

STATUS OF PUMPED STORAGE DEVELOPMENT IN INDIA
(Installed Capacity above 25 MW)

As on 30.09.2021

S.No.	SCHEMES	STATE	INSTALLED CAPACITY		REMARKS
			No. of units x Unit size(MW)	MW	
A. <u>SCHEMES CONSTRUCTED</u>					
a) Working in Pumping Mode					
1	Nagarjuna Sagar	Telangana	7x100.80	705.60	
2	Srisailem LBPH	Telangana	6x150	900	
3	Kadamparai	Tamil Nadu	4x100	400	
4	Bhira	Maharashtra	1x150	150	
5	Ghatgar	Maharashtra	2x125	250	
6	Purulia	West Bengal	4x225	900	
			Sub Total	3305.60	
1	Kadana	Gujarat	4x60	240	Two units of the project were commissioned during 1990 & two units in 1998. Machines operated in generation mode till 2004 and trial for pump mode operation was done during 2004-05. However, operation in pumping mode was not taken up subsequently due to vibration problem in the machines. CKD Blanksko (OEM) was contacted by the project authorities and they submitted their offer for rectification of the problem. This offer was discussed in a meeting by GSECL and it's management decided to rectify the problem on their own (through in house expertise) as the offer of CKD Blanksko was costlier. The Kadana unit no 3 was identified as the pilot unit for revival of Pump Mode Operation of KHEP. As per the report of vibration analysis of unit no 3, necessary corrections like replacement of both the bearings, alignment and centering of turbine shaft is completed recently. The stop log gates of Kadana Unit no 3 are removed. The protection testing of Kadana Unit no 3 is completed and found OK. The trial run of unit in generation mode is also completed. Meanwhile, in a meeting, under the chairmanship of Member (Hydro), CEA on 16.08.2021, to discuss operation of Kadana Pumped Storage Project not working in pumping mode, it was deliberated that there are 4 units in Kadana PSP & Rs. 108 Crores /unit has been quoted by OEM for rectification, a total expenditure of about Rs. 450 Crores is required. CE (Hydro), GSECL requested that this fund may be provided by Central Government through some scheme like PSDF, etc. At present, after attending the bearings, the unit no 3 was run in generation mode. The vibration analysis was carried out by Ex BHEL expert in generation mode and found to be working properly. Now the matter will be taken up with Irrigation Department to take permission for reversible mode trial. Along with it, the systems/control loops for reversible mode operations will be checked for healthiness and further actions will be planned accordingly. On successful trial of unit no 3 under pump mode, similar corrections/rectification activities will be replicated in other units also. The matter for revival of one unit through the OEM is also being explored in parallel by GSECL.
2	Sardar Sarovar Project	Gujarat	6x200	1200	Sardar Sarovar Pumped Storage Hydro Electric Project(1200 MW) was commissioned during 2004-06. The Generation of SSHEP is shared between Gujarat (16%), Maharashtra (27%) & Madhya Pradesh (57%) States, as per the Narmada Water Disputes Tribunal (NWDT) Award. The entire operations of the Project are based on the directives by Narmada Control Authority (NCA) under Ministry of Jal Shakti, Indore and as per Narmada Water Disputes Tribunal (NWDT) award. There was no mention of pump storage operation of the project in NWDT award. The project was not operating in Pumping mode as the lower reservoir at Garudeshwar weir was not operational and the equipments required to operate it in pumping mode were also not installed. Now, the lower reservoir at Garudeshwar weir has been made operational by Gujarat. Govt. of M.P. and Maharashtra are of the opinion that pumping in the project is not as per NWDT award. Both the states are ready to participate if water sharing, cost apportionment, power distribution, O&M issues, operational methodology and Legal issues are resolved by NCA taking into consideration the NWDT award in the new scenario of pumping mode operation of the project. In the meeting held on 31st August, 2021 via video conferencing organised by CEA, representative of SSNNL stated that for operationalization of pumping mode of 6 units of 200 MW of River Bed Power House (RBPH) of Sardar Sarovar Project, an expenditure of Rs. 294/- crore (Rupees Two hundred ninety-four crores only) is required which should be shared among the partner States. Out of three partner states of M.P. Gujarat and Maharashtra, only M.P. Govt. is not agreeable to pumping mode operation of project. The issue was discussed recently in its 92nd meeting held on 24.8.2021 and Chairman, NCA has directed Member (Power), NCA to thoroughly examine the matter, taking into consideration all the correspondences that have been made between Govt. of Gujarat, Govt. of M.P. and NCA and prepare a detailed report.
			Sub total	1440	
			Grand Total	4745.60	

