

1. As per the power conferred to office of Commissioner, New and Renewable Energy under Clause 1.2.6 read along with Clause 1.1.1 of Guidelines for implementation of Madhya Pradesh Renewable Energy Policy – 2022, following guidelines are hereby notified for implementation and development of Pumped Hydro Storage Projects in Madhya Pradesh.
2. This shall be termed as “**Scheme for implementation of Pumped Hydro Storage (PHS) Projects in Madhya Pradesh**”. It shall be read along with the Madhya Pradesh Renewable Energy Policy – 2022 and associated Guidelines.
3. **Introduction**
 - 3.1. Central Electricity Authority (CEA) in its report titled “Report on Optimal Generation Capacity Mix for 2029-30” projected the India’s installed capacity by end of 2029-30 as 817 GW. The project solar and wind capacities at the end of 2029-30 would be 140 GW and 280 GW respectively. For smoother RE grid integration, it was envisaged to have at least PHS projects of 10,151 MW along with a Battery Energy Storage capacity of 27,000 MW. Hence, it is necessary now to holistically consider the development of RE with equivalent addition of energy storage technologies to ensure grid resilience.
 - 3.2. Ministry of Power, GoI vide order F.No.09/13/2021-RCM dated 22nd July 2022 prescribed share of renewables in the energy mix of the country as 43.33% by FY 2029-30. Further, for the first time, year-wise target for energy storage is prescribed for the nation. It is aimed to have 4% of total energy consumed through energy storage sources by FY 2029-30, which shall be calculated in energy terms as a percentage of total consumption of electricity and shall be treated as fulfilled only when at least 85% of the total energy stored in the Storage System, on annual basis, is procured from renewable energy sources.
 - 3.3. PHS plants can be highly useful for facilitating integration of highly variable RE power into the power system as well as to meet the energy storage target of the nation. Other new storage technologies such as grid scale battery energy storage systems are becoming attractive globally due to its rapidly reducing cost with the technological advancement.

3.4. Although PHS dominates the global storage-capacity, its growth in India has been tepid. The Central Electricity Authority of India has estimated a PSP potential of 96 GW, but only 6.8 GW is currently operational/under construction in India. The slow pace can be attributed to the high cost associated with the commissioning of PSP, the long gestation period due to delays in obtaining environmental clearances, and the low recovery from the existing pricing mechanism of PSP. However, to achieve target of infusing 500 GW of RE energy into the electricity grid by 2030 would require conscious effort to develop time-proven energy storage technology at exponential rate.

4. MP State Potential

4.1. CEA India has identified 63 sites for Pump Storage Hydro Project exploration with a total potential of about 96.5 GW, where the western region in India has the highest PSH potential of 39.68 GW. Madhya Pradesh is estimated to have a total potential of 11.2 GW. It may however be noted that the CEA assessment does not include off river Pumped Storage Hydro projects and potential of retrofitting existing hydro projects to develop Pump Storage Hydro Project.

4.2. Further, a new category of PSPs called off river PSP (which being located away from the river course do not involve any longitudinal connectivity issues or E-flows requirements) is gaining attention. Off river PSPs in many cases would require only one time filling of water into the upper reservoir and this would be on a non-consumptive basis. Since this is located away from the reservoir and uses water on a non-consumptive basis the supply of water is akin to water supply being provided to any industry for its consumption. Hence, it is felt necessary to promote development of PSHs, including off-the-river closed loop pumped storage projects, in the State.

5. Identification of Pumped Hydro Storage Site

5.1. Pumped Hydro Storage site may either be identified by the PHS developer or by the Nodal Agency/ MPPMCL/SECI/PSU/PSE.

