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DEPARTMENT OF MECHANICAL ENGINEERING

REPORT ON INDUSTRIAL VISIT

ACADEMIC YEAR : 2024-2025

Date:28-01-2025

COMPANY NAME : BALAJI HYDAL POWER STATION- SOMASILA



DESCRIPTION:

The Balaji Power Plant refers to the 10 MW Somasila Hydro Power Project in Nellore District, Andhra Pradesh, established by Balaji Energy Pvt. Ltd. and commissioned in 2007, utilizing irrigation discharges from the Somasila Dam to generate clean electricity and contribute to the local power supply. The project consists of two 5 MW vertical Kaplan adjustable blade turbine units and was a significant initiative to meet the state's growing demand for power.

Key Details:

- **Project Name:** 10 MW Somasila Hydro Power Project
- **Developer:** Balaji Energy Pvt. Ltd.
- **Location:** Somasila Dam in Atmakur Taluk, Nellore District, Andhra Pradesh, India
- **Capacity:** 10 MW (two units of 5 MW each)
- **Technology:** Vertical Kaplan adjustable blade type turbines
- **Objective:** To generate clean energy by harnessing irrigation discharges from the Somasila Dam, helping to meet local power demand.

Project Context:

- The project was established to provide a sustainable source of electricity and contribute to the overall power needs of Andhra Pradesh.
- It was commissioned in 2007, with the first unit being commissioned on December 31st of that year.
- The project's establishment was a result of a Letter of Intent issued in 1994 to the petitioner-company for the establishment of the mini hydel power project.

Benefits:

- **Clean Energy:**

The project generates clean electrical energy from a renewable hydro resource.

- **Local Employment:**

It was expected to create employment for the local population, reducing urban migration.

- **Power Supply:**

The 10 MW generated power helps to partially meet the state's increasing demand for electricity.

- **Somasila Reservoir Utilization:**

The project effectively utilizes the hydro potential available at the Somasila reservoir.

Parts of a Hydroelectric Plant: Most conventional hydroelectric plants include four major components (see graphic below):

1. Dam. Raises the water level of the river to create falling water. Also controls the flow of water. The reservoir that is formed is, in effect, stored energy.

2. Turbine. The force of falling water pushing against the turbine's blades causes the turbine to spin. A water turbine is much like a windmill, except the energy is provided by falling water instead of wind. The turbine converts the kinetic energy of falling water into mechanical energy.

3. Generator. Connected to the turbine by shafts and possibly gears so when the turbine spins it causes the generator to spin also. Converts the mechanical energy from the turbine into electric energy. Generators in hydropower plants work just like the generators in other types of power plants.

4. Transmission lines. Conduct electricity from the hydropower plant to homes and business

CONCLUSION:

The Industrial Visit to the Balaji Energies Pvt Ltd., Somasila Dam was highly successful. We received insight of the whole plant right from the raw material (water) procurement, processing, generation & transmission of electricity. The whole process was explained in-detail by their representative with detailed description about each equipment with their specifications. A doubt solving session with the Control Room Incharge cleared all our queries. This kind of industrial exposure helped us to absorb the theoretical aspects of Power Plant and Mechanical Engineering more efficiently.

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