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CENTRAL ELECTRICITY AUTHORITY
SYSTEM PLANNING & APPRAISAL DIVISION
SEWA BHAWAN, R.K. PURAM,
NEW DELHI-110 066.

26/10
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No. 25 / 10 /98-SPA/ 1982-90

Dated 16th Nov. 1998.

18-12-98

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The Member (Power),
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The Chief Engineer (Tr.)
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The General Manager (Elect.)
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The Executive Director (T&P)
Madhya Pradesh Elec. Board,
Shakti Bhawan, Vidyut Nagar,
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The Chief Engineer (Tr.)
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Vikram Sarabhai Bhawan,
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The Chief Elect. Engineer,
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The Member Secretary,
Western Regl. Elec. Board,
MIDC Area, Marol,
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The Executive Director (Engg.)
Power Grid Corp. of India Ltd,
Hemkunt Chambers, 10th Floor,
89, Nehru Place, New Delhi-19.

Sub : Summary record of Tenth Standing Committee meeting on Power system Planning in Western Region held on 2-12-98.

Sir,

Please find enclosed Summary record of Tenth Standing Committee meeting on Power system Planning in Western Region held on 2-12-98 at Mumbai for your information and necessary action.

Yours faithfully,

o/c

V. J. Talwar

(V. J. TALWAR)
Director (SP&A)

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Minutes of the 10th Meeting of the Standing Committee on Power System Planning in Western Region held on 2nd December, 1998 at Mumbai.

List of participants is enclosed at Annexure-I.

Chief Engineer (SP&A), CEA welcomed all the participants to the meeting and stated that the meeting was convened to discuss and finalise the transmission system from Kawas CCGT Stg.-II and Gandhar CCGT Stg.-II Project which had been given techno-economic clearance of CEA some time back. He stated that to enable completion of the associated transmission work to match with the commissioning of generation, it was necessary to finalise the transmission system at the earliest so that POWERGRID would be able to take up the implementation after obtaining the necessary investment approvals from the Govt. of India. Thereafter agenda was taken up for discussion.

1. Transmission system associated with Kawas Stg.-II:

Chief Engineer (SP&A) stated that a combined cycle project at Kawas with 650 MW capacity under stage - I along with the following transmission system for evacuation of power from the project was existing:

- i) Kawas-Navsari 220 kV D/C
- ii) Kawas-Valthan 220 kV D/C
- iii) Kawas-Bharuch 220 kV D/C

Establishment of a second stage at Kawas CCGT with 650 MW had recently been given techno-economic clearance of CEA. The project is proposed to be set up by NTPC in the Central Sector and the benefits of the project are proposed to be allocated to the constituents of the Western Region. For identifying the transmission system required for evacuation of the full capacity at Kawas power system planning studies were carried out by CEA considering the following two alternatives:

- i) Stepping up of power to 220kV and providing additional transmission system at 220kV;
- ii) Stepping up of power to 400 kV and the evacuation of power at 400 kV

In the alternative (i) it was found that at least six additional 220 kV circuits were required for the evacuation of power. The transmission system was required to be provided in the Navsari/Vapi area to cater to the increasing load demand in South Gujarat. However, considering the way leave problems it may not be possible to construct so many transmission lines in South Gujarat.

In the second alternative, a 400 kV D/C line from Kawas to Valsad, a new substation near the existing 220kV Vapi substation, and LILO of the 400 kV Gandhar -Padghe S/Cline at Valsad had been considered along with establishment of 400 kV S/S at Kawas & Valsad for reliable evacuation of power from the project. The establishment of 400 kV substation at Valsad was considered not only for meeting the requirement of Gujarat but also to meet the needs of the UTs of Daman & Diu and Dadra and Nagar Haveli who were at present getting their share of power in Central Sector through Gujarat system. In view of the increasing load demands of the Union Territories and the inability of Gujarat to transfer these increasing loads through their network, it was proposed that the 400 kV substation at Valsad be constructed under the Central Sector and enable the Union Territories to draw their share of power over 220 kV system. 400 kV Valsad S/S will also be inter-connected with the 220 kV network of Gujarat. C.E.(SP&A) requested the constituents to express their views on the proposal.

AGM, POWERGRID stated that they were in agreement with the proposals made by CEA.