5.2. PHS developers are required to register themselves with MPIDC under Intention to Invest. PHS Projects registered under Intention to Invest prior to

the notification of this scheme shall also be eligible to avail benefits provided under the Scheme. PHS developer shall submit the Preliminary Exploration of Potential Site(s) for Pumped Hydro Storage Projects covering at least following details/documents:

5.2.1. Reservoir Details:-

- i. Availability of Upper/Lower Reservoirs with geological coordinates.
- ii. Land area required with details such as Revenue/Forest/Private
- iii. Storage capacity of Reservoirs
- iv. Full Reservoir Level (FRL) of the available Reservoir(s)
- v. Minimum Draw Down Level (MDDL) the available Reservoir(s)
- vi. Gross Head available at Site
- vii. Length to Height (L/H) Ratio of the Site

5.2.2. Location details:-

- i. District/Tehsil/Taluka/Village name in which the site is located
- ii. Status of the approach roads
- iii. Geological coordinates of existing transmission &/or distribution network and GSS with distance from site
- iv. Detail of Interference with Wildlife Sanctuary & National Park or any other restricted Area
- v. Geographical Maps & Pictures of location

5.2.3. Other Details:-

- i. Total estimated potential of PSP-Hydro in MW capacity with Energy to Power ratio (i.e. MWh/MW in hrs)
 - ii. Capacity of the reservoir required to be constructed, if any
- 5.3. Comprehensive list of feasible Pumped Hydro Storage site for which proposal has been registered under Intention to Invest and list of projects identified by Nodal Agency/ MPPMCL/SECI/PSU/PSE through pre-feasibility studies shall be made available at the official website of the New and Renewable Energy Department.
- 5.4. Notwithstanding anything contained in this Policy, submission of Preliminary Exploration of Potential Site(s) for Pumped Hydro Storage Projects by PHS

developer or registration with MPIDC under Intention to Invest does not provide any exclusivity rights to them on specific site.

- 5.5. Upon requirement of Energy Storage by State Discoms or MPPMCL, Nodal Agency/ MPPMCL/SECI/PSU/PSE may invite bids for procurement of power from PHS projects to be set up in the state through competitive bidding.

6. Mode of Project Development

- 6.1. Pumped hydro storage project may be developed under following modes, Mode – I: Sale of power to third parties or OA consumers / Exchange sale / Captive consumption and Mode – II: Bid conducted for meeting MPPMCL requirement.

6.2. Mode – I: Sale of power to third parties or OA consumers / Exchange sale / Captive consumption

6.2.1. PHS site shall be allotted through transparent competitive bidding route for the purpose of Captive Consumption / Sale of power to third parties or OA consumers / Exchange sale.

6.2.2. PHS developer quoting highest Premium (in paise per unit of dispatchable energy) over and above Harit Urja Vikas Fees shall be allotted with the PHS site through competitive bidding. Distribution of the above-mentioned Premium shall be done in the same ratio as applicable for distribution of Harit Urja Vikas Fees prescribed in Madhya Pradesh Renewable Energy Policy – 2022.

6.2.3. Harit Urja Vikas Fees plus the Premium determined in the bid shall be termed as PHS Charges.

6.2.4. For state based PHS sites, Nodal Agency/ MPPMCL/ SECI/PSU/PSE shall be the authorized bid process coordinator for the selection of the PHS developer, and it shall initiate a National/International Competitive Bidding for selection of PHS developer for allotment of PHS site.

6.2.5. MPPMCL will have the First Right of Refusal of electricity generated up to 10% in projects developed under this Mode. The first right of refusal shall be exercised by MPPMCL on determination of tariff by Central /

Madhya Pradesh Electricity Regulatory Commission.

- 6.2.6. Tariff for procurement of power under First Right of Refusal shall be as mentioned below:
- i. ***In case of sale of electricity to third party/merchant sale:*** Rate at which electricity shall be procured by MPPMCL would be minimum of the tariff determined in the competitive bidding process for third party/merchant sale or the tariff determined by the Central/Madhya Pradesh Electricity Regulatory Commission for such project.
 - ii. ***In case of Captive use of electricity:*** Electricity will be procured by MPPMCL at the tariff determined by the Central/State Electricity Regulatory Commission for such project
- 6.2.7. Harit Urja Vikas Fees shall not be payable by the developer on the quantum of electricity procured by MPPMCL.
- 6.2.8. The PHS site in the reservoir of the Government owned entity will be considered for allotment and development on a case- to-case basis to Government / Central Entity by the State Government on receipt of the request.
- 6.3. **Mode – II: Bid conducted for power procurement by MPPMCL**
- 6.3.1. MPPMCL shall identify the long-term requirement of the Energy Storage.
 - 6.3.2. Nodal Agency/ MPPMCL/ SECI/PSU/PSE as an authorized bid process coordinator for the selection of the PHS developer, shall select PHS developer through National/International Competitive Bidding.
 - 6.3.3. The bid parameter for selection of PHS developer may be as approved by MPPMCL.
- 6.4. Government land shall be allocated to project being developed by developer under Mode – I at 100% circle rate.
- 6.5. Government land required for development of the project development under Mode – II shall be allotted to the developer as per the applicable provisions of the Madhya Pradesh Renewable Energy Policy - 2022.

