Draft minutes of the 31st Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 05th March, 2020 at Brahmaputra Meeting Hall, 1st Floor, Vayu Wing, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-3

The 31st meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held on 05.03.2020 with the Chairmanship of Dr. S.K. Jain in the Ministry of Environment, Forest & Climate Change at Brahmaputra Meeting Hall, 1st Floor, Vayu Block, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi–3. The following members were present:

1.	Dr. S.K. Jain	-	Chairman
2.	Shri Sharvan Kumar	-	Representative of CEA
3.	Shri N.N. Rai	-	Representative of CWC
4.	Dr. Vijay Kumar	-	Rep. of Ministry of Earth Sciences
5.	Dr. A.K. Sahoo	-	Representative of CIFRI
6.	Dr. D.M. More	-	Member
7.	Dr. J.P. Shukla	-	Member
8.	Dr. S. Kerketta	-	Member Secretary

Shri Chetan Pandit, Dr. J.A. Johnson, Dr. S.R. Yadav, Dr. (Mrs.) Poonam Kumria, Prof. R.K. Kohli and Dr. Govind Chakrapani could not be present due to pre-occupation. The deliberations held and the decisions taken are as under:

Item No. 31.0 Confirmation of the minutes of 30th EAC meeting.

The minutes of the 30th EAC (River Valley Hydroelectric Project) meeting held on 27.01.2020 were confirmed.

Item No. 31.1 Panari Pumped Storage Project (1800 MW) District Satna, Madhya Pradesh by Sri Siddharth Infratech & Services (I) Private Limited- reg. Fresh Terms of Reference Proposal No. IA/MP/RIV/143143/2020; File No. J-12011/05/2020-IA-1

Project proponent along with the consultant (M/s. R S Envirolink Technologies Pvt. Ltd. (RSET), NABET Accredited Consultant Organization, 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Certificate No: NABET/EIA/1619/SA075) made the detailed presentation on the proposal and inter alia, provided the following information:

Sri Siddharth Infratech & Services (I) Pvt. Ltd. proposes to develop Standalone Pumped Storage Project (PSP) in Panari & Salikpur (V), Panna & Majhgaon (T) of Panna & Satna (D) in the state of Madhya Pradesh.

Panari Standalone Pumped Storage Project (PSP) of 1800 MW capacity, located at Panna Village, Panna (T) of Panna District and Salikpur (V), Majhgaon (T) Satna (D) of Madhya Pradesh. The Panari Standalone PSP will comprise of two reservoirs, which are to be constructed newly. The upper reservoir is proposed to be located on flat / gradually sloping land which is suitable for creating the desired gross storage capacity of 1.62 TMC. Out of 1.62 TMC, the live storage capacity is 1.14 TMC and the dead storage capacity is 0.48 TMC by keeping FRL & MDDL at EL 417.00 m & EL 400.00 m, respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of around 17 m (with maximum height of 40 m) for the length of 6754 m.

Similarly, Panari PSP lower reservoir is proposed to be created in the existing seasonal tributary / nala by constructing a low height embankment across the nala for the average height of 26 m with the maximum height of 35 m for getting the desired gross storage capacity of 1.70 TMC in which the live storage capacity is 1.15 TMC and dead storage capacity is 0.55 TMC by keeping FRL and MDDL at EL 202.00 m & EL 191.00m respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of 26m (with maximum height of 35 m) for the length of 335 m.

This Project is standalone in nature and the upper reservoir is located away from all existing river systems and have no/very small catchment area. However, the lower reservoir is located across seasonal tributary/nala and will have some small catchment area. For first (one time) filling Water will get stored in the reservoir through seasonal flow of water in the tributary /nala whenever it is available and used cyclically for energy storage and discharge. After first filling water regime of Nala will remain more or less same as earlier because whatever water comes same will be released to downstream except for evaporation losses. Evaporation losses, if any, will be recouped during period whenever water is available in the nala.

This Project envisages non-consumptive re-utilization of 1.14 TMC of water for recirculation among two proposed reservoirs. The geographical co-ordinates of the proposed upper reservoir are at latitude 24°54'39.27" North and longitude is 80°29'8.64" East and that of lower reservoir are at 24°54'01.98" North and 80°29'42.95" East.

The water conductor system involves construction of 50 m high Power Intake Structure, 6 nos. each of 1187 m long and 6.5 m dia. surface circular steel lined Penstock / Pressure Shaft to feed 6 units of 300 MW. A surface Powerhouse having an installation of Six nos. reversible Francis turbine each of 300 MW capacity (4 units of fixed speed and 2 units of variable speed turbines) operating under a rated head of 207.00 m in generating mode and 218.00 m in pumping mode. Proposed rating of Pumped Storage Project is 1800 MW. The project cost is estimated to be Rs. 8472.01 Crores.

Hydrology: The Panari Standalone PSP is proposed between two reservoirs i.e. Panari PSP upper and lower reservoir (both to be constructed newly). Upper reservoir is located in the flat/sloping ground with low height embankment to create the desired storage capacity and is away from all existing river systems and have no/very small catchment area. Similarly, the lower reservoir is proposed to be located across the existing seasonal tributary / nala for creating the desired storage capacity and will have small catchment area. For first (one time) filling water will get stored in the reservoir through seasonal flow of water in the tributary /nala whenever it is available and used cyclically for energy storage and discharge. After first filling water regime of Nala will remain more or less same as earlier because whatever water comes, the same will be released to downstream except for evaporation losses. Evaporation losses, if any, will be recouped whenever water is available in the nala. The water over and above the first filling requirement and recoupment due to evaporation losses in the seasonal tributary / nala will be discharged either through spillway or sluice arrangement to be provided in the embankment. The required hydrological studies covering catchment area at the proposed lower reservoir location, discharge and design flood in the nala will be studied in detail during DPR stage.

Total land required for construction of various components, including infrastructure facilities and muck disposal area is estimated to be around 1013.62 ha of forestland. The details are tabulated below.

Table 1: Area Statement of Proposed Standalone PSP

Sr. No.	Project Components	Forest (ha)	Non-Forest (ha)
1.	Upper Reservoir	488.64	0.00
2.	Lower Reservoir(Including TRC)	432.88	0.00
3.	Approach Road to Project Components	12.36	0.00
4.	Adit	0.74	0.00
5.	WCS, PH	38.91	0.00
6.	Job Facilities Area	15.00	0.00
7.	Muck Disposal area	25.00	0.00
8.	Magazine	0.10	0.00
	Sub-total	**1013.62**	**0.00**
	Total Area	**1013.62**	

Project benefit:

Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favourably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.

Further, pumped storage projects are critical to the national economy and overall energy reliability because they are:

- Inexpensive source of electricity, not requiring fossil fuel for generation
- An emission-free renewable source
- Able to shift loads to provide peaking power without requiring ramp-up time like combustion technologies
- Often designated as a “black start” source, able to restore network interconnections if a power blackout occurs
- Balancing grid for demand driven variations
- Balancing generation driven variations
- Voltage support and grid stability

Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.

