

CENTRAL ELECTRICITY AUTHORITY
Grid Management Division

**SUMMARY RECORD OF DISCUSSION OF THE SECOND MEETING OF
NATIONAL POWER COMMITTEE HELD ON 16TH JULY 2013**

The 2nd meeting of National Power Committee (NPC) was held on the 16th July 2013 at CEA, New Delhi. The list of participants is enclosed at Annexure.

Welcoming the members of the NPC and other participants, Smt. Neerja Mathur, Member (GO&D), CEA informed that Chairperson, CEA & NPC had gone to attend an urgent meeting in the Ministry of Power and he would be joining the NPC meeting shortly. Meanwhile, as per the advice of Shri A.S. Bakshi, Chairperson, CEA & NPC, she initiated the discussions at the meeting by highlighting the decisions taken at the first NPC meeting held on 15th April, 2013, particularly those relating to implementation of recommendations of the Grid Disturbance Enquiry Committee, and emphasised the need for serious and time-bound implementation thereof. Thereafter, she requested Shri Dinesh Chandra, Chief Engineer I/c (Grid Management) & Member Secretary, NPC to take up the agenda for discussion.

A. CONFIRMATION OF SUMMARY RECORD

Member Secretary, NPC stated that the summary record of discussions of the 1st meeting of NPC held on 15th April 2013 at CEA, New Delhi was circulated vide CEA letter No. 8/X/MMS/GM-13 dated 07-05-2013, and that no comments had been received from any member on the same. He sought confirmation of summary record at the meeting.

NPC confirmed the summary record of discussions of the 1st meeting.

B. FOLLOW-UP ACTION ON DECISIONS TAKEN EARLIER

B.1 IMPLEMENTATION OF MEASURES TO PREVENT GRID DISTURBANCE

B.1.1 Third Party Protection Audit

MS I/c, NPC informed that in accordance with the decision taken at the last meeting, all the States except J&K had submitted the DPRs for R&U of protection system at their all substations of 220 kV & above (132 kV & above in case of NER States) by mid-June 2013. The DPR from J&K was still awaited. However, estimated expenditure of R.100 Crore had been considered towards R&U of the sub-stations of J&K while preparing the consolidated DPR in CEA. Shri P.K. Pahwa, Member

Secretary, NRPC informed that he was following up the matter with J&K and based on the feedback received from the State, the submission of DPR was expected shortly.

Member (GO&D), CEA intimated the background of DPRs and the R&U scheme as submitted to MoP. She stated that during compilation of DPRs, it was observed that the DPRs had been prepared by the States in a non-uniform pattern, though guidelines for preparing DPRs were circulated to all the States through respective RPCs by CEA. Though the compiled summary of DPRs had been forwarded to MoP for consideration, **CEA would be seeking supplementary information from the States shortly on the DPRs submitted by them to bring some uniformity therein. She sought cooperation from all the States in furnishing such information at the earliest.**

Member Secretary, NPC enquired as to whether the DPRs submitted by the States had final approval of their management and they could go ahead for floating of NIT etc. for the purpose, or they would have to go back to their management for approval of the same / amended DPR on receipt of confirmation regarding availability of funds from PSDF etc. Sh. S.K. Negi, Chairperson (TCC), WRPC opined that the DPRs must have been approved by the management of the respective States before submission thereof to CEA and therefore, those should be considered as final & duly approved. The opinion of Chairperson (TCC), WRPC was endorsed by other members of the NPC, and **it was agreed that the DPRs received from the States would be treated as approved from their respective managements.**

Sh. S.D. Taksande, MS, WRPC desired to know the amount of funding for R&U Scheme as the constituent States of Western Region were planning to take up the R&U works only after ascertaining the funding assistance from the Centre. Other RPCs also supported the views expressed by WRPC. Member Secretary, NPC informed that as per the consolidated DPR submitted to MoP, funding from PSDF has been proposed as 20% keeping in view the portion of the amount parked in the PSDF, that can be used for R&U works. This might, however, vary depending upon the amount approved by MoP / PSDF Management Committee. Moreover, CERC regulations for PSDF were also in the process of review.

