sharma, Deputy Chief Engineer, PSTCL
8. Kamal Krishan, Additional Superintending Engineer, PSTCL
9. Munish Bhardwaj, Additional Superintending Engineer, PSTCL

**BACKGROUND:**

1. PSTCL submitted a proposal at an estimated cost of Rs. 7.46 Crores on 14<sup>th</sup> March 2018, namely "Design, testing, manufacture supply and stringing of HTLS conductor along with replacement of Existing ACSR conductor to provide relief to over-loaded lines" as follows: -
  - i. 220kV Ludhiana-220kV Lalton Kalan (Zebra Conductor): 1<sup>st</sup> Circuit of 2.137 kms approx. and 2<sup>nd</sup> Circuit of 2.787 kms approx.
  - ii. 132kV Verpal-Mall Mandi (Panther Conductor)– 12km approx.
2. The scheme was examined by TESG of PSDF in its 39<sup>th</sup> meeting held on 20.03.2018. The preliminary observations of the subgroup were as follows:
  - i. Load flow study of the existing network and proposed network
  - ii. Location wise peak load and projected load in near future
  - iii. Terminal equipment rating, to access the capability for meeting higher projected loads
  - iv. Basis of cost estimates
  - v. Tower healthiness report
  - vi. Soft copy of the DPR
  - vii. Physical and financial milestones (compliance in accordance with format A3 of the guidelines)
  - viii. STU approval (compliance in accordance with format A5 of the guidelines)



- ix. Proposal submitted under para 5.3 of the guidelines. This clause is a supportive clause to be read with clause 5.1 of the guidelines. The entity may clearly specify the clause with justifications
  - x. The documents including undertaking to be signed by the Authorized signatory.
- The above observations were conveyed to PSTCL vide NLDC letter dated 09.04.2018.
3. PSTCL vide letter dated 21.05.2018 had submitted the above inputs for the same, except the following:
- a) Load Flow Studies of present and expected loads,
  - b) Formats (A1 to A6) duly filled and signed by the Authorized Representative,
  - c) Single Line Diagram along with location of towers.
4. The inputs received from PSTCL were further examined by TESC in its 45<sup>th</sup> Meeting held on 19<sup>th</sup> September 2018. The following were the observations of TESC:
- i. The entity, vide their letter dated 21.5.2018 has submitted a dump of the load flow studies. However, network topology, supported with the studies is required to be submitted.
  - ii. The objective of the proposal, i.e. the congestion under the present conditions and removal of the same, needs to be established.
  - iii. A reminder shall be sent by NLDC to the entity to submit the response within 30 days. The entity may be invited to present the study result in the TESC Meeting.
5. In the meantime, PSTCL has furnished the SLDs for future case considering expected loads in 2022, duly indicating the line loadings and requested for a meeting to clarify the observations of TESC on the project proposal to expedite the process.
6. In this regard, the entity came for discussion on 22<sup>nd</sup> October 2018 in the office of Chief Engineer, NPC Division, CEA

**7. Deliberations in the Meeting:**

- i. The representative of PSTCL explained the scheme along with the Load Flow Studies and informed as follows:
  - a) They are seeking funding for replacement of ACSR conductor with HTLS conductor and some insulators only. All other related works would be carried out with own sources.
  - b) The existing terminal equipment are capable for meeting higher projected loads. However, wherever terminal equipment needs to be changed, it would be met using their own funds.
  - c) Existing insulators are proposed to be replaced by polymer insulator.
- ii. On a query regarding use of Polymer Long Rod Insulators, the entity stated that as the transmission lines are passing through industrial areas, it is prone to high level of pollution.
- iii. The entity informed that only one circuit of the tower shall be replaced with HTLS conductor. It was enquired that it may create differential loading on towers. They informed that towers are already designed for such loadings.



- iv. It was observed that all the formats (A1 to A6) are not signed by the Authorized Representative. The entity agreed for sending formats (A1 to A6) by Authorized Representative of PSTCL.
- v. After deliberations, the following inputs are sought from PSTCL:
  - a) Scheme details showing the proposed configuration of conductors on the tower.
  - b) All Formats (A1 to A6): Duly filled and signed by the Authorized Representative.
  - c) Modified Tower Healthiness Certificate, stating that the Towers are healthy for stringing HTLS Conductors as well as for differential loading due to different type of conductors on the two circuits of lines.
  - d) Single Line Diagram (SLD) along with location of towers
  - e) Load Flow Studies (Hard as well as soft copies) considering present and projected future loads.
- 8. PSTCL agreed to submit the above details by 30<sup>th</sup> October 2018 and this may be discussed in the next meeting of TESH.
- 9. It is further observed that PSTCL may furnish recommendations of Northern Region Standing Committee on Transmission (NRST) of CEA on the system strengthening scheme.

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