

No. J-12011/11/2018-IA.I(R)
Ministry of Environment, Forest & Climate Change
Government of India
(IA-I Division)

Indira Paryavaran Bhawan
3rd Floor, Vayu Wing
Jor Bagh Road
New Delhi-110 003

Date: 25th September, 2018

To,

Shri. Gopi Krushna
Assistant General Manager
M/s Greenko Energies Private Limited
Plot no.1071, Road No.44,
Jubilee Hills,
Hyderabad-500033 (Telangana)

Subject: Saundatti IREP (1260 MW) - Pumped Storage Project in Belgavi District of Karnataka by M/s Greenko Solar Energy Pvt. Ltd - Amendment in TOR- regarding.

Sir,

This is with reference to your online application no. IREP-Saundatti/MoEF & CC/TOR Amendment/20180810 dated 13.8.2018, 14.8.2018 and 15.9.2018 on the above mentioned subject. The Terms of Reference (TOR) for Saundatti IREP (1200 MW) in Belgavi District of Karnataka was accorded on 18.5.2018 for 4 years. Your request for approval for change of scope in the project and enhancement of capacity of the project from 1200 MW to 1260 MW has been examined by the Expert Appraisal Committee (EAC) for River Valley & Hydroelectric Projects in its meeting held on 27.8.2018.

2. The EAC duly considered the relevant documents submitted by you and have recommended the enhancement of capacity of the project from 1200 MW to 1260 MW and agreed for minor changes in the project. Accordingly, the Ministry hereby accords amendment ToR for enhancement of capacity from 1200 MW to 1260 MW in respect of Saundatti IREP (1260 MW) in Belgavi District of Karnataka with the same TOR as communicated vide letter dated 18.5.2018 with the following corrections:

- i. The committee noted the minor changes in project, capacity increased from 1200 MW to 1260 MW. The comparative statement with reference to earlier proposal and revised proposal are presented below:

S.No.	Details	Original	Revised
1	Capacity	1200 MW	1260 MW
2	Rated Pumping Head	156.92 m	157.38 m
3	Pump Capacity	230 MW	240 MW
4	Turbine Design Discharge	77.14 cumec for each unit	81.13 cumec for each unit

5	Structure	400 KV Multi circuit Towers	400 KV Double circuit Towers with Moose Conductor
6	Number of units	7 Units (5 x 200 MW + 2 x 100 MW)	7 Units (5 x 210 MW + 2 x 105 MW)
7	Terminating at	One double circuit connected to PGCIL Narendra 400 KV substation at Dharwad and other double circuit connected to IRESP CPSS	One line will be connected to PGCIL Narendra 400 KV substation at Dharwad and other line will connected to IREP CPSS

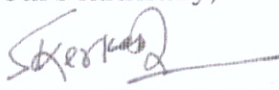
3. You have requested EAC that this being a pump storage scheme & not typically river valley project as this is not located on any river course, some of the standard TOR conditions are not applicable and delete from the earlier TOR dated 18.5.2018. The EAC agreed on the suggestion and the following items are deleted from the TOR in the present case:

S. No.	TOR conditions
1	• Para Nos. 2 – (ii), (vii), (viii) & (xiii) (related to river, drainage and catchment delineation)
2	• Para No.6 (b) related to hydrology studies approved by CWC, Flow series of 90%, 75% and 50% dependable years discharge, Minimum of 1 km distance from tip of the reservoir, norms for release of e-flows, etc.
3	• Para No.6 (d) related to (ii) & (iii) related to fish, their migration and conservation
4	• Para No. 8 related to CAT Plan
5	• Para No.9 related to CAD
6	• Para No. 10 related to Fisheries Conservation and Management
7	• Para No. 11 related to CAD Plans for distributary outlet

4. All other terms and conditions of the Scoping/TOR clearance stipulated in letter No. J-12011/11/2018-IA-I (R) dated 18.5.2018 and 6.7.2018 shall remain unchanged.

5. This issues with the approval of the Competent Authority.

Yours faithfully,


(Dr. S. Kerketta)
Director

Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Secretary, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi – 1.

3. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
4. The Chief Engineer, Project Appraisal Directorate, Central Water Commission, Sewa Bhawan, R. K. Puram, New Delhi - 110 066.
5. The Additional Principal Chief Conservator of Forests (C), Regional Office (SZ), Ministry of Environment, Forest and Climate Change, Kendriya Sadan, 4th Floor, R & F Wings, 17th Main Road, Block-II, Koramangala, Bangalore - 560 034
6. The Secretary, Department of Forest, Ecology & Environment, Government of Karnataka, M.S. Building, Ambedkar Veedhi, Bangalore -
7. The Member - Secretary, Karnataka State Pollution Control Board, 5th Floor, Parisara Bhavan, # 49, Church Street, Off MG Road, Bangalore - 560 001
8. Guard file.


(Dr. S. Kerketta)
Director

Minutes of the 17th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 27.08.2018 at Teesta Meeting Hall, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-3.

The 17th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held on 27.08.2018 with the Chairmanship of Dr. D.M. More in the Ministry of Environment, Forest & Climate Change at Teesta Meeting Hall, 1st Floor, Vayu Wing, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi. The following members were present:

- | | |
|-----------------------|--------------------------------------|
| 1. Dr. D.M. More | - Chairman - in-charge |
| 2. Dr. J.A. Johnson | - Rep. of WII |
| 3. Dr. Vijay Kumar | - Rep. of Ministry of Earth Sciences |
| 4. Shri Chetan Pandit | - Member |
| 5. Dr. T.P. Singh | - Member |
| 6. Dr. S.R. Yadav | Member |
| 7. Dr. S. Kerketta | - Member Secretary |

Dr. S.K. Jain, Shri N.N. Rai, Shri Sharvan Kumar, Dr. A.K. Sahoo, Prof. Govind Chakrapani, Dr. R. Vasudeva, Dr. Poonam Kumria and Dr. J.P. Shukla could not be present due to pre-occupation. The deliberations held and the decisions taken are as under:

Item No. 17.0 Confirmation of the Minutes of 15th EAC meeting

The minutes of the 16th EAC (River Valley Hydroelectric Project) meeting held on 28.07.2018 were confirmed.

Item No. 17.1 Saundatti IRESP (1260 MW) - Pumped Storage Component of Saundatti IREP in Belgavi District, Karnataka by M/s. Greenko Solar Energy Private Limited - for amendment of Scoping/TOR Clearance.

The Project Proponent (PP) and their Consultant M/s. R.S. Envirolink Technologies Private Limited, Gurgaon made a presentation of the project and *inter-alia*, provided the following information.

2. The Saundatti IRESP project is proposed in Belgavi District of Karnataka. The scheme involves solar, wind and hydro (pumped storage) components in an integrated manner with an installed capacity of 4.8 GW (i.e 2 GW of solar + 2 GW of wind with a storage capacity of 1.2/9.6 GWH). It envisages creation of reservoir across Jagavalla halla (depression). This is an IRESP scheme and not a 100% river valley project and the EC is sought due to involvement of storage component only. The project was considered earlier by the EAC in its meeting held on 27.4.2018 and committee recommended for scoping/TOR clearance. The Ministry granted TOR to this project on 18.5.2018 for 1200 MW installed capacity.

3. The PP informed that during DPR preparation, various optimization studies have been carried out and the capacity is worked out to be 1260 MW due to optimization of storage to 8 hours as against 8.5 hours considered earlier. Now, the project configuration is proposed to be 5x210 MW & 2x105

MW (1260 MW). Therefore, the PP submitted an online application on 13.8.2018 for amendment in scoping/TOR clearance. The PP also informed that there is minor change in project location. The changes in salient features are tabulated as below:

S.No.	Description	Original as granted in the TOR	Present revised proposal
1	Capacity	1200 MW	1260 MW
2	Rated Pumping Head	156.92 m	157.38 m
3	Pump Capacity	230 MW	240 MW
4	Turbine Capacity	2x200 MW	2x210 MW
5	Turbine Capacity	2x100 MW	2x105 MW
6	Turbine Design discharge for each unit	77.14 cumec	81.13 cumec
7	Structure	400 KV Multi circuit Towers	400 KV Double circuit Towers with Moose Conductor
8	Terminating at	One double circuit connected to PGCIL Narendra 400 KV substation at Dharwad and other double circuit connected to IRESP CPSS.	One line will be connected to PGCIL Narendra 400 KV substation at Dharwad and other line will be connected to IREP CPSS.

