

N.R.E.B.

**SUMMARY RECORD OF DISCUSSIONS
OF THE MEETING TAKEN BY CHAIRPERSON, CEA
TO DISCUSS USE OF RLNG AT GAS STATIONS AND PROCUREMENT OF
SPARE CONVERTER TRANSFORMERS AT RIHAND-DADRI HVDC LINE
ON 9TH FEBRUARY 2005 AT 1230 HRS AT CHANDIGARH**

- 1.0** The list of participants is enclosed at **Annex-I**.
- 2.0** Shri B.K. Misra, Member Secretary, NREB welcomed Shri H.L. Bajaj, Chairperson, CEA and Shri S.P. Singh Raghav, Chairman, NREB cum CMD, UPCL and other dignitaries. He informed that two important issues namely i) use of RLNG as secondary fuel in place of Naptha/HSD in NCR gas power stations and ii) procurement of 2 nos. converter transformers by PowerGrid had been deliberated at NREB for a number of times without any concrete conclusion. PowerGrid and state utilities have requested the use of good offices of Chairperson, CEA for amicable settlement of the issues.
- 3.0** Shri S.P. Singh Raghav, Chairman, NREB thanked Shri Bajaj, Chairperson, CEA for calling this meeting (background note on the items for deliberations circulated in the meeting) and hoped that with the gracious presence of his good self constituents of NREB would be benefited in arriving out a consensus views.

ITEM-1: Under-utilization/non-utilization of gas based generation capacity – Use of RLNG in place of Naptha/HSD in the NCR Gas Power Stations.

- Shri B.K. Misra, Member Secretary, NREB stated that the issue of under utilization of gas based generation capacity at NTPC stations was long pending one and had been discussed at various fora in the past. Recently, the subject had been discussed in 132nd TCC meeting held on 29.10.04, Special meeting taken by Chairperson, CEA on 29.11.04 and in the meeting taken by Joint Secretary (OM), MoP on 2.12.04. The view of beneficiary states and NTPC in this regard had been given in the background note circulated in the meeting. Therefore, Constituents might deliberate the relative merits and demerits of endeavour of NTPC management of long term sustainable pricing of RLNG for power generation vis-a-vis proposal of Haryana of its direct negotiation with GAIL on behalf of all the constituents for using RLNG in gas power stations of NTPC at the present offered price of M/s GAIL and also decide the time frame for arriving at logical conclusion in regard to long-term and short-term strategies for enhancement of natural gas allocation and procurement of RLNG to augment the shortfall in gas allocation.
- HVPN stated that by using RLNG instead of Naptha/HSD at the present offered price of GAIL, the variable cost works out to be Rs.1.70 per kWh against naptha/HSD rate of Rs.3.63/4.83 per kWh there would be saving of over Rs. 2-3 per kWh. In terms of daily liquid fuel scheduling being given by Haryana alone, the net saving would be nearly Rs. 1 crore per day and about Rs.5 crores/day for all beneficiaries. It is also mentioned that the PPA clause on Tariff for Faridabad GPS provided that NTPC

would make reasonable efforts to use the cheapest fuel available and HSEB (now HVPN) would assist in this endeavour. To substantiate that GAIL was ready to offer RLNG to Haryana, HVPN brought Shri Wason, Regional Manager, GAIL in the meeting. Shri Wason confirmed that there was no shortage of RLNG and the same could be provided to any beneficiary at the current price. NTPC requested HVPN to ask GAIL to provide RLNG to NTPC instead of individual constituents for NTPC gas stations.

- PSEB stated that during the July-December'04, had RLNG been used in place of Naptha/HSD at Anta, Auraiya and Dadri gas stations of NTPC, states would have saved around Rs.395 crores. He further stated that in the last TCC/NREB meeting held in Oct.'04, NTPC had agreed to call a customer meet at Delhi in one month but even after 3 months NTPC had not called customer meet. DTL confirmed that they were using RLNG at their gas stations at present offered price of GAIL.
- NTPC stated that gas availability at Dadri GPS was about 60-65% of its full requirement whereas in case of Faridabad GPS it was around 80-85% of its full requirement. Therefore, in case of enhancement in gas/RLNG allocation NTPC will prefer to give it first to Dadri. NTPC stated that a letter was written to GAIL in August'04 in regard to availability of RLNG but no response was received. He agreed to negotiate with GAIL immediately in the presence of one or two states representatives.
- **Chairperson, CEA opined that keeping in view the poor financial status of State's Electricity Deptt., NTPC immediately should explore possibilities of using RLNG at its gas stations. He further stated that in case some states arrange RLNG at NTPC gas stations by way of entering direct negotiation with GAIL then NTPC could use it by charging processing fee. Chairman, NREB agreed with the opinion of Chairperson, CEA. NTPC requested that they would be shortly holding a customer meet of NR constituents in which views could be exchanged and decided upon.**

ITEM-2: Procurement of 2 nos. additional spare Converter Transformers for Rihand-Dadri HVDC line

