

Annex Tumkur In-principle(Phase-I)

- 1)Minutes of the meeting held on 16-12-2015
- 2)In-principle Approval_Tumkur Phase-I



Government of India
Ministry of Power
Central Electricity Authority
PSP & PA- I Division
Sewa Bhawan, R.K. Puram, New Delhi – 110066



Website: www.cea.nic.in

No: 51/4/PSPA-II-2015/546-50

Date: 22-Dec -2015

To

1. The Member Secretary, Southern Regional Power Committee, 29, Race Course Cross Road, Bangalore 560 009. FAX : 080-22259343	2. COO(CTU-Planning) Power Grid Corp. of India Ltd. “Saudamini”, Plot No.2, Sector-29, Gurgaon 122 001, Haryana. FAX : 95124-2571932
3 ED, SRLDC, 29, Race Course Cross Road, Bangalore 560 009 FAX – 080-22268725	4. The Director (Transmission), Karnataka State Power Trans. Corp.Ltd., Cauvery Bhawan, Bangalore - 560 009. FAX : 080 -22228367

Subject: Minutes of meeting held in CEA on 16.12.2015 to discuss the transmission system for evacuation of power from Tumkur Ultra Mega Solar Park (2000 MW).

Sir/ Madam,

The meeting on “the transmission system for evacuation of power from Tumkur Ultra Mega Solar Park (2000 MW)” was held under the chairmanship of Member (PS), CEA, on 16th December, 2015, in CEA.

The minutes of the meeting is enclosed herewith.

This issue with the approval of Member (PS), CEA.

Yours faithfully,

-sd/-

(Pardeep Jindal)
Director (PSPA-II)

Copy to: CEO(POSOCO),B-9, Qutub Institutional Area, Katwaria Sarai, N Delhi

Minutes of the meeting held in CEA on 16.12.2015 to discuss the transmission system for evacuation of power from Tumkur Ultra Mega Solar Park (2000 MW)

1. Member (Power System), CEA welcomed the participants and asked Director (PSPA-II) to appraise the issue and initiate the discussion. List of participants is given at Annex-I.
2. Director (PSPA-II) informed that the transmission scheme for evacuation of power from Tumkur Ultra Mega Solar Park of 2000 MW capacity at Pawagada in Karnataka, was evolved through joint studies by CEA, CTU and KPTCL. This scheme is also included in the agenda for discussion of the 39th meeting of the Standing Committee of Power System Planning of Southern Region to be held on 28-29 December, 2015. Earlier this meeting was scheduled to be held on 7-8 December, 2014 but due to flood situation in Chennai, the meeting has been postponed to 28-29 December, 2015. PGCIL vide their letter C/SG/06/TUMKUR dated 7th December, 2015 has requested CEA to give 'in-principle' approval for "Transmission system of Tumkur Ultra Mega Solar Power Park in Karnataka" so that various implementation activities can be taken up, keeping in view the short gestation period of solar generation. He further said that this meeting has been called up so that we can take a view regarding in-principle approval for the transmission scheme after discussing various issues involved in this scheme.
3. Director (Trans.) KPTCL, said that there are Right of Way issue around Tumkur, Hiriyyur and Mysore and therefore, the phasing of transmission system should be carried out very carefully. He said that the Davengiri – Hiriyyur -Nilamangla 400 kV transmission line is an important line for feeding power to Bangalore. He said that Tumkur – Hiriyyur transmission link should be reconsidered because this line would cause overloading on the Hiriyyur – Neelamangala 400 kV D/c line .
4. DGM(SRLDC/POSOCO), also supported that any injection into Hiriyyur would cause overloading on Hiriyyur – Neelamangla section.
5. Director (PSPA-II), CEA informed that in the ultimate configuration, the Tumkur – Hiriyyur link may be opened and connected with the Hiriyyur – Mysore line forming a direct connection between Tumkur and Mysore. He reiterated that the Tumkur – Hiriyyur line is being considered only as an interim arrangement because of paucity of time as the solar generation project is coming very fast.
6. Chief Manager, PGCIL informed that Tumkur Phase-I (1000 MW) generation is scheduled to be commissioned by Sep'17 and the Phase-II by September 2018. He also informed that the solar power developer has now informed that out of 2000 MW, 1600 MW shall be consumed by Karnataka DISCOMS against earlier 1100 MW. He, however, confirmed that, at present there is no PPA with KPTCL and, therefore, this is only a target region.
7. Director KPTCL confirmed that they will be buying 1600 MW from the solar park. He said that the load at Madhugiri (new) (Vasantanarasapura) may increase to about 600-700 MW

and, therefore, transformation capacity on Madhugiri (new) may be augmented. He also informed that the Bellary pooling station – Madhugiri (Vasantanarasapura) 400 kV D/c Quad line is under construction and would definitely be completed by December, 2016.