Shri S.K. Soonee, CEO, POSOCO opined that renovation & upgradation of the protection system should be immediately taken up by all the States without waiting for the funds from the Centre as the healthiness of the protection system is of paramount importance. CEA and WRPC supported the views expressed by CEO, POSOCO.

After some discussions, **it was decided that the States would immediately take up renovation & upgradation of protection systems including switchgears at their sub-stations as mentioned in their respective DPRs without waiting for funds from the Centre. As the funds become available from PSDF, the same would be distributed to the States as per the guidelines / regulations in force.**

B.1.2 Reactive Power Planning

Member Secretary I/c, NPC informed that as decided in the last NPC meeting, all STUs would submit the schemes related to reactive power planning / management to CEA for their respective states in consultation with their respective RPCs by 30th June 2013. He stated that only SRPC, in respect of Andhra Pradesh and Tamilnadu, could submit such schemes to CEA. He mentioned that these States had also sought funds from PSDF for taking up execution of these schemes.

Shri S.R. Bhat, Member Secretary I/c, SRPC informed that schemes for other States of the region would also be submitted soon. However, the States were asking for 100% funding from PSDF for these schemes. He added that studies in respect of reactive power requirement in various parts of the region had already been conducted and the same would be taken up in the meeting of Standing Committee on Planning of CEA.

Regarding request of SR States for 100% funding from PSDF for reactive power management schemes, other members of NPC felt that it would not be justified and in the interest of the grid to link execution of these schemes with funds from the centre. It was advised that all States take up execution of all those schemes including reactive power management schemes which are going to strengthen the grid security, on priority by arranging funds from other sources.

Shri P.K. Pahwa, Member Secretary, NRPC intimated that the CTU had completed the study of the inter-state system of Northern Region to assess requirement of reactive power management schemes at 220 kV level & above and the same would be discussed at the meeting of Standing Committee on Planning.

CEO, POSOCO suggested that the schemes for reactive power management also need to be identified at the level of DISCOMs. Other members also agreed to his suggestion and added that reactive power management at distribution level is even more essential.

MS, WRPC intimated that there was no further requirement of installation of shunt capacitors in the Western Region. However, 27 reactors were proposed to be

installed in the region as per the requirement worked out by the Protection sub-Committee and the same was under the consideration of Standing Committee of CEA. These reactors were likely to be commissioned by July 2014.

Shri A.K. Bandyopadhyay, Member Secretary I/c, ERPC informed that three 125 MVAR reactors have been planned at different locations in the Eastern Region as most of the States in the region were experiencing mainly high voltage problem. However, West Bengal has plans of adding about 540 MVAR shunt capacitors at 132 & 33 kV level to improve the voltage profile.

Shri S.K.R. Mohapatra, Member Secretary I/c, NERPC intimated that no proposal for reactive power management had been made in NER. However, NER States were being requested for the same. He also informed that the NER States were not having the study groups and therefore, the States were dependent upon RPC & RLDC for preparing such schemes for them. Chairperson (TCC), NERPC added that in Tripura, some steps had been taken for capacitors installation under APDRP and RGGVY schemes.

After deliberations, it was decided that all States would carry out reactive power planning not only at transmission level but also at distribution level and prepare schemes to maintain voltage profile as per relevant Regulations / Standards. These schemes would be forwarded by the States to the Power System wing of CEA under intimation to the NPC secretariat at the earliest. Further, execution of approved schemes would be taken up by the States without waiting for the funds from PSDF.

B.1.3 Ensuring proper functioning of Under Frequency Relays (UFRs) and df/dt relays

As per decision taken at the previous meeting, RPCs had to ensure healthiness of UFRs and df/dt relays through regular inspections in a year of about one-third number of total relays installed in their respective region. RPCs had also to furnish the status of healthiness of UFRs and df/dt relays installed in the region to CEA on quarterly basis.