- 6.6. PHS site identified by RUMSL/MPPMCL/State Nominated Agency could also be developed, by forming SPV/Joint Venture with interested investors after preparation of PFR/DPR.

7. Dovetailing Government of India Policies and Schemes

- 7.1. Whenever, Viability Gap Funding scheme for Pump Storage Hydro Projects is formulated, the projects shall be eligible for VGF from the Central Government and/or State Government as per the Policy decisions of the Government. No VGF from State Government shall be made available to projects set up under Mode – I..
- 7.2. VGF from State Government, if any, may be available and consequently VGF based bids can be conducted only when the power from the PHS is to be procured by MPPMCL. Allocation of VGF will be in proportion to the power being purchased by MPPMCL.

8. Incentive to PHS projects under the scheme:

- 8.1. Following incentives/benefits could be availed by PHS project developer as prescribed under Madhya Pradesh Renewable Energy Policy, 2022. However, for allotment of Revenue Land, provision specified in Clause 6.4 and 6.5 of this Scheme shall remain applicable.
- 8.2. **Exemption in Electricity Duty and Energy Development Cess:**
- 8.2.1. As per the provisions of Madhya Pradesh Vidyut Shulk Adhiniyam, 2012 shall be exempted from payment of Electricity Duty for 10 years from date of COD, towards storage of electrical energy in any form; and towards supply of electrical energy to Distribution Licensee/ Third party / Captive purpose;
- 8.2.2. No energy development cess shall be payable on the power supplied by renewable energy projects for a period of ten (10) years from the COD.
- 8.3. **Reimbursement of Stamp Duty**
- 8.3.1. Stamp duty shall be reimbursed at the rate of 65% (50% + 15% additional for energy storage projects) on purchase of private land for the project shall be available to developers.
- 8.4. **Government Land on concessional rate:**

8.4.1. Government land, if available, shall be provided on concessional rate of 65% (50% + 15% additional for energy storage projects) to developers.

This shall remain applicable only to projects developed under Mode – II.

8.5. Waiver of wheeling charges:

8.5.1. Facility of wheeling will be available to all RE power projects through MPPTCL/ MP Discoms, as case may be, as per wheeling charges specified by MPERC. 50% waiver on wheeling charges shall be applicable or as may be approved by Madhya Pradesh Electricity regulatory Commission from time to time. This waiver shall be applicable for 5 years from COD.

8.6. Exemption in registration cum facilitation fees:

8.6.1. PHS project shall be exempted from payment of 20% of registration cum facilitation fees.

8.7. Carbon credits or any other similar incentives, which are available for such projects, can be availed by developers, as per the guidelines issued by the concerned authorities from time to time or as per the provisions of arrangement between developers and procurer/ user.

9. Operationalization of Pump Hydro Storage Scheme

9.1. Nodal Agency shall have Administrative Powers to frame operational guidelines for implementation of Pump Hydro Storage Scheme.

9.2. Nodal Agency shall have Administrative Powers to issue orders/clarifications/amendments etc to remove any difficulty in implementation of Pump Hydro Storage Scheme.

9.3. The progress of PHS projects will be regularly monitored by the Nodal Agency or any other institutions nominated by the Nodal Agency for such purpose. The time frame for major activities related to project development will be defined at the time of project allocation by the Nodal Agency. In case of undue delay in development of the project, the nodal agency reserves the right to cancel the allotment of the project.