- MS, NREB while giving the brief history of performance of converter transformers stated that as on day there are 15 single-phase converter transformers (12 for online and 3 as spare) for Rihand-Dadri HVDC line. Out of 12 converter transformers, 6 transformers of ABB make (3 for each end, procured for Pole-I) and 6 transformers of BHEL make (3 for each end, procured for Pole-II) are installed. Along with 6 nos. ABB make converter transformers, 2 spare converter transformers of ABB make, one each for Dadri and Rihand ends respectively was also procured. The 3rd spare converter transformer of BHEL make was procured in 1998 and its cost was capitalised in the transmission tariff. The records reveal that performance of BHEL transformers was not very satisfactory. Instances of repeated failure of BHEL make transformers had been taken up by PowerGrid with BHEL management and also referred to CEA/MoP to use their good offices. As a result, M/s BHEL had agreed to supply one converter transformer free of cost, to be used as 4th spare converter transformer and the same was expected to reach the site by end of Feb.'05.

- The request of procurement of spare converter transformers from M/s ABB by PowerGrid was first discussed in 125th NRE Board meeting held on 7.7.2001 and the same was reviewed in Board meetings and various fora of NREB from time to time. While there was a consensus that the HVDC Rihand-Dadri line being the lifeline of Northern Regional Grid and its healthiness at all times is very essential. Regarding procurement of additional converter transformers, Board had opined that the constituents would not bear the cost of these additional spare transformers. PowerGrid will have to bear the entire cost on this account. Therefore it is for PowerGrid to decide the number of additional units to be procured and also to identify the supplier. Regarding recovery of charges through tariff, it was for CERC to decide.
- PowerGrid made a presentation and stated that Rihand–Dadri HVDC link was executed by BHEL in collaboration with ABB, Sweden. BHEL had executed this project under technology transfer from ABB and the award was made on BHEL/ABB with the twin objectives of importing latest technology at competitive prices and at the same time developing technical know-how indigenously. The line came in commercial operation in 1990-91 and within 3 years, failures of BHEL make converter transformers started. Three converter transformers at Rihand end and one at Dadri end (total 4 nos.) of Pole-II had failed at regular intervals and there had been total 14 numbers of failures till date. PowerGrid made a presentation on the failure of converter transformers. List of update failures as provided by PowerGrid is placed at [Annex-II](#).
- PowerGrid further stated that the technology transfer from ABB Sweden to BHEL India was executed with a view to reduce the capital cost of the project and at the same time developing an Indian vendor for the future maintainability of the project. It was expected that BHEL would be self sufficient in adopting this technology and would be in a position to cater to the need of the Indian grid at appropriate time. Although technology transfer to India in various other fields have been successful, yet unfortunately the same could not be true for Converter Transformers and therefore further failures of converter transformers cannot be ruled out keeping in view the performance of repaired units so far. Moreover, opening and repairing the transformers again and again in BHEL factory is detrimental to their life spans and these are not expected to perform satisfactorily upto their normal life span after the repeated repair attempts.
- Considering the importance of Rihand-Dadri link as the life line of power to the National Capital Region of Delhi and adjoining areas, the time taken for commissioning and de-commissioning of spare Converter Transformers in the event of failures, the time and effort devoted towards rectification and finally the colossal amount wasted in terms of consequential damages to the end user, **PowerGrid stated that it would be prudent to gradually phase out the Converter Transformers of BHEL make with the help of ABB make Converter Transformers, which do not have any failure history at Rihand and Dadri.** At present out of seven nos. of BHEL make converter transformers; the two transformers of Dadri had never failed and with these two and 8 nos. ABB make transformers there are 10 nos. of converter transformers, which had never failed. PowerGrid requested that they might be allowed to procure two numbers of ABB make converter transformers along with all accessories and spare bushings so that there would be trouble free 12 nos. converter

transformers which would be used for online operation for ensuring reliability of HVDC Rihand–Dadri system. The cost of the expenditure incurred would be realised through tariff from Northern Region constituents. The two converter transformers of ABB make would cost around 74 crores and the expected delivery period is 2 years.

