**Pumped Hydro Electric Storage with Elevated Water Reservoir in Dharmapuri**

By

**So-called engineers**

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**INTRODUCTION:**

One of the major demands facing by a country or a state are electricity and water Tamil Nadu has 8 drought – prone districts covering 833997 or about 64% of the total area of the state. In that, Dharmapuri is one of the thirstiest districts and it also having high electricity demand. A complete urbanization is achieved by full filling their demands and essential needs, making a district drought free and provision of electricity is also helping for the development of a country. In order to full fill the both demands (water & electricity) by considering average electricity consumption and domestic water usage, we are going to propose a Pumped Hydro Electric Storage with Elevated Water Reservoir

**NEED:**

The needs of pumped hydro energy storage are given below,

1. Electricity demand in particular area
2. Unavailability of renewable energy sources
3. Spending more cost on buying electricity
4. Demand of water in certain district
5. Enormous issues due to water scarcity

**OBJECTIVES:**

1. To posses hydro energy, even in absence of reservoir or dams
2. To reduce the thirty districts in a state or country
3. To provide electricity 24/7
4. Increase of renewable energy and decrease of non-renewable energy sources
5. Supply electricity and water to remote control areas based on their demand.

**IMPLEMENTATION:**

Based on the location, demand, drought and geological features this system was implemented.

1. Identifying the required amount of water for domestic usage in total district.
2. And identifying total amount of electricity required.
3. Now constructing a elevated water reservoir which is capable to store 50 lakh liters of water.
4. Provision of incoming water source for reservoir from nearby river stream.
5. Providing delivery heads and pipelines from the reservoir to distribution units.
6. Mounting reversible pump turbine in delivery line at the bottom of reservoir.
7. Now recharging the reservoir with available energy backups
8. While releasing the water from tank, the turbine with attached generator will generates maximum electricity.
9. Meanwhile the water required for domestic use are also distributed.

**WORKING:**

i. The inlet water to be stored in elevated reservoir is taken from Stanley reservoir near perumbalai.

ii. The water must be drained through delivery pipe.

iii. The impeller can rotate through the force of water pressure to generate electricity.

iv. Meanwhile, the water passes over the turbine is distributed to the surrounding blocks.

**SPECIAL FEATURES:**

To determine the depth of the water level stored in the elevated water reservoir, the ultrasonic sensor is used.

**MERITS:**

i. Hydel power is free from environmental pollution.

ii. The fuel is not required.

iii. Maintenance and operation charges are very low.

iv. The water stored in the hydroelectric power plant can also be used for irrigation purpose.

v. No acid rain, no radioactive waste.

**DEMERITS:**

1. The initial cost of the plant is high.
2. It requires skilled labor for construction purpose.
3. Water in the reservoir is lost by evaporation.
4. Since they are located far away from the local center, the cost of transmission line and transmission losses will be more.

**APPLICATIONS:**

* + Energy storage provides a myriad of beneficial services and cost savings to our electric grid, and companies are deploying storage technologies for a number of different purposes.
  + PHES are used for developing renewable energy resources in a country
  + It can be used for generation of electricity without polluting environment
  + Distribution of water to drought areas
  + Reducing water scarcity and electricity demand
  + Reducing expenditure for buying electricity.

**CONCLUSION:**

Thus, the electricity and water demand of thirsty district in Tamil Nadu is reduced and water scarcity for domestic usage to major 4 blocks is nullified. Hence the thirsty districts in the state was shortlisted.