Status of other statutory clearances:

Forest Clearance: Online application will be submitted subsequently to seek forest diversion for around 1013.62 ha. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.

Detail of court case, if any: Nil.

EAC in the present meeting (31st) deliberated on the information submitted (Form 1, PFR, *.kml* file, etc.) and as presented in the meeting and observed that instant project is a pump storage project and standalone in nature. Upper reservoir is located away from all existing natural water systems and has no/negligible catchment area. Therefore, CAT Plan, RIM treatment, L-section of river and Environmental flow study for the upper reservoir will not be required under EMP. However, PSP lower reservoir is proposed to be created in the existing seasonal tributary / nala. Hence, CAT plan and Environmental Flow Study for lower reservoir shall be studied. PP also submitted in the Form 1 that there is no Protected Area notified under the Wild Life (P) Act, 1972; Critically Polluted areas as identified by the CPCB constituted under the Water (P) Act 1974; Eco Sensitive areas as notified within 10 km of the Project boundary.

EAC observed that word *Standalone* shall not be used in the title and advised that the word *Off Stream* may be added, **if** both the reservoirs are away from the riverine system. EAC after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following Additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

2. The project involves diversion of about 1013.62 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.

3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required should be submitted as soon as the actual extent of forest land required for the project is known, and in any case, within six months of issuance of this letter.

4. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant chapter.

5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.

6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.

7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.

10. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

11. Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared and submitted in the EIA/EMP report.

12. CAT plan and Environmental Flow Study for lower reservoir shall be studied.

13. Environmental matrix during construction and operational phase needs to be submitted.

14. Both capital and recurring expenditure under EMP shall be submitted.

15. Impact of developmental activity/project on the wildlife habitat, if any, within 10 km of the project boundary shall be studied.

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Item No. 31.2 Nayagaon Pumped Storage Project (2000 MW), District Aurangabad, Maharashtra by M/s Greenko Energies Private Limited-reg. fresh Terms of Reference. Proposal No. IA/MH/RIV/142458/2020; File No.J-12011/04/2020-IA-1

Project proponent along with the consultant (M/s. R S Envirolink Technologies Pvt. Ltd. (RSET), NABET Accredited Consultant Organization, 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Certificate No: NABET/EIA/1619/SA075) made the detailed presentation on the proposal and inter alia, provided the following information:

Greenko Energies Pvt. Ltd. proposes to develop Standalone Pumped Storage Project (PSP) in Wadodh, Nayagaon & Wadi Suntoda (V), Kannad & Soyegaon (T) of Aurangabad (D) in the state of Maharashtra. Total capacity of the proposed PSP is 2000 MW (14000 MWH, based on 7-hour operation per day). Project involves creation of new upper reservoir and lower reservoirs consisting of rock fill embankment with central clay core.

The upper reservoir is proposed to be located on flat / gradually sloping land which is suitable for creating the desired gross storage capacity of 0.74 TMC. Out of 0.74 TMC, the live storage capacity is 0.67 TMC and the dead storage capacity is 0.07 TMC by keeping FRL & MDDL at EL 710.00 m & EL 688.50 m, respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of around 21m (with maximum height of 33 m) for the length of 4502 m.

Similarly, Nayagaon Standalone PSP lower reservoir is proposed to be created in the existing seasonal tributary / nala by constructing a low height embankment across the nala for the average height of 24 m with the maximum height of 38 m for getting the desired gross storage capacity of 0.72 TMC in which the live storage capacity is 0.67 TMC and dead storage capacity is 0.05 TMC by keeping FRL and MDDL at EL 400.00 m & EL 376.00 m, respectively.

For creating this storage, it is proposed to construct rockfill embankment for the average height of 24 m (with maximum height of 38 m) for the length of 1941 m.

The upper reservoir is located away from all existing river systems and have no/very small catchment area. However, the lower reservoir is located across seasonal tributary/nala and will have some small catchment area. For first (one time) filling water will get stored in the reservoir through seasonal flow of water in the tributary /nala whenever it is available and used cyclically for energy storage and discharge. After first filling water regime of Nala will remain more or less same as earlier because whatever water comes same will be released to downstream except for evaporation losses. Evaporation losses, if any, will be recouped during period whenever water is available in the nala.

This Project envisages non-consumptive re-utilization of 0.67 TMC of water for recirculation between the two proposed reservoirs. The geographical coordinates of the proposed upper reservoir are at Latitude 20°27'17.70" North and Longitude is 75°21'39.11" East and that of lower reservoir are at 20°27'41.45" North and 75°20'45.81" East. Proposed rating of Pumped Storage Project is 2000 MW.

Water conductor system consists of involves 50 m high Power Intake Structure, 4 nos. each of 1361 m long and 7.0 m dia. surface circular steel lined Penstock / Pressure Shaft bifurcated into 2 nos. each of 102 m long and 4.9 m dia. to feed 8 units of 250 MW. A surface Powerhouse having an installation of eight nos. reversible Francis turbine each of 250 MW capacity (6 units of fixed speed and 2 units of variable speed turbines) operating under a rated head of 306.25 m in generating mode and 317.25 m in pumping mode. GEPL envisages to complete the construction of project within a period of 42 months at an estimated cost of INR 9468.67 Crores.

Hydrology: The Nayagaon Standalone PSP is proposed between two reservoirs i.e. Nayagaon PSP upper and lower reservoir (both to be constructed newly). Upper reservoir is located in the flat/sloping ground with low height embankment to create the desired storage capacity and is away from all existing river systems and have no/very small catchment area. Similarly, the lower reservoir is proposed to be located across the existing seasonal tributary / nala for creating the desired storage capacity and will have small catchment area. For first (one time) filling water will get stored in the reservoir through seasonal flow of water in the tributary /nala whenever it is available and used cyclically for energy storage and discharge. After first filling water regime of Nala will remain more or less same as earlier because whatever water comes same will be released to downstream except for evaporation losses. Evaporation losses, if any, will be recouped during period whenever water is available in the nala. The water over and above the first filling requirement and recoupment due to evaporation losses in the seasonal tributary / nala will be discharged either through spill way or sluice arrangement to be provided in the embankment. The required hydrological studies covering catchment area at the proposed lower reservoir location, discharge and design flood in the nala will be studied in detail during DPR stage.

The proposed PSP is located around 11.0 km (NE) from the notified eco-sensitive boundary of Gautala Autramghat Wildlife Sanctuary (*S.O. 3996 (E), dated 9th December 2016*). Total land required for construction of various components, including infrastructure facilities and muck disposal area is estimated to be around 488.22 ha, involving 300.43 ha of forestland and 187.79 Ha of non-forest land. The details are tabulated below.