- PSEB requested PowerGrid to clarify whether procurement of two new converter transformers would be replacement of old assets or these would be altogether new assets because in case of replacement of old assets, only the marginal increased cost would be borne by the constituents and in case of new assets the complete cost would have to be borne by beneficiaries. PowerGrid stated that the procurement of two new converter transformers would be altogether new assets and to this PSEB did not agree.
- DTL while agreeing with PSEB stated that since Rihand-Dadri link is 14 years old, procurement of two converter transformers could not be considered as new assets. HVPNL stated that it is for PowerGrid to decide the number of additional units to be procured and also to identify the supplier and PowerGrid need not come to constituents for their approval. Regarding recovery of charges from constituents through tariff, it would be for CERC to decide where constituents could also make their views available on recovery of charges through tariff. RVPN stated that PowerGrid had earned 42 crores and 50 crores as incentive for higher than minimum stipulated line availability in the years 2002-03 & 2003-04 respectively and let the cost of new converter transformers be recovered from this.
- BBMB opined that technically procurement of 2 nos. of converter transformers was required. All constituents unanimously agreed with BBMB as far as technical need for converter transformers was concerned.
- Shri R.K. Jain, Member, CEA opined that there could two options on procurement of 2 nos. converter transformers i.e. consider them as initial spares whose full cost could be capitalized or as replacement of old assets where the accrued depreciation could be considered in calculation of tariff.
- Chairperson, CEA stated that reliability of transmission system is very important particularly in view of addition of generation capacity as well as increase in demand. He stated that there was a need for procurement of 2 nos. spare converter transformers and keeping in view the past performance of BHEL the best option would be of PowerGrid's proposal of ABB make which had not failed.
- **After deliberations, Chairperson, CEA requested Chairman, NREB to decide the issue. Chairman, NREB, keeping in views expressed by constituents, decided that POWERGRID should not delay the technically required procurement of 2 nos. converter transformers from ABB and approach CERC for deciding alternatives viz., (i) 2 nos. converter transformers to be treated as additional new assets and additional capitalization shall be allowed for tariff or (ii) 2 nos. converter transformers to be treated as replacement of old assets and cost of the depreciated value of old assets shall be deducted from new assets or (iii) any other methodology considered fit by CERC for allowing tariff on hearing the views of PowerGrid and beneficiary states.**

**LIST OF PARTICIPANTS IN THE
SPECIAL MEETING TAKEN BY CHAIRPERSON, CEA
ON 9.2.05 AT CHANDIGARH**

ORGANISATION	NAME & DESIGNATION
CEA	S/Shri H.L. Bajaj, Chairperson, CEA – In Chair R.K. Jain, Member (Thermal) R.C. Nukul, CE
NREB	B.K. Misra, MS A.K. Malik, SE (O) Naresh Bhandari, EE
UPCL	S.P.S. Raghav, CMD & Chairman, NREB
PSEB	H.C. Sood, Member (Distribution) Padamjit Singh, Advisor V.K. Gupta, Consultant T.P.S. Bawa, OSD (Comml.)
HVPNL	Samir Mathur, MD R.K. Jain, Director (T)
RRVNL	K.L. Vyas, Director (P&R)
DTL	S.R. Sethi, Dir (Opn)
BBMB	Rakesh Nath, Chairman
POWERGRID	J. Haque, Director (Opn.) D.G. Sohony, ED N.S. Soda, AGM
NTPC	R.S. Sharma, Director (Comml.) V.B.K. Jain, GM T.R. Sohal, GM A.K. Garg, DGM R. Bhagat, DGM S. Sharma, SM

Annex-II

History of R-D HVDC Converter Transformer Failure					
Sl. No.	Date of failure of conv. Transf.	Sl. No of conv transf	Place & Type of failure	Duration of outage of pole	Remarks
1	15.07.94	6004906	Rihand, Delta winding	21 days	One spare unit utilised as replacement
2	15.10.96	6004875	Dadr, primary star winding	20 days	One spare unit utilised as replacement
3	29.12.97	6004905	Rihand, Delta winding	16 days	Repaired spare unit utilised as replacement
4	22.01.98	6004904	Rihand, Delta winding	50 days	No spare was available at Rihand, pole gone under forced outage till the failed unit of Dadr reached to Rihand after repair from BHEL. In 114th NRE Board meeting held on 15 th January '98 a decision was taken to purchase 3rd spare unit for Rihand looking to High failure rate of Conv Transformers at Rihand
5	04.01.00	6004906	Rihand, Delta winding	11 days	Repaired spare unit utilised as replacement
6	15.11.00	6004904	Rihand, Delta winding	6 days	Newly purchased spare unit from BHEL available at Rihand utilised as replacement
7	14.12.00	6004875	Dadr, Delta winding	4 days	Repaired spare unit utilised as replacement
8	18.12.00	6004905	Rihand, Star winding	131 days	No spare was available at Rihand, pole gone under forced outage till the failed unit of Rihand received back to Rihand after repair from BHEL
9	26.06.01	6005734	Rihand, OLTC	12 days	Pole-2 was out for conv transf failure. Pole-1 also tripped on 02.07.2001.
10	20.03.02	6004906	Rihand, Star winding	2 days	Repaired spare unit utilised as replacement
11	02.09.02	6005734	Rihand, Star winding	3 days	Repaired spare unit utilised as replacement
12	28.10.02	6004905	Rihand, Star winding	38 days	No spare was available at Rihand despite 3 spare units all were under repair at BHEL works. The pole gone under forced outage till the failed unit of Rihand received back to Rihand after repair from BHEL
13	24.11.03	6004904	Rihand, Star winding	8 days	Repaired spare unit utilised as replacement
14	27.10.04	6004906	Rihand, Star winding	8 days	Repaired spare unit utilised as replacement