8. PGCIL said that as per the joint studies carried out earlier with KPTCL and CEA, the Tumkur – Hiriyur 400 kV line was not causing any adverse impact on the Hiriyur – Neelamangla section. Director, KPTCL replied that if Tumkur – Hiriyur is constructed then this should be linked with the UPCL – Kannur (Kerala) 400 kV D/c line otherwise it will cause the overloading in the system.
9. Based on above discussion, system studies were carried out and following emerged (the load flow results are given at Annex-2):
 - (i) If LILO of both the Gooty – Madhugiri 400 kV D/C and the Bellary pooling station – Madhugiri D/C(Quad) are carried out at Tumkur, there may not be a need for Tumkur – Hiriyur transmission link.
 - (ii) However, if Tumkur – Hiriyur transmission link is also implemented in first phase, it would not give any adverse impact on the Hiriyur – Neelamangala 400 kV section and on the contrary provides some relief to this section.
10. (i) Regarding provision of 220kV bays for terminating 8 Nos of 220kV D/C dedicated transmission lines i.e: total 16 bays (8 in Phase-I and 8 in Phase-II) at Tumkur Pooling Station, the matter was discussed in detail.

The issue here is whether the bay should be owned by the generator/ Solar Park Developer or whether they should be part of ISTS. It was observed that when an IPP builds (and owns) its DTL, the bays at ISTS terminating station are also owned by the IPP.

- (ii) It was brought out during discussion that, as the matter is still pending with CERC(as described below), we may agree to have the bays as ISTS subject to clarification /action by CERC.

PGCIL quoted following from the SOR of the Fifth Amendment to “Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-State Transmission and related matters Regulations, 2009” and “Central Electricity Regulatory Commission Grant of Regulatory Approval for execution of InterState Transmission Scheme to Central Transmission Utility Regulations, 2010”

“With regard to PGCIL suggestion to allow multiple injections with multiple drawals, it is clarified that the scheme for development of solar power park is such that there may be multiple generation developers within the park who shall be injecting at various points within the park and shall ultimately inject at interface with ISTS. Hence prima facie it will be treated as single injection at the

interface point with ISTS. The issues related to scheduling in this regard shall be dealt with by making necessary provisions in the IEGC through amendment”.

- (iii) Further as per Second Amendment to IEGC (dated 6th January, 2014) following is submitted regarding Connection Point and Pooling Station:

“Regulation 6.5.23 of the Principal Regulations shall be substituted as under: Page 6 of 7 “23. With effect from 15.7.2013, Scheduling of wind power generation plants would have to be done where the sum of generation capacity of such plants connected at the connection points (called Pooling stations) to the transmission or distribution system is 10 MW and above and connection point is 33 kV and above, for pooling stations commissioned after 3.05.2010. For capacity and voltage level below this, as well as for old wind farms (A wind farm is collection of wind turbine generators that are connected to a common connection point), it could be mutually decided between the Wind Generator and the transmission or distribution utility, as the case may be, if there is no existing contractual agreement to the contrary. The schedule by wind power generating stations (excluding collective transactions) may be revised by giving advance notice to SLDC/RLDC, as the case may be. Such revisions by wind power generating stations shall be effective from 6th time block, the first being the time-block in which notice was given. There may be one revision for each time slot of 3 hours starting from 00:00 hours of a particular day subject to maximum of 8 revisions during the day”

“2(iiii) Pooling Station means the sub-station where pooling of generation of individual wind generators or solar generators is done for interfacing with the next higher voltage level”.

11. After further discussion, following was decided in the meeting:

- (i) As the matter is slated to be discussed on 28-29 December, 2015, ‘in-principle’ approval only for phase-I may be considered.
- (ii) Following transmission system is included under Phase-I:
 1. LILO of 400kV Gooty – Madhugiri D/c at Tumkur (Pavagada) Pooling station.
 2. LILO of 400kV Bellary Pool – Madhugiri D/c (Quad) (both circuits) [KPTCL line] at Tumkur Pooling station.*
 3. Tumkur Pooling station - Hiriur 400 kV D/c.
 4. 3x500 MVA, 400/220KV Pooling station at Tumkur .
 5. 1x125MVAR bus reactor at 400/220KV Tumkur Pooling station .
 6. 220kV Bays(8 Nos) at Tumkur PS for solar interconnection- Implementation as ISTS is subject to resolving regulatory aspects as discussed in the meeting.