Table 2: Area Statement of Proposed Standalone PSP

Sr. No.	Project Components	Forest (ha)	Non-Forest (ha)
1.	Upper Reservoir	103.13	84.17
2.	Lower Reservoir(Including TRC)	150.86	61.53
3.	Approach Road to Project Components	4.67	1.99
4.	Adit	0.86	0.00
5.	WCS, PH	40.91	0.00
6.	Job Facilities Area	0.00	15.00
7.	Muck Disposal area	0.00	25.00
8.	Magazine	0.00	0.10
	Sub-total	**300.43**	**187.79**
	Total Area	**488.22**	

Project benefit:

Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. Further, pumped storage projects are critical to the national economy and overall energy reliability because they are:

- Inexpensive source of electricity, not requiring fossil fuel for generation
- An emission-free renewable source
- Able to shift loads to provide peaking power without requiring ramp-up time like combustion technologies
- Often designated as a “black start” source, able to restore network interconnections if a power blackout occurs
- Balancing grid for demand driven variations
- Balancing generation driven variations
- Voltage support and grid stability

Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.

Status of other statutory clearances

Forest Clearance: Online application will be submitted subsequently thereby seeking forest diversion for around 300.43 ha. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.

Detail of court case, if any: Nil.

EAC in the present meeting (31st) deliberated on the information submitted (Form 1, PFR, .kml file, etc.) and as presented in the meeting and observed that instant project being the Pump storage project and standalone in nature and upper reservoir is located away from all existing natural water systems and have no/negligible catchment area therefore CAT Plan, RIM treatment, L-section of river and Environmental flow study for the upper reservoir will not be required under EMP. However, PSP lower reservoir is proposed to be created in the existing seasonal tributary / nala hence CAT plan and Environmental Flow Study for lower reservoir shall be studied. PP also submitted that the proposed PSP is located around 11.0 km (NE) from the notified eco-sensitive boundary of Gautala Autramghat Wildlife Sanctuary (*S.O. 3996 (E), dated 9th December 2016*).

EAC observed that word *Standalone* shall not be used in the title and advised that the word *Off Stream* may be added, **if** both the reservoirs are away from the riverine system. EAC, after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

2. The project involves diversion of about **300.43** ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.

3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required should be submitted as soon as the actual extent of forest land required for the project is known, and in any case, within six months of issuance of this letter.

4. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant chapter.

5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.

6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.

7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.

10. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

11. Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared and submitted in the EIA/EMP report.

12. CAT plan and Environmental Flow Study for lower reservoir shall be studied

13. Environmental matrix during construction and operational phase needs to be submitted.

14. Both capital and recurring expenditure under EMP shall be submitted.

15. Impact of developmental activity/project on the wildlife habitat, if any, within 10 km of the project boundary shall be studied.

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Item No. 31.3 Ukai Pumped Storage Project (2400 MW), District Tapi, Gujarat by M/s Greenko Energies Private Limited-reg. Fresh Terms of Reference Proposal No. IA/GJ/RIV/142444/2020; File No .J-12011/03/2020-IA-1

Project proponent along with the consultant (M/s. R S Envirolink Technologies Pvt. Ltd. (RSET), NABET Accredited Consultant Organization, 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Certificate No: NABET/EIA/1619/SA075) made the detailed presentation on the proposal and inter alia, provided the following information:

Greenko Energies Pvt. Ltd. proposes to develop Standalone Pumped Storage Project (PSP) in Songadh (T) of Tapi (D) in the state of Gujarat. Total capacity of the proposed PSP is 2400 MW (16800 MWH, based on 7-hour operation per day), and envisages non-consumptive utilization of 2.23 TMC of water from Ukai Dam by re-circulation. Project involves creation of new upper reservoir and lower reservoirs consisting of rock fill embankment with central clay core.

The upper reservoir is proposed to be located on flat / gradually sloping land which is suitable for creating the desired gross storage capacity of 2.23 TMC. Out of 2.23 TMC, the live storage capacity is 1.39 TMC and the dead storage capacity is 0.84 TMC by keeping FRL & MDDL at EL 352.00 m & EL 334.50 m, respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of around 40 m (with maximum height of 70 m) for the length of 11,468 m.

Similarly, the lower reservoir is proposed to be located in the gorge portion which is suitable for creating the desired gross storage capacity of 2.13 TMC in which the live storage capacity is 1.38 TMC and dead storage capacity is 0.75 TMC by keeping FRL and MDDL at EL 167.00 m & EL 153.20 m, respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of 33 m (with maximum height of 45 m) for the length of 1453 m.

This Project is standalone in nature and both the reservoirs are located away from all existing river systems and have no/very small catchment area. Required quantum of water will be lifted one time from existing nearby Ukai reservoir and will be stored in the proposed lower reservoir to be constructed newly and used cyclically for energy storage and discharge.

Evaporation losses, if any, will be recouped from the seasonal streams draining towards the lower reservoir or periodically from Ukai reservoir, if required. This Project envisages non-consumptive re-utilization of 1.38 TMC of water for recirculation among two proposed reservoirs. The geographical coordinates of the proposed upper reservoir are at latitude 21°20'49.60" North and longitude 73°36'34.06" East and that of lower reservoir are at 21°19'1.52" North and 73°35'42.37" East. Proposed rating of Pumped Storage Project is 2400 MW.

Water conductor system consists 46 m high Power Intake Structure; 8 nos. each of 1105 m long and 7.0 m dia. surface circular steel lined Penstock / Pressure Shaft (i.e. consisting of 570 m long surface penstock, 175 m long vertical pressure shaft and 360 m long Horizontal pressure shaft) to feed 8 units of 300 MW. A surface Powerhouse having an installation of eight nos. reversible Francis turbine each of 300 MW capacity (6 units of fixed speed and 2 units of variable speed turbines) operating under a rated head of 178.15 m in generating mode and 189.15 m in pumping mode. The Tailrace channel would be 115 m wide, FSD of 5.1 m and 610 m long joining with the proposed lower reservoir.

Hydrology: For the initial filling of lower reservoir, the quantum of water required is about 2.13 TMC (i.e. 1.38 TMC live storage and 0.75 TMC dead storage). Similarly, for the upper reservoir the quantum of water to be filled up is 0.84 TMC, which is dead storage capacity. Hence, the total quantum of water required for initial filling of both reservoirs together is worked out to 2.97 TMC. Out of 2.97 TMC, about 40% of the quantum of water is proposed to be filled up in the lower reservoir (during the construction period of the project) through seasonal streams which are draining towards the lower reservoir and the balance quantum of one - time filling of water will be pumped from existing nearby Ukai reservoir to fill up the proposed lower reservoir/upper reservoir. However, the exact quantum of water to be filled up through seasonal streams will be worked out during DPR stage. Evaporation losses, if any, will be recouped from the seasonal streams draining towards the lower reservoir or periodically from Ukai reservoir, if required.

The project cost is estimated to be Rs. 11500.83 Crores. Total land required for construction of various components, including infrastructure facilities and muck disposal area is estimated to be around 1064.61 ha of forestland. Land details are tabulated below.