MS I/c, WRPC informed that requirement of inspection of about one-third number of total relays installed in the region was quite high and with presently available manpower in WRPC, it was difficult to meet this requirement of inspection on quarterly basis. He further stated that on account of this difficulty, regular inspections at different sub-stations could not be taken up for UFRs and df/dt relays.

MS I/c, ERPC intimated that to overcome the manpower shortage, teams comprising of state utilities had been formed by them and regular inspections & testing of relays were being carried out. He added that inspection of 26 out of 90 UFRs installed in the region had already been completed in the quarter ended June 2013.

MS, NRPC informed that they had formed a team of officers from NRPC, NRLDC and POWERGRID to carry out inspection. This team was inspecting UFRs at 2 to 4 substations every month on regular basis.

MS I/c, NERPC stated that 21 UFRs were installed to shed about 120 MW load in NER, and based on the self-certification by the States, those were functional. Inspection of these UFRs, however, was yet to be undertaken.

MS I/c, SRPC stated that inspection of UFRs was being done in the Southern Region regularly and quarterly report in this regard had also been sent by them to NPC secretariat. He informed that apart from inspection, SRPC / SRLDC were also analysing every 10 days the load relief likely to be available on tripping of feeders through UFRs by monitoring the maximum, minimum & average load thereon through SCADA system.

Member Secretary I/c, NPC lauded the monitoring system adopted by the Southern Region to assess the likely load relief in case of operation of UFRs, and suggested emulation of the same by other regions.

CEO, POSOCO while endorsing the above suggestion, added that all SLDCs and RLDCs should have the database containing details of feeders to be tripped through the UFRs and the expected load relief at different frequency levels. Further, the States should submit self-certified reports regarding proper functioning of UFRs and df/dt relays to the concerned RPC every month. Besides this, there should be periodic audit / inspection of these relays by an independent team, and finally, non-compliance in respect of Automatic Under-Frequency Load shedding Scheme should be booked properly.

After deliberations, it was decided that all SLDCs & RLDCs would upload the details of feeders to be tripped through the UFRs and the expected load relief at different frequency levels in their respective States / Regions on operation of UFRs. It was also decided that RPCs would send inspection report for healthiness of UFR and df/dt regularly on quarterly basis to NPC secretariat.

B.1.4 **Islanding schemes**

It was decided at the last meeting of NPC that all RPCs would ensure completion of the process of designing / finalisation of the islanding schemes by the STUs of their region and submit the status & time-line of finalisation of scheme and implementation thereof by 30th April 2013. In case, no further islanding scheme was found feasible in a state, the same should be confirmed. MS I/c, NPC informed that while WRPC had confirmed infeasibility of any more islanding schemes beyond already existing schemes in the Western Region, SRPC had informed that SR States would complete the execution of the approved schemes by August 2013. In ER and NER, some of the islanding schemes were still under study. In NR, there was no change in the status of implementation / preparation of islanding schemes in different States barring the Delhi islanding scheme, which is likely to be commissioned in August 2013. He requested the RPCs to provide updates in the matter.

Member Secretary, NRPC intimated that Uttar Pradesh was preparing the Bill of Quantity in regard to implementation of islanding scheme. However, fund constraint has been reported by the state. Rajasthan has prepared islanding schemes for RAPP-A, B & C power stations and these islanding schemes are expected to be submitted within a month. Punjab's islanding schemes stand approved from NRPC but the state has reported fund problem to implement the same. Haryana has not yet finalised any scheme.

Member Secretary I/c, ERPC informed that finalised islanding schemes are already under implementation and those under study would get finalized shortly. All the islanding schemes including those which are yet to be finalised, are likely to be implemented in a phased manner during October 2013 - February 2014.