Superintending Engineer, Gujarat Electricity Board stated that the proposals were agreeable to Gujarat.

The representative from NPC stated that the existing 220 kV transmission system towards Maharashtra from Tarapur Nuclear Power Station were getting overloaded in view of the transfer of Maharashtra's share of power from the Central Sector projects located in Gujarat over the 220 kV lines. Accordingly, evacuation of power from Kawas over 400 kV network specially the LILO of the 400 kV Gandhar-Padghe line at Valsad would reduce the over-loading of the 220 kV network. Accordingly, the proposals were acceptable to NPC.

The Executive Director, MPEB stated that the share of power from the Central Sector projects located in the Gujarat would be transferred to MPEB through displacement and accordingly it was necessary that the network in MPEB was also strengthened to enable MP absorb its share. He, therefore, proposed that a 400 kV substation be established at Chhegaon in MP by LILO of the 400 kV Itarsi-Dhule D/C line. As Chhegaon was close to the alignment of the line additional transmission network may not be required.

Superintending Engineer, MSEB stated that MSEB was in agreement with the proposal of stepping up of power to 400 kV and evacuation of over 400 kV line to Valsad and LILO of 400 kV Gandhar-Padghe S/C line at Valsad. However, as Valsad would cater the requirement of Gujarat Grid, the substation would need to be funded by the Gujarat Electricity Board.

Responding to the above comments of the SEBs, Chief Engineer (SP&A) stated that the proposal of MPEB for establishment of 400 kV Chhegaon by LILO of the 400 kV Itarsi-Dhule line would need to be examined separately. Keeping in view that the line from Itarsi to Dhule had earlier been planned for transfer of

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Maharashtra's share of power from the Vindhyachal project and also considering the load demands of the Chhegaon at present. He further stated that Central Electricity Authority would examine the proposal and if found suitable could be considered for covering under a future Central Sector Project or State Project depending upon the time frame of the project. He also stated that the 400 kV line at Valsad was established not only for meeting the requirement of Gujarat, that of the UTs & also Maharashtra specially as the LILO of the Gandhar - Padghe line at Valsad would enable MSEB also to draw its share of power. It was, therefore, justified to include the proposal under Central Sector.

After further discussions, the following transmission system was agreed to be covered under Kawas CCGT Stage-II project by the beneficiary states:

- | | | | |
|------|--|-----|---|
| i) | 400 kV Kawas II-Valsad | D/C | 130 kms |
| ii) | LILO of 400 kV Gandhar-Padghe S/C line at Valsad | D/C | 30 kms |
| iii) | 400/220 kV Valsad S/S | - | 2x315 MVA, 400/220 kV Auto Trf.
- 4 Nos. 400 kV line bays
- 4 Nos. 220 kV line bays |

2. Transmission system Associated with Gandhar Stage-II

Chief Engineer (SP&A) stated that Stage-II of Gandhar with 650 MW had recently been accorded techno-economic clearance of CEA. As a part of the evacuation system from Stage I of the Project, the following transmission system was existing:

- i) Gandhar -Bharuch 220 kV D/C
- ii) Gandhar-Dehgam 400 kV D/C
- iii) Gandhar-Padghe 400 kV S/C

System studies had been carried out by CEA to identify the transmission system required for evacuation of the full capacity from Stage-I&II. The studies indicate that with the redundancy already available with the transmission system planned under Stage-I only the following additional requirements would need to be implemented:-

- i) LILO of the Gandhar-Dehgam 400 kV S/C at Kasoor near Karamsad.
- ii) 220 kV Gandhar-Mobha D/C line.

A 400 kV substation at Kasoor near Karamsad was already under implementation by Gujarat Electricity Board and only line bays required for LILO would be covered under the project. Regarding 220 kV Gandhar-Mobha D/C line, Chief Engineer(SP&A) stated that a 220 kV substation at Mobha is already covered under GEB's-Mangrol Transmission Project. This line would be required to meet the

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outage of Gandhar-Bharuch 220 kV D/C line. CE(SP&A) requested for the comments of the participants.

Representatives of POWERGRID, Gujarat State Electricity Board, NTPC & MPEB were in agreement with the proposal.