Table 3: Area Statement of Proposed Standalone PSP

Sr. No.	Project Components	Forest (ha)	Non-Forest (ha)
1.	Upper Reservoir	546.14	0.00
2.	Lower Reservoir (Including TRC)	433.56	0.00
3.	Approach Road to Project Components	20.27	0.00
4.	Adit	0.44	0.00
5.	WCS, PH	24.10	0.00
6.	Job Facilities Area	15.00	0.00
7.	Muck Disposal area	25.00	0.00
8.	Magazine	0.10	0.00
	Sub-total	**1064.61**	**0.00**
	Total Area	**1064.61**	

Project benefit:

Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favourably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions.

Further, pumped storage projects are critical to the national economy and overall energy reliability because they are:

- Inexpensive source of electricity, not requiring fossil fuel for generation
- An emission-free renewable source
- Able to shift loads to provide peaking power without requiring ramp-up time like combustion technologies
- Often designated as a "black start" source, able to restore network interconnections if a power blackout occurs
- Balancing grid for demand driven variations
- Balancing generation driven variations
- Voltage support and grid stability

Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.

Status of other statutory clearances:

Forest Clearance: Online application will be submitted subsequently thereby seeking forest diversion for around 1064.61 ha. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.

Detail of court case, if any: Nil.

EAC in the present meeting (31st) deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that in the instant project upper is located away from all existing natural water systems and have no/negligible catchment area therefore CAT Plan, RIM treatment, L-section of river and Environmental flow study for the upper reservoir will not be required under EMP.

However, EAC noted that 40% of the quantum of water is proposed to be filled up in the lower reservoir (during the construction period of the project) through seasonal streams which are draining towards the lower reservoir and the balance quantum of one-time filling of water will be pumped from existing nearby Ukai reservoir. Hence PP is required to prepare CAT plan for the lower reservoir. EAC also observed that as per the Form 1 that there is no Protected Area notified under the Wild Life (P) Act, 1972; Critically Polluted areas as identified by the CPCB

constituted under the Water (P) Act 1974; Eco Sensitive Areas as notified within 10 km of the project boundary.

EAC observed that word *Standalone* shall not be used in the title and advised that the word *Off Stream* may be added, **if** both the reservoirs are away from the riverine system. EAC after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following Additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

2. The project involves diversion of about 1064.61 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.

3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required should be submitted as soon as the actual extent of forest land required for the project is known, and in any case, within six months of issuance of this letter.

4. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant chapter.

5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.

6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.

7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.

10. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

11. Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared and submitted in the EIA/EMP report.

12. CAT plan for lower reservoir shall be prepared.

13. Environmental matrix during construction and operational phase needs to be submitted.

14. Both capital and recurring expenditure under EMP shall be submitted.

15. Impact of developmental activity/project on the wildlife habitat, if any, within 10 km of the project boundary shall be studied.

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Item No. 31.4 Shahpur Standalone Pumped Storage Project (2520 MW), District Baran, Rajasthan by M/s Greenko Energies Private Limited-reg. fresh Terms of Reference Proposal No. IA/RJ/RIV/142374/2020; File No. J-12011/02/2020-IA-1

Project proponent along with the consultant (M/s. R S Envirolink Technologies Pvt. Ltd. (RSET), NABET Accredited Consultant Organization, 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Certificate No: NABET/EIA/1619/SA075) made the detailed presentation on the proposal and inter alia, provided the following information:

Greenko Energies Pvt. Ltd. proposes to develop Standalone Pumped Storage Project (PSP) in Shahpur (V), Shahabad (T) of Baran (D) in the state of Rajasthan. Total capacity of the proposed PSP is 2520 MW (17640 MWH, based on 7-hour operation per day). Project involves creation of new upper reservoir and lower reservoirs consisting of rock fill embankment with central clay core.

The upper reservoir is proposed to be located on flat / gradually sloping land which is suitable for creating the desired gross storage capacity of 1.70 TMC. Out of 1.70 TMC, the live storage capacity is 1.63 TMC and the dead storage capacity is 0.075 TMC by keeping FRL & MDDL at EL 512.00 m & EL 489.00 m, respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of around 28 m (with maximum height of 30 m) for the length of 6985 m.

Similarly, the lower reservoir is proposed to be located in the flat / gradually sloping portion which is suitable for creating the desired gross storage capacity of 1.71 TMC in which the live storage capacity is 1.64 TMC and dead storage capacity is 0.07 TMC by keeping FRL and MDDL at EL 354.00 m & EL 323.00 m, respectively. For creating this storage, it is proposed to construct rockfill embankment for the average height of 34 m (with maximum height of 42 m) for the length of 3842 m.

This Project is standalone in nature and both the reservoirs are located away from all existing river systems and have no/very small catchment area. Water will be lifted one time from existing nearby Shahabad Kuno river to the proposed Shahpur Standalone PSP lower reservoir which is about 150 m away from the toe of the embankment of lower reservoir to be constructed and used cyclically for energy storage and discharge. Evaporation losses, if any will be recouped periodically from Shahabad Kuno river. This Project envisages non-consumptive re-utilization of 1.63 TMC of water for recirculation among two proposed reservoirs. The geographical coordinates of the proposed upper reservoir are at Latitude 25°11'25.21"North and Longitude is 77°10'55.78"East and that of lower reservoir are at 25°11'40.00"North and 77°11'50.00"East. Proposed rating of Pumped Storage Project is 2520 MW.

Water conductor system consist of 52.20 m high Power Intake Structure; 8 nos. each of 909 m long and 7.5 m dia. surface circular steel lined Penstock / Pressure Shaft (i.e. consisting of 711 m long surface penstock, 121 m long vertical pressure shaft and 77 m long Horizontal

pressure shaft) to feed 8 units of 315 MW; A surface Powerhouse having an installation of eight nos. reversible Francis turbine each of 315 MW capacity (6 units of fixed speed and 2 units of variable speed turbines) operating under a rated head of 157.00m in generating mode and 168.00 m in pumping mode. 8 nos. 8.5 m diameter, 190 m long Tailrace Tunnel. 125 m wide and FSD of 5.5m is the Tail race channel of 953 m long joining with the proposed lower reservoir. As such, the proposed project will generate 2520 MW by utilizing design discharge of 1817.98 Cumec with rated head of 157.00 m.

Hydrology: PSP upper reservoir and Shahpur Standalone PSP lower reservoir (both are to be constructed newly) and one-time water will be pumped from existing nearby Shahabad Kuno river to the proposed Shahpur Standalone PSP lower reservoir which is about 150m away from the toe of the embankment of lower reservoir. Secondly since these two reservoirs are not located across any stream, no specific hydrological studies are required. The upper and lower reservoirs do not have any catchment area and hence the inflow from rainfall is negligible.

Total land required for construction of various components, including infrastructure facilities and muck disposal area is estimated to be around 777.44 ha, involving 543.52 ha of forest land and 233.92 ha of non-forest land. an estimated cost of INR 11736.73 Crores. The details of land are tabulated below.

