



Government of India
Ministry of Power
Central Electricity Authority
Sewa Bhawan, R.K. Puram
New Delhi – 110 066



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No. 100/11/REC-4/2013/

Dated: 30-September-2013

To

The Secretary,
Central Electricity Regulatory Commission,
3rd & 4th Floor, Chandra Lok Building,
36 Janpath, New Delhi-110001
(Tele No: 23353503, Fax No: 23753923)

Subject: Application under Section 63 of the Electricity Act 2003 for adoption of transmission charges and grant of inter-State transmission licence with respect to the transmission system being established by the Vemagiri Transmission System Limited (a 100% wholly owned subsidiary of Power Grid Corp. of India Ltd.)

Ref: (i) CERC's letter in regard to Petition No. 127/2012 and 128/2012 dated 28.06.2013
(ii) CERC's order dated 09.05.2013 in Petition No. 127/2012 and 128/2012
(iii) CERC's letter dated 21.8.2013 in Petition No. 127/2012, 128/2012 and 156/2012

Sir,

1. Reference is invited to CERC's order dated 09.05.2013 in which CERC under Para 20 has inter-alia observed the following:

".....The petitioner has represented that with the time overrun it will not be possible to implement the transmission system within the capital cost commensurate with the quoted tariff and has accordingly sought increase in the transmission charges with the increased capital cost when implemented. The capital cost considered by the petitioner while quoting tariff is not known to any person except PGCIL itself. Therefore, it will be difficult to assess the impact of cost overrun on the transmission charges, even if time extension is permitted. In view of the uncertainties and other difficulties being envisaged, no useful purpose is likely to be served by adopting the transmission charges and granting licence to the petitioner for inter-State transmission of electricity. The petitioner itself does not seem to be very keen to implement the transmission system in the present phase of

*uncertainty unless it is assured of recovery of the transmission charges. There is, according to us, an imperative need to review the requirement of transmission network needed for evacuation of power of the generating stations being or to be established in Vemagiri area in the light of present day developments. There is also a need to examine the possibility of reconfiguring the required network in the southern Region based on expected generation and the load and some elements of the transmission system may be combined with the other transmission systems being built/proposed to be built in the Region, if required. **The Central Electricity Authority and the Central Transmission Utility are directed to undertake necessary review and reexamination of the entire matter afresh and file their decision/views in the matter by 31.05.2013.***

2. As the matter was required to be discussed in the Standing Committee on Power System Planning of Southern Region (SCPSPSR) before having any view in the matter, CEA on 09-July-2013 had sought time extension for submitting its reply. Accordingly, as directed by the Hon'ble CERC, it is submitted that the transmission system from Vemagiri was reviewed in consultation with the constituents of Southern Region and Central Transmission Utility i.e. Power Grid Corporation of India Ltd. (PGCIL) in the 36th meeting of the "Standing Committee on Power System Planning of Southern Region" held on 4th September, 2013.

Extract from the Minutes of the 36th Standing Committee:

3. Following is the extract from the minutes of the 36th meeting of the Standing Committee:

"11.0 Transmission system for increasing import of power into Southern Region

11.1 Director(SP&PA), CEA stated that SR may have a shortage of 11000 MW by the end of the 12th Plan i.e. 2016-17. To enable import of power of this order, system studies were carried out to plan (i) additional links connecting SR with WR and (ii) system strengthening within SR for transmitting power beyond the import points of Vemagiri and Hyderabad.

11.2 DGM(CTU), PGCIL informed that joint studies were conducted by CEA and CTU in association with TANTRANSCO, APTRANSCO and KPTCL and comprehensive requirement of transmission system augmentation were included in the agenda. It was informed that earlier a comprehensive high capacity Common Transmission System associated with gas based ISGS projects in Vemagiri area of Andhra Pradesh was evolved for evacuation & transfer of power to their target beneficiaries which inter-alia comprised of 2 Nos 765 kV D/c lines from Vemagiri to Hyderabad which was extended by 765 kV D/c line from Hyderabad to Wardha and Wardha to Jabalpur. Subsequently the generation project developers have informed that the Govt. of India has issued an advisory not to plan any additional gas based power project till 2015-16 due to short fall in the gas production. The deferment of gas based generation projects coupled with delay/deferent of large no. of generation

projects including Krishnapatnam UMPP has changed the entire scenario wherein instead of projected surplus situation earlier, the Southern Region may have large deficit. CERC has also directed CEA and CTU to reexamine the entire matter afresh.