Member Secretary I/c, NERPC informed that NER islanding schemes have been finalised but most of the islanding schemes proposed are with gas turbines, which themselves get isolated earlier than the designated frequency for islanding. CEO, POSOCO advised him to make use of reverse power under frequency relays for designing the islanding scheme(s) for NER. He also opined that an electrical island would have better chances of survival if power stations included in the island operate in FGMO.

Member (GO&D), CEA requested all the RPCs to submit the details of progress of preparation / approval / execution of islanding schemes to NPC Secretariat regularly on fortnightly basis.

B .2 : Reporting the Status of implementation of the recommendations of the Enquiry Committee

MS I/c, NPC stated that as per the decision taken at the last meeting, all RPCs were required to update and forward the status of implementation of recommendations of the Enquiry Committee on Grid Disturbances of 30th & 31st July 2012 to CEA in the prescribed format on fortnightly basis regularly i.e. the status as on last day of a month to be forwarded by the 3rd day of the following month, and that as on 15th of the month to be forwarded by 17th of the month. He informed that such fortnightly updates were being received only from SRPC and POSOCO. He requested other RPCs and POWERGRID also to send the same on regular basis.

Members noted the same for necessary action.

B .3 Review of Zone -III Philosophy

It was informed by PGCIL that they had already reviewed and implemented the revised Zone-III settings for inter-state lines wherever required in the country in coordination with STUs and Generators. However, for the intra-state transmission lines, various data including existing Zone-III settings, had not been received by them, because of which they were unable to take similar action on such lines.

SRPC stated that SR States had furnished the requisite data to PGCIL. Other RPCs stated that the details of the data required by PGCIL and the transmission lines, in respect of which data was required, were not available with them to do the needful. Representative of PGCIL informed that the same had already been circulated to all the RPCs. He added that 13 out of 22 STUs were yet to furnish the said data.

Member (GO&D), CEA requested representative of PGCIL to forward the requisite data to NPC Secretariat for onward transmission to all the RPCs for further necessary action. The same was agreed to by PGCIL.

B .4 Ring fencing of Load Despatch Centres (LDCs)

Member Secretary, WRPC informed that ring fencing of LDCs in Maharashtra and Gujarat has been taken up and incentive schemes has also been initiated. In the recent WRPC meeting, it was desired to assess the additional manpower requirement for effecting ring fencing of SLDCs. This task was likely to be completed in 2 months' time, after which the report would be submitted by the STUs of these States to their respective governments for consideration.

However, it was noted that most of the SLDCs were having functional autonomy as per the recommendation of Pradhan Committee. SRPC informed that some of the states in the region were already carrying out separate SLDC accounting. Member Secretary, NRPC recalled that there was already a Task Force under Member (Power System), CEA to monitor the implementation of Pradhan Committee recommendations on ring fencing of SLDCs and as such, NPC was not required to monitor it.

After discussions, it was decided that inputs in regard to status of implementation of Pradhan Committee Recommendations for ring fencing of the SLDC, would be collected by the RPCs from the States and forwarded by the RPCs to NPC Secretariat every month.

B.5 Implementation of CEA Regulations

At the last meeting of NPC, RPCs were requested to examine the possible methods to check violations and ensure implementation of CEA regulations and forward their inputs to CEA before the next meeting of NPC for consideration. The matter was deliberated again as no inputs were received by CEA from the members.

CEO, POSOCO opined that while CERC regulations were strictly adhered to, CEA regulations were not being followed in that seriousness. He observed that while CERC had referred to various provisions of CEA's Regulations & Standards in the regulations notified by it, CEA regulations provided much wider technical details of those provisions, and these should be adhered to by all the power utilities. According to him, violation of CEA regulations is violation of regulations of both CEA and CERC. He opined that CEA Technical Standards can be helpful in avoiding lot of inconsistencies in system operation and could also have prevented grid disturbances of 30th and 31st July, had they been followed in letter and spirit.