Table 4: Area Statement of Proposed Standalone PSP

Sr. No.	**Project Components**	**Forest (ha)**	**Non-Forest (ha)**
1.	Upper Reservoir	161.10	192.69
2.	Lower Reservoir(Including TRC)	330.36	0.00
3.	Approach Road to Project Components	7.24	1.13
4.	Adit	0.73	0.00
5.	WCS, PH	44.09	0.00
6.	Job Facilities Area	0.00	15.00
7.	Muck Disposal area	0.00	25.00
8.	Magazine	0.00	0.10
	Sub-total	**543.52**	**233.92**
	Total Area	**777.44**	

Project benefit:

Pumped storage hydropower is a modified use of conventional hydropower technology to store and manage energy or electricity by moving water between an upper and lower reservoir. Currently, pumped storage round-trip or cycle energy efficiencies exceed 80%, comparing favorably to other energy storage technologies and thermal technologies. This effectively shifts, stores, and reuses energy generated until there is corresponding demand for system reserves and variable energy integration. This shifting can also occur to avoid transmission congestion periods, to help more efficiently manage transmission grid, and to avoid potential interruptions to energy supply. This is important because many of the renewable energy resources being developed (e.g., wind and solar) are generated at times of low demand and off-peak energy demand periods are still being met with fossil fuel resources, often at inefficient performance levels that increase the release of greenhouse gas emissions. Further, pumped storage projects are critical to the national economy and overall energy reliability because they are:

- Inexpensive source of electricity, not requiring fossil fuel for generation
- An emission-free renewable source
- Able to shift loads to provide peaking power without requiring ramp-up time like combustion technologies
- Often designated as a "black start" source, able to restore network interconnections if a power blackout occurs
- Balancing grid for demand driven variations
- Balancing generation driven variations
- Voltage support and grid stability

Apart from this, proposed PSP will also benefit the local community by creating employment opportunities and will result in upliftment of livelihood and socio-economic conditions.

Status of other statutory clearances:

Forest Clearance: Online application will be submitted subsequently thereby seeking forest diversion for around 543.52 Ha. Alongside, other statutory clearances (as applicable) from State as well as Central government will be obtained post completion of Detailed Project Report.

Detail of court case, if any: Nil

EAC in the present meeting deliberated on the information submitted (Form 1, PFR, kml file, etc.) and as presented in the meeting and observed that in the instant project upper is located away from all existing natural water systems and have no/negligible catchment area therefore CAT Plan, RIM treatment, L-section of river and Environmental flow study for the upper and lower reservoir will not be required under EMP. EAC also observed that as per the Form 1 that there is no Protected Area notified under the Wild Life (P) Act, 1972; Critically Polluted areas as identified by the CPCB constituted under the Water (P) Act 1974; Eco Sensitive Areas as notified within 10 km of the project boundary.

EAC observed that word *Standalone* shall not be used in the title and advised that the word *Off Stream* may be added, **if** both the reservoirs are away from the riverine system. EAC after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following Additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

2. The project involves diversion of about **543.52** ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.

3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forest land required should be submitted as soon as the actual extent of forest land required for the project is known, and in any case, within six months of issuance of this letter.

4. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant chapter.

5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.

6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.

7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.

10. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA shall be submitted.

11. Dam break analysis, Disaster Management Plan and Fisheries Management Plan be prepared and submitted in the EIA/EMP report.

12. Environmental matrix during construction and operational phase needs to be submitted.

13. Both capital and recurring expenditure under EMP shall be submitted.

14. Impact of developmental activity/project on the wildlife habitat, if any, within 10 km of the project boundary shall be studied.

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Item No. 31.5 Shaheed Lakhan Nayak SHEP, District Koraput, Orissa by Meenakshi Odisha Power Private Limited-reg. Terms of Reference. Proposal No. IA/OR/RIV/140749/2020; File No. J-12011/03/2007-IA.I

Project proponent along with the consultant (M/s. R S Envirolink Technologies Pvt. Ltd. (RSET), NABET Accredited Consultant Organization, 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Certificate No: NABET/EIA/1619/SA075) made the detailed presentation on the proposal and inter alia, provided the following information:

M/s Meenakshi Odisha Power Pvt. Ltd. has entered into a Memorandum of Understanding with Government of Odisha on 27th August 2004 for setting up of Shaheed Lakhan Nayak Small Hydroelectric project of Capacity 25 MW. The Environment Clearance (EC) of Shaheed Lakhan Nayak Small Hydro-electric Project (25 MW) located at Tentuligumma Village`, Koraput District of Odisha was issued by MoEF&CC vide Letter No. J-12011/3/2007-IA.I dated 23rd April 2007. As the maximum period of validity of EC i.e. 13 years is expiring on

April 22, 2020, a fresh TOR is being requested from MoEF&CC because original EC was issued by MoEF&CC.

The project is located near Tentuligumma village Koraput district, Odisha. The project is planned on Kolab river without involving any submergence or pondage; by utilizing the flowing water in a run of the river scheme.

The project is designed with the gated weir crest level at EL 329.33 m and radial crest gates for 9.67 m height are provided to achieve a Full Reservoir Level of 339 m. The gated weir is designed with a spillway of 123 m and maximum flood level of EL 340 m such that the estimated project flood of 8200 cumec is contained within the MFL of the river course. The gated weir is provided with 7 radial gates of 15 m wide x9.67 m height and one stop log gate of 15x9.67 m for discharge regulation and flood control.

Water would be diverted for the power generation through an intake channel, one set of gates provided at the inlet of tunnel to draw required discharge from river, headrace tunnel and surge shaft. Separate penstocks are provided for each unit from the surge shaft with one set of gates at the exit of surge shaft for penstocks. A butterfly Valve for control of flow to the turbine is also provided. The powerhouse is located on the right side in a gently sloping terrain after the second fall at about 300 m downstream of the weir. The water is let out back into the river after power generation through a tailrace channel of 50 m long.

The cost estimates of civil works and E&M works are prepared based on price level adopting schedule of rates 2002-2003 for civil works suitably adjusted for local application and market rates for E&M equipment. The cost of civil works, works out to Rs.5948.41 lakhs, E&M works Rs.4707.09 lakhs, and IDC Rs. 1246.51 lakhs. The cost of the project works out to Rs.10655.50 lakhs without IDC and Rs.11902.00 lakhs with IDC. The average tariff proposed for first 12 years period is Rs.2.48 per KWh and next 13- 30 years is Rs.1.76 per KWh. The average tariff for 30 years period works out Rs.1.97 per KWh.

In the year 2012-13, the DPR with only revision in cost adopting schedule of rates 2012-13 with all other project parameters remaining same was submitted to the State Technical Committee (STC) for approval of the revised cost of 198.23 Crores. The State Technical Committee (STC) has given its consent to approve the revised cost in the forthcoming STC Meeting. The cost of civil works, works out to Rs.11066.25 lakhs, E&M works Rs.6768.80 lakhs, and IDC Rs. 1988.05 lakhs. The cost of the project works out to Rs.17835.05 lakhs without IDC and Rs. 19823.00 lakhs with IDC. The average tariff proposed for first 12 years period is Rs. 4.28 per KWh and next 13- 30 years is Rs. 3.01 per KWh. The average tariff for 30 years period works out Rs. 4.05 per KWh.