11.3 During the discussions it was brought out that the Southern Region would be deficit of power due to high load growth and the fact that some of the planned generation projects, like Krishnapatnam UMPP, Ind Barath, Yermarus, Edlapur, Kalpakkam, Udangudi, Cheyyur UMPP, etc are not materializing/ getting delayed. It was assessed that the Southern Region would have deficit of 7000 to 11000 MW of power by 2016-17. The details of expected power supply position by 2016-17 under various scenarios are as under:

Sl. No.	Items	Optimistic generation additions (MW)	Pessimistic generation additions (MW)
1.	Existing Capacity	42952	42952
2.	Existing Availability	32428	32428
3.	Capacity addition from new generation projects	22380	17230
4.	Availability from new generation projects	19544	15760
5.	Total Availability	51972	48188
6.	Projected Demand (2016-17)	57221	57221
7.	Import (-) / Export (+)	(-) 5249	(-) 9033
8.	Import from Talcher Generation	2000	2000
9.	Net Import (-) / Export (+)	(-) 7249	(-) 11033

Raigarh (Chhatisgarh) – Pugalur (Tamil Nadu) WR-SR HVDC Bipole Link -regarding

11.4 Regarding the proposal of a HVDC line from Raigarh, in Chhatisgarh to a suitable location in Southern Region, the following system, as given in the agenda, was agreed:

System Strengthening – HVDC bipole link

- (i) Raigarh Pooling Station – Pugalur(a new HVDC Station) 4000 MW HVDC bipole line. (This bipole line would be in place of the Raigarh – Dhule 4000 MW HVDC line that was earlier planned)
- (ii) Pugalur Pooling Station – Pugalur Existing 400kV (quad) D/c line
- (iii) Pugalur Pooling Station – Arasur 400kV (quad) D/c line
- (iv) Pugalur Pooling Station – Thiruvalem 400kV (quad) D/c line
- (v) Pugalur Pooling Station – Edayarpalayam 400kV (quad) D/c line
- (vi) Edayarpalayam – Udumalpet 400kV (quad) D/c line

- (vii) *Establishment of 400/220kV substation with 2x500 MVA transformers at Edayarpalayam*
- (viii) *HVDC terminal stations at Raigarh Pooling station and Pugalur(New) station of 4000 MW capacity each.*

11.5 *COO(CTU), PGCIL observed that in view of large deficit and requirement of transmission system to meet market requirements, the HVDC should be implemented with a capacity of 6000 MW. This shall also be prudent considering conservation of RoW and utilization of spares & expertise already developed for ± 800 kV, 6000 MW HVDC bipole.*

11.6 *CEO, POSOCO said that economic analysis considering cost of such large investment in this system vis-à-vis savings due to cheaper power that may be available in Chhattisgarh and its impact on the POC charges to the States of Southern Region should be assessed.*

11.7 *Director (SP&PA), CEA stated that the studies included in the present agenda were carried out for the 4000 MW HVDC capacity. As such, we would have to carry out the studies to assess - the need for 6000 MW for HVDC bipole, adequacy of total evacuation system from Chhattisgarh, dispersal of power beyond Pugalur & other system strengthening to cater to contingency of outage on such a high capacity link and other requirements as per the transmission planning criteria.*

11.8 *Chairperson, CEA was of the view that in consideration of RoW constraints and fast growing demand of SR it would be desirable to plan this link as 6000 MW capacity HVDC and additional strengthening should be studied and put up for discussion in the next meeting of the Standing Committee. The same was agreed.*

System strengthening within Southern Region - regarding

11.9 *To increase capacity of the transmission system for importing power in SR and as suggested by CERC, various alternatives were studied and discussed in the Standing Committee meeting. The various alternatives taken up for discussions during the meeting are given below:*

Alternative- 1:

- i) *Vemagiri – Khammam– Hyderabad 765kV D/C line (This transmission line is already awarded through TBCB)*
- ii) *Hyderabad - Kurnool 765 kV D/C line*
- iii) *LILO of Kurnool - Thiruvalem 765kV D/C line at Cuddapah*
- iv) *Cuddapah - Salem 765kV D/C line*
- v) *Cuddapah – Hindupur 400 kV (quad) D/C line*
- vi) *Cuddapah – Hoody 400kV (quad) D/C line*

- vii) *Establishment of 765/ 400 kV sub-stations at Cuddapah with 2x1500 MVA transformers*

Alternative- 2:

- i) *Vemagiri – Chilakaluripeta – Cuddapah – Salem 765 kV D/C line*
- ii) *Chilakaluripeta – Podili 400 kV (quad) D/C line*
- iii) *Cuddapah – Hindupur 400 kV (quad) D/C line*
- iv) *Cuddapah – Hoody 400 kV (quad) D/C line*
- v) *Establishment of 765/400 kV sub-stations at Chilakaluripeta and Cuddapah with 2x1500 MVA transformers each*
- vi) *Establishment of 400/220 kV sub-stations at Podili 2x315 MVA transformers each*

Alternative- 3:

- i) *Vemagiri – Khammam– Hyderabad 765 kV D/C line (This transmission line is already awarded through TBCB)*
- ii) *Hyderabad - Kurnool 765 kV D/C line*
- iii) *LILO of Kurnool - Thiruvalem 765kV D/C line at Cuddapah*
- iv) *Vemagiri – Chilakaluripeta – Cuddapah – Salem 765kV D/C line*
- v) *Chilakaluripeta – Podili 400 kV (quad) D/C line*
- vi) *Cuddapah – Hindupur 400 kV (quad) D/C line*
- vii) *Cuddapah – Hoody 400 kV (quad) D/C line*
- viii) *Establishment of 765/400 kV sub-stations at Chilakaluripeta and Cuddapah with 2x1500 MVA transformers each*
- ix) *Establishment of 400/220 kV sub-stations at Podli 2x315 MVA transformers each*

11.10 Director(SP&PA), CEA stated that both the Alternative-1 and Alternative-2 can independently fulfill the requirement of import of transmitting the power from the proposed gas injections at Vemagiri / import through Angul –Srikakulam –Vemagiri 765 kV D/C line. The Alternative-3 which is a superset of other two alternatives satisfies both the requirements and provides additional reliability.

11.11 DGM(CTU), PGCIL stated that the delay / deferment of generation projects has mostly taken place in the southern part of the grid thereby requiring power flow towards Tamil Nadu. It is prudent to strengthen corridor down south rather than the alternative towards Hyderabad. Accordingly, CTU proposed to defer implementation of Vemagiri-Khammam-Hyderabad 765kV lines till there is a clarity on availability of gas based generation projects in Vemagiri area of Andhra Pradesh and the Alternative-2 may be agreed for strengthening of Southern Region grid to facilitate dispersal of power to be imported through Angul – Srikakulam – Vemagiri corridor beyond Vemagiri.

11.12 CEO, POSOCO stated that Vemagiri – Khammam – Hyderabad 765kV D/C line shall interconnect two transmission corridors from Eastern and Western Regions,

hence should also be implemented for reliability purpose as part of Alternative-3. Director (SP&PA), CEA stated that some of the post-award activities for this line, which is awarded to a company of PGCIL, have already been completed.

11.13As such a consensus regarding resuming the implementation / deferment of the first Vemagiri – Khammam – Hyderabad 765kV D/C line could not be reached in the meeting.”

Efforts being made for availability of gas supplies

4. In regard to increasing availability of gas for power generation, it is understood that the government is seized of the matter and is trying to arrange domestic gas as well as RLNG for the stranded gas based generation capacity. Therefore, there is a possibility of gas based projects like Samalkot and GMR coming into operation in near future. In this regard, various possibilities such as - allocation of gas from new finds to Power Sector and blending of the domestic gas with RLNG are being explored. The following is the likely availability of the new domestic gas from ONGC and GSPL for the next 3 years:

Year	Availability of Gas (MMSCMD)
2013-14	1.125
2014-15	5.105
2015-16	12.0

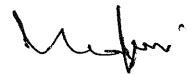
5. It may be noted that the 768 MW GMR and 2400 MW Samalkot projects at Vemagiri were conceived and taken up for implementation prior to GOI's advisory of not to plan any additional gas based projects till 2015-16.
6. Further, on the request of Ministry of Power, a team of CEA has recently visited Andhra Pradesh for assessing preparedness of gas based power projects in the Vemagiri area. They have found that 2 x 384 MW Vemagiri Expansion of GMR is already synchronized. Out of 2400 MW of Samalkot Project of Reliance, 4 x 265 MW Gas Turbines (GTs) have been synchronized and the remaining two GTs are likely to be synchronized by December, 2013. The orders for 3 x 270 MW Steam Turbines (STs) have also been placed.
7. The supply of gas may further improve with ramping up of production at KG basin.

Views of CEA:

8. The first Vemagiri – Khammam - Hyderabad 765kV D/C line was awarded to PGCIL for implementation and the SPV was acquired by it in April, 2012. As such the scheduled

commissioning date for this line was April, 2015. Pre-award activities for this line have been completed and some of the post award activities have already been undertaken. The transmission developer has already applied to CERC for adoption of tariff and issue of transmission licence. Thus, the Vemagiri – Khammam - Hyderabad 765kV D/C line may be completed earlier than any new line that may be planned for evacuation of power beyond Vemagiri. The completion of this line would enable evacuation of power from gas based projects in Vemagiri / import of power from Eastern Region into Southern Region, as brought out above.

9. Therefore, it is opined that the Vemagiri – Khammam - Hyderabad 765kV D/C line that is already awarded to PGCIL may be implemented as soon as possible.
10. The planning for the additional transmission system to cater to the entire power injection at Vemagiri shall be carried out after further consultation with the constituents of Southern Region.



(M. S. Puri)
Secretary, CEA