Superintending Engineer, MSEB stated that since this line would be required to meet the needs of Gujarat, the 220 kV line to Mobha would need to be covered under GEB not under regional project. Chief Engineer (SP&A) clarified that this line was required to meet the outage of 220 kV Gandhar-Bharuch D/C line and should be covered under the Central Sector. MSEB however, did not agree with the proposal.

3. Provisions of Reactive Compensation in the Grid.

C.E. (SP&A) stated that it was observed by CEA that the existing transmission facilities in the country were not being used optimally due to very poor voltage profile in the grid. This was primarily due to inadequate reactive compensation provided in the grid. Though the need for providing shunt capacitors was recognised, SEBs were not able to give adequate priority to this vital area due to resource crunch. In order to augment the efforts of SEBs it was proposed that the Central Sector would also be involved in the area for providing reactive compensation. Towards this end Central Electricity Authority had recently finalised certain guidelines for provision of reactive compensation which have been circulated to all the SEBs and Central Sector agencies. The guidelines circulated by Central Electricity Authority cover the following proposals:

- Reactive compensation to the extent of 75% of the new generation capacity to be added in the grid would need to be provided as a part of the associated transmission system.
- In the case of projects being implemented by SEBs and IPPs, the necessary reactive compensation would need to be covered as a part of the associated transmission system to be implemented by SEBs.
- In the case of Central Sector projects, the requisite reactive compensation would be covered as a part of the associated transmission system to be implemented by POWERGRID.
- POWERGRID would install the shunt capacitors in the beneficiary states in proportion to their share in the generation project.

Chief Engineer (SP&A) stated that as POWERGRID would not be in a position to implement the required shunt capacitors at 11/33 kV. It was proposed that POWERGRID would install the capacitors at 132kV or 66kV Substations. He, therefore, requested the SEBs to identify a few substations where POWERGRID could install capacitors. The provision of capacitors would be a one time effort by the POWERGRID and the subsequent O&M would be the responsibility of the SEBs.

Superintending Engineer, Gujarat Electricity Board stated that Gujarat had already taken up action for providing adequate shunt capacitors in the grid and as such the need for additional compensation provided by POWERGRID would need to be examined.

Chief Engineer, MPEB agreed with the proposal. Suptg. Engineer, MSEB stated that MSEB were agreeable in principle provided the cost of capacitors installed in the States would only be apportioned in the transmission charges.

Chief Engineer (SP&A) stated that the present proposal was only to supplement the efforts of the SEBs and he requested the SEBs to indicate the substations where POWERGRID would take up installation of capacitors at the earliest so that the proposals can be formalised.

AGM, POWERGRID stated that the POWERGRID had already taken action to standardise the specification and layout for shunt capacitors and requested the SEBs not to ask POWERGRID to comply with the respective states' standards/specifications as this would create problems in timely commissioning of the project.

LIST OF PARTICIPANTS

Central Electricity Authority

1. Sh. V. Ramakrishna, Chief Engineer (SP&A)
2. Sh. V.J. Talwar, Director (SP&A)

In Chair

Nuclear Power Corporation, Mumbai

1. Sh. S.K. Tiwari, Suptg. Engineer
2. Sh. N. Sankaranadaya, Suptg. Engineer
3. Sh. W. A. Dharmar Addl. Chief Engineer

Gujarat Electricity Board, Baroda

1. Sh. B.M. Patel, Suptg. Engineer(Transmission)

Madhya Pradesh Electricity Board

1. Sh. R.P. Bhatia, Executive Engineer (PSD)
2. Sh. N.K. Sharma, Executive Director (T&P)

Western Regional Electricity Board

1. Sh. L.K. Wasnik, Suptg. Engineer(O)
2. Sh. M.R. Singh, Executive Engineer
3. Sh. S. Satyanarayan, Asstt. Director

Maharashtra State Electricity Board

1. Sh. S. M. Muzumdar, Suptg. Engineer
2. Sh. C.M. Khandekar, Executive Engineer

National Thermal Power Corporation

1. Sh. N.N. Misra, Dy. General Manager (Elect.)

Goa Electricity Department

1. Sh. K.P. Pothen, Executive Engineer

Power Grid Corporation of India Ltd.

1. Sh. V.K. Prashar, Asstt. General Manager (Engg)
2. Sh. Y.K. Sehgal, Chief Design Engineer (Engg)