Sh. Pankaj Batra, Chief Engineer I/c (Regulatory Affairs), CEA informed that in case of CEA regulations are violated and brought to the notice of CEA/RPC, these agencies can simply write to CERC for taking suitable action. According to him, informing such violations by RPC/CEA need not to be in the form of a petition and CERC can take *suo-moto* action based on CEA/RPC letters.

After discussions, it was decided that as a first step, all power utilities be sensitized on CEA regulations through workshops in regional fora. After completion of awareness phase, the violations of CEA regulations could be

discussed & minuted in RPC meetings, and persistent violations could be reported to CERC by CEA/RPC.

C. AGENDA ITEMS RECEIVED FROM RPCs

C1. FLAT UNDER FREQUENCY RELAY'S BASED AUTOMATIC LOAD SHEDDING SCHEME

C1.1. Number of Stages for Automatic Under Frequency Relays based Load Shedding Scheme (AUFLS)

Member Secretary I/c, NPC stated that in the last meeting, RPCs were requested to consult their constituents about the number of stages for AUFLS scheme - whether four or three stages of frequency with a gap of 0.2 Hz between two consecutive levels beginning with 49.2 Hz - and communicate the same to NPC secretariat. He informed that WRPC had communicated acceptance of 4 stages and SRPC 3 stages. No communication in the matter had been received from other RPCs. He requested other RPCs to inform their opinion in the matter.

NRPC, ERPC and NERPC expressed their opinion in favour of four stages of AUFLS scheme. With 4 out of 5 RPCs being in favour of adoption of 4 stages of AUFLS, **NPC decided to implement AUFLS scheme with 4 stages of frequency viz. 49.2, 49.0, 48.8 & 48.6 Hz in all the regions. SRPC was also requested to follow the above four stages of frequency as the SR Grid was also going to be synchronised with NEW Grid soon.**

C1.2. Methodology for determination of quantum of load for AUFLS in different regions

Member Secretary I/c, NPC stated that the quantum of load shedding to be effected in the NEW grid through UFRs at the four frequency stages agreed above, has been worked out on the basis of Zalte committee report of WRPC and 3000 MW as the power number. Detailed methodology / calculations used to work out the quantum of load shedding was given in the agenda. He sought the opinion of the NPC members on the same.

All the members of NPC as well as POSOCO agreed that the quantum of load-shedding for NEW grid under AUFLS as worked out in the agenda was in order and the same could be communicated by NPC secretariat to all the RPCs for implementation with load shedding

quantum rounded off to the nearest ten. Same methodology could be adopted to determine the quantum of load-shedding at four stages of frequency based on the power number for SR grid and communicated to SRPC for implementation. It was also agreed that the entire AUFLS scheme would be implemented in a maximum period of three months by all the RPCs.

C2. METHODOLOGY TO BRING AGENDA ITEM IN NPC BY RPCs – PROVIDING ADEQUATE TIME TO RPCs

Chairperson, SRPC referring to clause 3 of the MoP order establishing NPC, stated that the decisions taken by the NPC at its meetings would be considered concurred by the respective RPCs for implementation. With this provision in view, mentioned that since only the Chairperson RPC, Chairperson TCC & Member Secretary of the concerned region attend the NPC meeting, taking decision on behalf of all the constituents of the region on certain issues sometimes becomes difficult. Therefore, adequate time should be given to the RPC members to deliberate on the agenda items for the NPC meeting.

Member Secretary I/c, NPC proposed that if some Members feel the necessity for discussing certain issues with their constituents before giving their opinion, they could be allowed by NPC to do so. Such members could convene the regular / special meeting of TCC or RPC as considered necessary to discuss those issues and form / communicate their opinion before the next NPC meeting.

Chairperson, NPC & CEA agreed to the suggestion and the same was also accepted by the members of NPC.