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B. <u>SCHEMES UNDER CONSTRUCTION</u>					
a) Under Active Construction					
1	Tehri St.-II	Uttarakhand	4x250	1000	Likely commissioning by 2022-23 (Dec.'22)
2	Kundah (Stage I,II,III&IV)	Tamil Nadu	4x125	500	Likely commissioning by 2023-24 (Apr. 2023)
			Total	1500	
b) On which Construction is held up					
1	Koyna Left Bank	Maharashtra	2x40	80	Likely commissioning by 2025-26*
			Total	80	
			Grand Total	1580	
C. <u>DPR CONCURRED BY CEA</u>					
1	Turga	West Bengal	4x250	1000	EC & FC-I obtained. FC-II is awaited.
			Total	1000	
D. <u>SCHEME UNDER EXAMINATION IN CEA</u>					
1	Pinnapuram	Andhra Pradesh	4x240+2x120	1200	Off-River project; Both Reservoirs to be constructed
			Total	1200	
E. <u>SCHEMES UNDER SURVEY & INVESTIGATION</u>					
1	Upper Indravati	Odisha	4x150	600	Upper Reservoir existing; Lower Reservoir to be constructed; Target date for preparation of DPR – 12/2021
2	Upper Kolab	Odisha	2x160	320	Upper Reservoir existing; Lower Reservoir to be constructed; Target date for preparation of DPR – 12/2022
3	Balimela	Odisha	2x250	500	Upper Reservoir existing; Lower Reservoir to be constructed; Target date for preparation of DPR – 08/2022
4	Upper Sileru	Andhra Pradesh	9x150	1350	Both Reservoirs existing; Target date for preparation of DPR – 11/2021
5	Kodayar	Tamil Nadu	4x125	500	Both Reservoirs existing; Target date for preparation of DPR – 12/2021
6	Sillahalla St.-I	Tamil Nadu	4x250	1000	Upper Reservoir & Lower Reservoir to be constructed; Target date for preparation of DPR – 02/2022
7	Sharavathy	Karnataka	8x250	2000	Both Reservoirs existing; Target date for preparation of DPR – 12/2021
8	Saundatti	Karnataka	4x252+2x126	1260	Lower Reservoir existing; Upper Reservoir to be constructed; Target date for preparation of DPR – 12/2021
9	MP30 Gandhi Sagar	Madhya Pradesh	5x240+2x120	1440	Upper Reservoir-Off the river, Lower Reservoir-Chambal
10	Warasgaon	Maharashtra	4x300	1200	Upper Reservoir-Mose, Lower Reservoir-Kal
			Total	10170	
F. <u>SCHEMES UNDER PRE-FEASIBILITY REPORT PREPARATION (PFR)</u>					
1	Gandikota	Andhra Pradesh		600	
2	Chitravathi	Andhra Pradesh		500	
3	Somsila	Andhra Pradesh		1200	
4	Owk reservoir	Andhra Pradesh		800	
5	Kurukutti	Andhra Pradesh		1200	
6	Yerravaram	Andhra Pradesh		1000	
7	Karrivalasa	Andhra Pradesh		1000	
8	Velimalai	Tamil Nadu		200	
9	Bandhu	West Bengal		900	
			Total	7400	

* Subject to re-start of work in immediate future.