(iii) Following would be the transmission system in Phase-II(to be firm ed up in the SCPSPSR)

1. Hiri yur–Mysore 400 kV D/c line
2. Tumkur Pooling station- Devanhally (KPTCL)** 400kV D/c (Quad)
3. Augmentation of 2x500 MVA, 400/220KV transformer at Tumkur Pooling station
4. Third 400/220 kV, 500 MVA transformer at Madhugiri (new)
5. 1x125MVAR bus reactor (2nd) at Tumkur Pooling Station
6. 1x80 MVAR switchable Line reactor each at Mysore end of Hiri yur- Mysore D/c line
7. 220kV Bays (8 nos.) at Tumkur PS for solar interconnection- Implementation as ISTS is subject to resolving regulatory aspects as discussed in the meeting

* KPTCL would complete Bellary pooling station – Madhugiri line D/c (Quad) by December, 2016.

** KPTCL will complete establishment of 400/220 kV substation at Devanhally including inter-linking line at 400 kV and 220 kV before Phase-II at Ultra Mega Solar Park.

Annex-I

List of participants

Sl. No.	Name	Designation	Organization
1.	S D Dubey	Member(PS)	CEA
2.	Pardeep Jindal	Director	CEA
3.	Shivani Sharma	Dpty Director	CEA
4.	Anil	EE	SRPC
5.	Ashok Pal	AGM (CTU-Plg.)	PGCIL/CTU
6.	V. Thiagarajan	Addl. GM (CTU-Plg.)	PGCIL/CTU
7.	Kashish Bhambani	Chief Mngr. (SG)	PGCIL
8.	Nallarasan	DGM	NLDC, POSOCO
9.	T. Kalanithy	Asst GM	SRLDC, POSOCO,
10.	D.B. Suresh	SEE (Plg.)	KPTCL
11.	T V Srinivasa	EE	KPTCL
12.	S.Sumanath	Director (Trans.)	KPTCL
13.	A.J. Hosamani	CEE (P&C)	KPTCL
14.	D. Chetan	EE (P&C)	KPTCL
15.	Divya Prabha	EE	KPTCL

**Government of India
Ministry of Power
Central Electricity Authority
PSPA-II Division
Sewa Bhawan, R.K. Puram,
New Delhi - 110066**

No: 51/4/PSPA-II-2015/551

Date: 22-Dec -2015

To

COO(CTU-Plg.),
Power Grid Corp. of India Ltd.,
“Saudamini”, Plot No.-2, Sector – 29,
Gurgaon - 122001

Subject: In principle approval for “ Transmission system of Tumkur Ultra Mega Solar Power Park in Karnataka”.

Reference: PGCIL letter no. C/SG/06/TUMKUR dated 07.12.2015.

Madam,

1. PGCIL, vide their letter dated **07.12.2015** has requested to accord ‘in-principle’ approval for “Transmission system of Tumkur Ultra Mega Solar Power Park in Karnataka”, so that various implementation activities can be taken up, keeping in view the short gestation period of solar generation.
2. A meeting involving participants from POSOCO, PGCIL, KPTCL, SRPC and CEA, was held in CEA on 16.12.2015 (minutes of the meeting enclosed) to discuss the transmission system of Tumkur Ultra Mega Solar Power Park in Karnataka. In the meeting it was decided that in-principle approval may be given to Phase –I(1000MW) of the project, as the total scheme is under discussion in 39th meeting of SCSPSR to be held on 28-29 December, 2015.
3. In accordance with the discussions held in the meeting on 16-12-2015, we convey ‘in-principle’ approval for Phase-I(1000MW) of Tumkur Ultra Mega Solar Power Park:
 1. LILO of 400kV Gooty – Madhugiri D/c at Tumkur (Pavagada) Pooling station.
 2. LILO of 400kV Bellary Pool – Madhugiri D/c (Quad) (both circuits) [KPTCL line] at Tumkur Pooling station.
 3. Tumkur Pooling station - Hiriyur 400 kV D/c.

4. 3x500 MVA, 400/220 kV Pooling station at Tumkur .
5. 1x125MVAR bus reactor at 400/220 kV Tumkur Pooling station .
6. 220kV Bays(8 Nos)) at Tumkur PS for solar interconnection - Implementation as ISTS is subject to resolving regulatory aspects as discussed in the meeting held on 16.12.2015(Minutes enclosed).

4. The total scheme for evacuation of power from Tumkur project would be finalized in the 39th meeting of the SCPSPSR as stated above.

This issues with the approval of Member (Power System), CEA.

Yours faithfully,

-sd/-

(Pardeep Jindal)
Director(PSPA-II)