Chairperson, NPC & CEA mentioned that sometimes agenda items are being directly sent by the members to NPC Secretariat for deliberation at the NPC meeting without Member Secretary of the concerned RPC being aware about those items. He advised that only those agenda items which pertain to at least 2 RPCs and remain unresolved at the level of RPCs, should be sent for discussion at NPC meeting.

Upon deliberations, it was decided that the agenda items from members of RPCs for the NPC meeting would be routed through their

respective Member Secretary after discussions at RPC level. It was also decided that if some Members feel the necessity for discussing certain issues with their constituents before giving their opinion thereon, they may seek the option of getting it discussed at their respective RPC and revert back to NPC to enable NPC take a final decision on that agenda item at its next meeting.

C3. INCLUSION OF NTPC & POWERGRID IN NPC FORUM

The inclusion of CPSUs as member in NPC was deliberated in detail. SRPC was of the view to include NTPC and PGCIL as members in NPC. WRPC opined that PGCIL might be considered for membership of NPC in the capacity of the Central Transmission Utility (CTU). NRPC, ERPC and NERPC were of the view that by keeping CPSUs in NPC, the role of RPCs may get diluted. According to them, the matters pertaining to the CPSU(s) in a region should be discussed first at the concerned RPC level and in case of any issue not getting resolved at RPC level, the same could be discussed in NPC meeting by inviting the concerned CPSU(s) for discussion. Further, inclusion of NTPC & PGCIL as members of NPC might also lead to demand by other CPSUs like NPC, NHPC, etc. for membership of NPC. Therefore, they were opposed to membership of the CPSUs in NPC.

Member Secretary I/c, NPC felt that only those agencies / organisations, whose involvement is essential in resolving most of the issues pertaining to the power sector, might be considered for membership of NPC.

Taking into consideration the opinion of the members, Chairperson, NPC & CEA decided that the present arrangement of inviting CPSUs as special invitees to NPC meetings, whenever considered necessary, would be continued. However, he opined that NLDC could be included as a member in the NPC. He advised the RPCs to consult their constituents in the matter and communicate their opinion at the next meeting.

C4. HOLDING OF PROTECTION SUB-COMMITTEE MEETINGS AT LEAST TWICE A MONTH

SRPC stated that previously, before the directions of CEA in this regard, the Protection Sub-Committee meetings were held on a quarterly basis but after directions issued by CEA, they were being held on a monthly basis.

As per new directions issued by CEA in connection with secure & reliable operation of the grid during the current summer season, these meetings are required to be held twice a month. SRPC expressed difficulty in holding the Protection Sub-Committee meeting twice a month due to acute staff-shortage in the utilities and limitation involved in the travel of the concerned officers. Moreover, the fifteen days' time between two successive meetings is too short to implement many decisions of Protection Sub-Committee. Other RPCs also endorsed the views expressed by SRPC and requested that the meetings may be continued to be held on a monthly basis.

Considering the difficulties expressed by the RPCs, Chairperson, CEA & NPC accepted their request for holding the Protection Sub-Committee meetings on monthly basis during current summer season. However, he directed them to ensure that whenever there is an instance of tripping of multiple critical transmission / generation elements in the grid, it should be got investigated & analysed on immediate basis and remedial action should also be taken in a time-bound manner under intimation to NPC secretariat / Grid Management Division of CEA.

- C5. SHUTDOWN OF ISGS UNIT UNDER RSD (RESERVE SHUTDOWN) DURING LOW REGIONAL DEMAND** (*Agenda from WRPC*).
- C6. ENHANCING UI LIMITS ON STATE PERIPHERY** (*Agenda from WRPC*).
- C7. UTILIZATION OF POWER SYSTEM DEVELOPMENT FUND** (*Agenda from WRPC*).
- C8. FUND REQUIREMENT.**

Items at C.5 to C.8 could not be discussed at the meeting due to paucity of time and the same were deferred to the next meeting.

