

**ANALYSIS AND PROPOSAL FOR THE IMPLEMENTATION AND/OR COMPLEMENTATION OF REVERSIBLE HYDROELECTRIC POWER PLANTS IN BOLIVIA**

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**ABSTRACT**

In the Electric *Plan of the Estado Plurinacional de Bolivia* for the year 2025, the *Empresa Nacional de Electricidad* (ENDE) has proposed the installation of several hydroelectric and renewable energy plants to meet the growing demand and eventually the export of electricity. However, non-conventional renewable energies such as solar and wind energies have disadvantages, due to the intermittency in generation, which causes a waste of energy, since electricity is generated in moments where the demand is low. For this reason, some countries are researching energy storage. One good option for this purpose is the pump-storage hydroelectricity. In this sense, the work presents a study to build and/or transform hydroelectric plants into reversible plants. Firstly, the hydroelectric power station was selected (analyzing the plants already built and those that are in projects) through well-defined desired characteristics for a pump-storage hydroelectricity system. After this, the pump system was designed and the working hours were estimated in order to achieve the adequate energy storage according to the needs of energy demand in Bolivia.

**Keywords:** Pump-Storage Hydroelectricity, Hydroelectric Power Station, Energy Demand, Bolivia.

DOI: 10.23881/idupbo.022.1-4i