Total land requirement for the project is worked out to be 4.902 ha. There is no private land requirement and project will be constructed on 4.902 ha of forest land for which stage I clearance has already been approved and letter in this regard is about to be issued.

Project benefit:

It is a run-of-the-river scheme, a very compact project, planned on total land of only 4.902 ha with 25 MW installed capacity. There is no submergence or pondage created by project. The project will generate renewable energy to the tune of 90 million units in 90% dependable year. Survey and investigation, DPR preparation and Techno Economic Clearance (TEC) was accorded by the State Technical Committee (STC) and project is ready to go for construction.

EIA study was conducted and environment clearance granted in 2007. However, construction could not be started due to administrative delay in issue of forest clearance. The matter is now sorted but EC validity is expiring in April 2020. Therefore, fresh scoping is being requested.

Status of other statutory clearances:

The Environment Clearance (EC) of Shaheed Lakhan Nayak Small Hydro-electric Project (25 MW) located at Tentuligumma Village, Koraput District of Odisha was issued by MoEF&CC vide Letter No. J-12011/3/2007-IA.I dated 23rd April 2007.

Forest clearance for 4.902 ha of forest land is yet to be issued. Forest and Environment Department, Government of Odisha vide letter dated 05.04.2017 requested the PCCF, Odisha to comply with the deficiencies observed in the proposal for forest diversion including letter of Energy Department accepting change of name of Company. the Energy department, Govt. of Odisha approved the name change of the Company vide letter no. ENG-HYD-HYDRO-0036-2019/9918 dated 21/11/2019. The acceptance letter approving the name change of the company has been submitted to the F&E department, Govt. of Odisha with a request to expedite the grant of forest clearance.

All other statutory clearances and permissions required for the implementation of the project are in place.

Detail of court case, if any: Nil

EAC in the present meeting (31st) deliberated on the information submitted (Form 1, PFR, .kml file, etc.) and observed that EC was granted to this project on 23.04.2007 and works on the project were initiated during 2008-09 and so far an expenditure of Rs 16.34 crores has been incurred and validity of the EC for maximum 13 years is getting over on 22.04.2020. PP therefore applied for fresh ToR (*denovo*). EAC further observed that as per the DSS of the kml file submitted by the PP, Kanger valley wildlife sanctuary (Chhattisgarh State) was found located a distance of 1.09 Km from the instant project therefore General Condition is applicable to the instant project which makes this project qualifies for appraisal by the EAC as Category A project. EAC also deliberated on the request for exemption of BLD and Public Hearing.

EAC after detailed deliberation on the information submitted and as presented, **recommended** for grant of Standard ToR to the proposed project with the following Additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

2. Copy of Stage I Forest Clearance (4.902 ha) shall be submitted.

3. Status of Forest Clearance for diversion of forestland involved in the project shall be submitted.

4. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant chapter.

5. Fresh Baseline data for two seasons (Pre monsoon and Monsoon) shall be collected for preparation of EIA/EMP report.

6. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.

7. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.

8. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

9. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

10. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.

11. Pre-DPR Chapters viz., Hydrology and Layout Map and Power Potential Studies duly approved by CWC/CEA.

12. Environmental matrix during construction and operational phase needs to be submitted.

13. Both capital and recurring expenditure under EMP shall be submitted.

14. As Kanger Valley Wildlife sanctuary (Chhattisgarh State) is located a distance of 1.09 km from the instant project, copy of application submitted for NBWL clearance shall be submitted.

15. Impact of developmental activity/project on the wildlife habitat of Kanger valley wildlife sanctuary shall be studied.

16. Declaration by way of affidavit that there will be no submergence in the territory of the other adjoining States because of the proposed project.

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Item No. 31.6 Demwe Lower HEP (1750 MW) in Lohit District of Arunachal Pradesh by Athena Demwe Power Pvt. Ltd.- reg. Amendment in EC Proposal No. IA/AR/RIV/141805/2020; File No. J-12011/4/2008-IA.I

Project proponent made the detailed presentation on the proposal and inter alia, provided the following information:

Demwe Lower HE Project is envisaged as a Run-of-the-River scheme with diurnal storage. The proposed scheme consists of a Concrete Gravity Dam of maximum height of 163.12 m and length of 474.35 m at the Top elevation of EL 426.80 m. For energy dissipation Flip bucket and plunge pool has been provided.

The Catchment Area of Project is 20,174 km^2 and Full Reservoir Level is EL. 424.80 m whereas MDDL is 408.00 m. Diversion arrangement consist of 5 tunnels of 14.0 m dia on right

bank and 1 tunnel of 6.0 m dia. For the purpose of power generation, water is to be conveyed through 5 individual steel lined pressure shafts of 10 m diameter and lengths varying from 550 m to 640 m. These pressure shafts would feed 5 vertical Francis turbines of 342 MW capacity installed within a surface powerhouse located on the right bank of River Lohit. An additional unit of 40 MW catering to Environmental releases downstream of the dam has been provided. The Project live storage is 171 MCM and generation in 90% dependable year is 6322 MU whereas generation in 75% dependable year is 8354 MU.

The 1750 MW Demwe Lower HEP (Project) was accorded Techno-Economic Concurrence by Central Electricity Authority (CEA) on 20th November, 2009. Environmental Clearance was accorded by MoEFCC on 12th February, 2010 with validity till February, 2020 subject to various conditions. Some of the specific conditions regarding Forest & NBWL Clearance are reproduced below:

- *Prior approval under Forest (Conservation) Act, 1980 for diversion of forestland should be taken. No physical work will be initiated without forest clearance for this project.*

- *As the Kamlang Wildlife Sanctuary is within 10 km distance clearance from National Board for Wildlife (NBWL) under the Wildlife (Protection) Act 1972 should be obtained.*

NBWL approval for the Project in compliance of (condition-(iv) under Specific Conditions of Environmental Clearance was obtained on 11th February, 2012. The final Forest Clearance was issued by Government of Arunachal Pradesh on 26th July, 2013.

During 26th July, 2013 to 4th April, 2014, first phase tree felling operation was taken up by the State Government and some preparatory construction works related to labor camp & colony establishment, internal roads including mobilization of equipment's & manpower at site were undertaken by the Company.

On 4th April, 2014, in the appeal filed against the Forest Clearance to the Project, by an Assam based NGO – North East Affected Area Development Society, Hon'ble NGT has directed status quo on tree felling and since then the construction of the Project could not be commenced. Hon'ble NGT vide its Order dated 24th October, 2017 dismissed the appeal against Forest Clearance of the Project and directed the Standing Committee of NBWL to reconsider the issue relating to the Demwe Lower HEP and pass appropriate orders. Till such orders are passed, the Forest Clearance of the Project stands suspended.