4. The PP also mentioned that this being pumped storage scheme and not typically river valley project as this is not located on any river course, some of the standard TOR conditions are not applicable in this case and requested to amend the TOR. The PP informed that since other agencies are involved, all the statutory agencies insist on meeting all TOR conditions as per the scoping clearance letter. EAC agreed on the suggestion and in this regards, MoEF&CC may take a separate call while issuing the amendment letter. The following TOR conditions of **Annexure-1 are not applicable** in case of the present proposal:

S. No.	ToR conditions
1	Para Nos. 2 (ii), (vii), (viii) and (xiii) are related to river drainage and catchment delineation.
2	Para No. 6 (b) related to hydrology studies approved by CWC, Flow series of 90%, 75% and 50% dependable years discharge, Minimum of 1 km distance from tip of the reservoir, norms for release of e-flows, etc.
3	Para Nos. 6 (d) (ii) & (iii) related to fish, their migration and conservation
4	Para No. 8 related to CAT plan.
	Para No. 9 related to CAD
	Para No. 10 related to Fisheries Conservation and Management
	Para No. 11 related to CAD plan for distributary outlet.

After detailed discussions, **EAC recommended the project in amendment of ToR/Scoping clearance** due to optimization of the installed capacity from 1200 MW to 1260 MW.

Item No. 17.2 Pinnapuram IREP (1000 MW) - Pumped Storage Component of Pinnapuram IREP in Kurnool District, Andhra Pradesh by M/s. Greenko Energies Private Limited - for amendment of Scoping/TOR Clearance

The Project Proponent (PP) and their Consultant M/s. R.S. Envirolink Technologies Private Limited, Gurgaon made a presentation of the project and *inter-alia*, provided the following information.

2. The Pinnapuram IRESP Storage project is proposed in Kurnool District of Andhra Pradesh. The scheme involves solar, wind and hydro (pumped storage) components in an integrated manner with an installed capacity of 4.8 GW (i.e 2 GW of solar + 2 GW of wind with a storage capacity of 1/8 GWH). All components of Pinnapuram IRESP are in close vicinity therefore power from all these components will be pooled in a common pooling station and will be connected to PGCIL sub-station at Orvakallu. It envisages creation of reservoir across Muni Madugu (Pond) near Pinnapuram village. This is an IRES scheme and not a river valley project and the EC is sought due to storage component only. The project was considered earlier by EAC in its meeting held on 27.4.2018 and committee recommended for scoping/TOR clearance. The Ministry granted TOR to this project on 17.5.2018 for 1000 MW capacity.

3. The PP informed that during survey and investigation and DPR preparation, it was observed that geological conditions at that locations were not suitable and would require long duration of investigation as the powerhouse and other components have been planned underground. As the time of implementation is critical to match the commissioning of solar and wind components, which has much shorter execution period, it was critical to reduce the construction period of pumped storage component. Therefore, a suitable alternate location is identified, where all critical components are surface components and length of water conductor system is smaller. Therefore, the PP submitted an online application on 13.8.2018 for amendment in scoping/TOR clearance. Amendment of TOR is requested due to following reasons:

- Changes in project component locations and types.
- Capacity of the project has been increased from 1000 MW to 1200 MW.
- Resultant Changes in some of the salient features and the land requirement because of above two reasons.
- Total length of water conductor system is only 2 km in the current proposal as compared to around 7.40 km long in earlier option.
- The total length from tip of upper reservoir to tip of lower reservoir is about 5.0 km as compared to around 9.60 km in first option. Hence the overall area of project is reduced and located very compactly.
- Cycle efficiency of the plant is now expected around 80% as against 76.10% (as per first option) due to revised technical features.