D. SUPPLEMENTARY AGENDA ITEMS RECEIVED FROM POSOCO

- D.1 COMMISSIONING OF SYSTEM PROTECTION SCHEMES (SPS)**
- D.2 FREQUENCY RESPONSE CHARACTERISTICS (FRC)**
- D.3 NATIONAL UI / DEVIATION POOL ACCOUNT**

Items at D.1 to D.3 could not be discussed at the meeting due to paucity of time and the same were deferred to the next meeting.

E. OTHER ITEMS

Before conclusion of the meeting, Member Secretary I/c, NPC informed that Shri A.S. Bakshi was going to relinquish the charge of Chairperson, CEA & NPC on 31st July 2013 on

attaining the age of superannuation. He stated that Shri Bakshi had made vast contribution in the development of the power sector in the country in different capacities in CEA including Chairperson, CEA & NPC. He mentioned that one of his major contributions was the Report of the Enquiry Committee on Grid Disturbances of 30th & 31st July 2012 prepared under his able chairmanship. The report contained several valuable recommendations to avoid grid disturbances in future and those recommendations were being implemented by the government throughout the country. The implementation of the recommendations was being monitored through NPC. He proposed to pass a resolution in recognition of the services rendered by Shri Bakshi as Chairperson, NPC.

NPC members lauded the contribution made by Shri A.S. Bakshi as Chairperson, CEA & NPC in the power sector and passed the following resolution in recognition of his services:

“National Power Committee (NPC) places on record its deep appreciation of the outstanding services rendered by Shri A.S. Bakshi, Chairperson, CEA during his tenure as Chairperson, NPC. Shri Bakshi contributed immensely and provided very valuable guidance based on his vast experience in resolving various issues related to the power sector as Chairperson, NPC.”

The meeting ended with a vote of thanks to the chair.

CENTRAL ELECTRICITY AUTHORITY

PARTICIPANTS AT THE 2ND MEETING OF NPC HELD ON 16TH JULY 2013

Shri / Smt.

CEA:

1. **A. S. Bakshi, Chairperson, CEA and Chairperson, NPC – In chair**
2. Neerja Mathur, Member (GO&D)
3. Pankaj Batra, Chief Engineer I/c (RA and IT Divisions)
4. Dinesh Chandra, Chief Engineer I/c (GM Division)
5. D. K. Srivastava, Director (GM Division).
6. Bhanwar Singh Meena, AD (GM Division).

NRPC :

1. S. Bhatnagar, CE, PTCUL & Chairman (TCC), NRPC, Uttarakhand.
2. P. K. Pahwa, Member Secretary
3. P.S. Mhaske, S.E.(Comml.)
4. Ajay Talegaonkar, SE (O)

WRPC :

1. Raj Gopal, Chairman & MD, GUVNL & Chairman, WRPC.
2. S. K. Negi, MD, GETCO & Chairman (TCC).
3. S. D. Taksande, Member Secretary (I/c)

SRPC :

1. Mohd. Anwaruddin, Director (Grid & Trans), APTRANSCO & Chairman, (TCC).
2. M. Jayachandra, CE (PS), APTRANSCO.
3. S. R. Bhat, Member Secretary (I/c)

ERPC:

1. Prasanta Kumar Pradhan, Director (Com.), GRIDCO, & Chairman (TCC)
2. A. K. Bandyopadhyay, Member Secretary (I/c)
3. B. Sarkhel, SE(PS)

NERPC :

1. M. K. Chowdhury, Director (Tech.), TSECL (Tripura) & Chairman (TCC).
2. S. K. Ray Mohapatra, Member Secretary (I/c)

Special Invitees

NLDC (POSOCO) :

1. S K Soonee, CEO
2. V .K. Agrawal, E.D.
3. S.R. Narasimhan, DGM

POWERGRID :

1. A. Sen Sarma, DGM
2. V. S. Ramesh, Manager(OS)