In pursuant to the directions of the Hon'ble NGT, the Standing Committee of NBWL has *inter-alia*, considered the Project in its various meetings and decided to recommend the Proposal for construction of the Dam subject to certain conditions in its meeting held on 7th September, 2018. The decision of the NBWL has been communicated by the Government of Arunachal Pradesh vide their letter dated 28th December, 2018. However, due to ongoing litigation before Hon'ble NCLT, the conditions stipulated by NBWL are yet to be complied by the Company to enable commencement of construction of the Project. As such the Forest Clearance is still under suspension and MoEFCC is yet to issue its order as per Hon'ble NGT order dated 24.10.2017.

It may be emphasized that the CIRP is a time bound programme as per the IBC, 2016 and is expected to be completed within 270 days for submission of the Resolution Plan. The Resolution Plan for the Project was approved by Committee of Creditors within the said time

lines stipulated under the IBC and was submitted before Hon'ble NCLT for its approval on 25th June, 2018. However, the unsuccessful bidder challenged its disqualification by Committee of Creditors and filed an application before Hon'ble NCLT which is still pending before Hon'ble NCLT for adjudication. The Resolution Plan for revival of the Project submitted before Hon'ble NCLT is expected to be taken up for approval in next few months after disposal of application of unsuccessful bidder.

IBC further stipulates that the Resolution Plan has to be approved by Hon'ble NCLT in a time bound manner and the same has lapsed in the instant Project on 14th November, 2019 due to long pending litigation before Hon'ble NCLT. The PP further submitted that even under the time bound statute like IBC, the stipulated time lines are relaxed to the extent the proposal is pending before Courts due to pending litigation.

As per the Environmental Clearance, the construction work on the Project should be commenced before 11th February, 2020. In view of the reasons explained above, after grant of Environmental Clearance in February, 2010 to till date; only a period of about 8 months (i.e. between 26th July, 2013 to 4th April, 2014) was available to the Project for construction activities. During this period, the first phase was tree felling operation and was taken up by the State Government and some preparatory construction works related to labor camp & colony establishment, internal roads including mobilization of equipment's & manpower at site were undertaken by the Company. However, construction works for major Project components could not be commenced at the site. Therefore, major construction works for Project components are yet to be commenced for the reasons, which are beyond the control of the PP.

Member Secretary appraised the Committee that a number of representations have been received from Wildlife Conservation Societies and Govt. Officials stating that the submergence zone of this project is falling in the habitat of White-bellied crane/heron. This species is one of the critically endangered species.

The comparative statement with reference to earlier proposal and revised proposal is to be given in table format:

S.No.	Details	Original	Revised
1.	Environment Clearance for Demwe Lower Hydroelectric Project (1750 MW)	EC was granted vide letter No. J-12011/4/2008-IA.I dated 12.02.2010	No Change in revised proposal except para 10 of the EC letter dated 12.02.2010 for Extension of Validity of EC

An online application for amendment in EC (For validity of EC extension) was submitted on 08.02.2020 requesting the Ministry for an **amendment in EC for extension of EC validity.**

EAC in the present meeting (31st) deliberated on the information submitted by the PP regarding extension of validity of EC and the PP requested for exemption of period till issue of Stage II Forest Clearance accorded on 26.07.2013 i.e. it was granted after 3 years 5 months and 14 days of grant of EC.

EAC observed that Environmental Clearance dated 12.02.2010 to the proposed project was granted under the provisions of EIA Notification 2006. Para 9 of S.O. 1533 (E) dated 14.09.2006, explicitly mentioned that "Validity of Environmental Clearance" is meant for the period from which a prior environmental clearance is granted by the regulatory authority, to the

start of production operations by the project or activity or completion of all construction operation in case of construction projects to which the application for prior environmental clearance refers. Therefore, in the instant case validity of environmental clearance for commencement of construction work was perhaps inadvertently mentioned in the earlier issued EC vide dated 12.02.2010, which shall now be read as:

The environmental clearance is valid for a period of 10 years from the date of issue of this letter for commissioning of the project.

Further, as per the provision of Ministry's Notification S.O. 2944 (E) 14.09.2016, validity of EC can be increased for further period of three years, if the application is submitted within the validity of the EC. In the instant case application for extension of EC validity was submitted before the lapse of validity period i.e. on 11.02.2020, hence EAC **recommended** that the validity of the existing EC can be given for further period of three years, i.e. till 11.02.2023 for commissioning of the project.

In regard to the PP request for *exemption of Period till issue of Final Forest Clearance* i.e. 3 years 5 months and 14 days and to increase the validity of EC accordingly, EAC opined that instances where the work could not be started by the PP either because of the pending statutory clearances and litigation filed against the PP, in such cases Ministry may take a separate call and refer the case to Policy Sector to look into possibility to **exempt the period of litigation only** while deciding the validity of EC. Besides, as requested by the PP, EAC opined that Ministry may take a separate call regarding treating "Zero period" for the litigation and the new incumbent is finalized.

EAC opined that since many concerns have been raised by Wildlife Conservation Societies, a detailed conservation plan is to be prepared on White-bellied Crane and its habitats in the project area and submitted to the Chief Wildlife Warden for implementation.

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Item No. 31.7 Sela Urthing HEP (202 MW), Near Village Sela Pithorgarh, District in Uttarakhand by M/s UJVNL Ltd.- reg. fresh ToR.
Proposal No. IA/UK/RIV/145628/2020; File No. J-12011/08/2016-IA-1

Project proponent along with the consultant (M/s. R S Envirolink Technologies Pvt. Ltd. (RSET), NABET Accredited Consultant Organization, 403, Bestech Chambers, Block-B, Sushant Lok Phase I, Sector 43, Gurugram, Certificate No: NABET/EIA/1619/SA075) made the detailed presentation on the proposal and *inter alia*, provided the following information:

The Sela Urthing Hydroelectric Project located in Pithoragarh district of Uttaranchal envisages utilization of the water of the river Dhauliganga, a tributary of Kali (Sharda), for power generation on a run of river type scheme, harnessing a head of about 270 m. The project with a proposed installation of 230 MW (2x115 MW) would afford an annual energy generation of 826.08 GWh in a 90% dependable year. The tariff from the project at present day cost would be Rs. 1.36/KWh (levelised). Ministry had earlier accorded ToR to the proposed project on 05.05.2016 to collect baseline data and to prepare EIA/EMP report. The pre-feasibility report was prepared in February, 2004 for the above installed capacity. Project cost including IDC is Rs. 696.73 crores on June 2003, PL. Construction schedule of the project is envisaged to be 66 months. However, on the basis of revised Power Potential, the project capacity got reduced to 202 MW i.e. after recommendation of e-flow and free flow river stretch. As the four-year validity of TOR is expiring in May, 2020 and survey and investigation activities including EIA

study and Public Hearing cannot be completed in one year; a fresh TOR with five-year validity is requested for revised capacity of 202 MW.

The diversion site is located at Latitude $30^0$8'29" N; Longitude $80^0$36'23" E. The dam site is approachable from Tanakpur by road at a distance of 263 km up to Khela and 20 km from Khela by Kuchha Road. The nearest railhead is located at Tanakpur and nearest airport is located at Pithoragarh (Partially Operational) and Pantnagar (Operational). The Sela Urthing HE project envisages construction of:

- One 73 m high Concrete Gravity diversion dam across river Dhauliganga to provide a live storage of 1.71 million m^3 with FRL at 2,470 m and MDDL at 2,455 m;
- Two de-silting chambers of length 284 m (L) and size 13 m (W) x 16 m (H) to remove silt particles of size 0.2 mm and above;
- One 2.01 km long and 6.0 m dia. headrace tunnel terminating in a surge shaft;
- One 70.4 m high and 10 m dia. surge shaft;
- 410 m long and 4.6 m dia. Penstock;
- Surface power house having an installation of 2 Francis driven generating units of 101; MW each operating under a rated head of 259.55 m; and
- 30 m long open tailrace channel to carry the powerhouse releases back to the river.

The power generated from the project would be evacuated through 400 kV DC lines to a pooling station near Bareilly to feed power to the power grid. The river Dhauliganga drains a catchment area of about 921 km^2 at the proposed dam site. The water availability for the project has been considered on the basis of 10 daily discharge series at Pancheshwar dam site for the period 1962-92. The flow series for Sela Urthing HE Project were derived by carrying out runoff-runoff correlation between concurrent flows at Chirkila & Pancheshwar and subsequent reduction in proportion to the catchment area. The computed inflow series worked out has been utilized for Power Potential Studies. The design flood has been assessed as 4603.03 cumec.

The total land requirement for the project is about 65 ha, of which 4.0 ha is private land and remaining 61 ha is forestland. The underground powerhouse with gross head of 267 m is proposed on the right bank of the river with 2 units of 101 MW each. Application for diversion of forestland is yet to be initiated. The project is outside of any wildlife sanctuary/National Park, however, it falls within 10 km of Askot Musk Deer WLS. Eco-sensitive Zone of WLS is still in draft stage and project is likely to fall inside the ESZ once the notification is finalized. Due to project falling within 10 km of WLS, a proposal was submitted by the PP for NBWL clearance. The project proposal was recommended by the Standing Committee of NBWL in its 36th meeting held on 04th November, 2015 for carrying out survey and investigation works.

After detailed deliberation on the information submitted and as presented, the EAC **recommended** for grant of Standard ToR to the proposed project with the following additional ToR conditions:

1. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines. Private land shall be acquired as per provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

2. The project involves diversion of 61 ha of forestland. Forest clearance shall be obtained as per the prevailing norms of Forest (Conservation) Act, 1980.

3. Application to obtain prior approval of Central Government under the Forest (Conservation) Act, 1980 for diversion of forestland required should be submitted as soon as the actual extent of forestland required for the project is known, and in any case, within six months of issuance of this letter.

4. All the tasks including conducting public hearing shall be done as per the provisions of EIA Notification, 2006 and as amended from time to time. Public hearing issues raised and compliance of the same shall be incorporated in the EIA/EMP report in the relevant chapter.

5. An undertaking as part of the EIA report from Project proponent, owning the contents (information and data) of the EIA report with the declaration about the contents of the EIA report pertaining to a project have not been copied from other EIA reports.

6. Funds allocation for Corporate Environment Responsibility (CER) shall be made as per O.M. No. 22-65/2017-IA.III dated 01.05.2018 for various activities therein.

7. The details of funds allocation and activities for CER shall be incorporated in EIA/EMP report.

8. Consolidated EIA/EMP report is to be submitted as per the generic structure (Appendix III & IIIA) given in the EIA Notification, 2006.

9. Conservation plan for the Scheduled I species, if any, in the project study area shall be prepared and submitted to the Competent Authority for approval.

10. Hydrological studies approved by the CWC shall be submitted.

11. Dam break analysis and Disaster Management Plan be prepared and submitted in the EIA/EMP report.

12. Environmental matrix during construction and operational phase needs to be submitted.

13. Both capital and recurring expenditure under EMP shall be submitted.

14. Impact of proposed project activity on the nearest wildlife habitat, if any shall be studies and conservation plan shall be prepared accordingly.

15. As the Askot Musk Deer Wild Life Sanctuary is located within 10 km of the project boundary, NBWL clearance shall be obtained.

16. Updated PFR and Form-I for 202 MW installed capacity should be submitted before issue of the Scoping Clearance.

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Item No. 31.8 Any other item with the Permission of the Chair.

As there were no items left, meeting ended with thanks to the Chair.

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Email **s.kerketta66@gov.in**

Re: Draft 31st MoM of EAC meeting held on 05.03.2020.

From : s k jain <s_k_jain@yahoo.com> Fri, Mar 20, 2020 11:30 AM
Subject : Re: Draft 31st MoM of EAC meeting held on 05.03.2020. 1 attachment
To : Dr S Kerketta <s.kerketta66@gov.in>
Reply To : Sharad Jain <s_k_jain@yahoo.com>

Dear Dr. Kerketta,
I am sending the approved minutes.
The table numbers in the minutes may be updated.

Regards,

Sharad K Jain / शरद कुमार जैन
Chairman EAC and
Visiting Professor, Civil Engg. Dept.
Indian Institute of Technology, Roorkee, India
Tel: +91 98970 18550

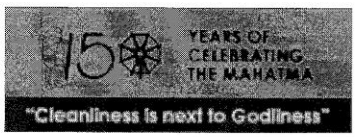
On Thursday, 19 March, 2020, 01:29:48 pm IST, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Dear Sir,

It is to inform that the same was sent to all the members present on the day of EAC meeting on 17.03.2020. No comments received from any one. Draft 31st MoM of EAC meeting held on 05.03.2020 is attached for approval please.

regards,

Dr. S. Kerketta
Director- IA (Thermal, River Valley & HEP)
MoEF&CC, New Delhi
Phone: 011-24695314 (O), 26113096 (R)



LIST OF MEMBERS

31st MEETING OF RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) FOR RIVER VALLEY & HYDROELECTRIC PROJECTS

DATE : **5th March 2020**

TIME : **10:30 am onwards**

VENUE : **Brahmaputra Hall, Vayu Block, Indira Paryavaran Bhawan, New Delhi**

Sl.No.	Name of Member		Signature
1.	Prof. Sharad Kumar Jain, Chairman		
2.	Shri. Sharvan Kumar, Member		5/3
3.	Shri N. N. Rai, Member		
4.	Dr. J.A.Johnson, Member		Ab
5.	Dr. AK Sahoo, Member		5/3/2020
6.	Dr. Vijay Kumar, Member		
7.	Prof. Govind Chakrapani, Member		Ab
8.	Dr. Chetan Pandit, Member		Ab
9.	Dr. Dinkar Madhavrao More, Member		
10.	Prof. R.K. Kohli, Member		Ab
11.	Prof. S.R. Yadav, Member		Ab
12.	Dr. Jai Prakash Shukla, Member		
13.	Dr. Poonam Kumria, Member		Ab
14.	Dr. Kerketta, Member Secretary Director (IA-1)		5/3/2020