

SECTOR:  
WATER

OFFERINGS:  
DESIGN OPTIMIZATION

TECHNOLOGY:  
CFD

## SELECTION & DESIGN CONSULTATION FOR 1 MW HYDEL INSTALLATION

Our customer is one of the major manufacturers for renewable power generation power plants in the country. The customer wanted to propose for a project where micro hydro turbine plant was to be designed, developed, manufactured, supplied, installed and commissioned. To pursue the same, the customer wanted to first create a detailed project report for approval from authorities. The project document must have included details of project location, installation details, selection of equipment & estimates of power generation from the hydro turbines.

Zeus Numerix approached the problem by first undertaking a site visit to understand the location, terrain, and installation constraints. For selection of the hydraulic turbine, factors like flow rate, head available and actual flow availability were considered. The report included details of the selection of hydraulic turbine, complete technical specifications of the selected turbine, generator, monitoring systems and data acquisition systems to be used. This data was compared against various turbines head vs flow rate envelope to select the most optimum hydraulic turbine. A detailed risk-benefit analysis was done. A cost estimation exercise proved financial feasibility of the project.

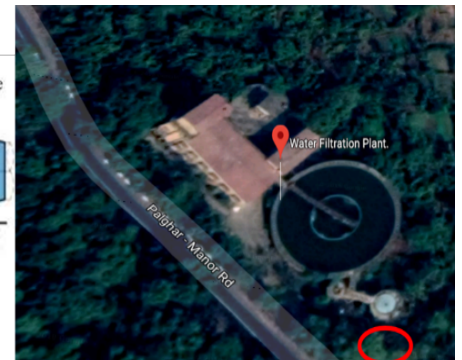
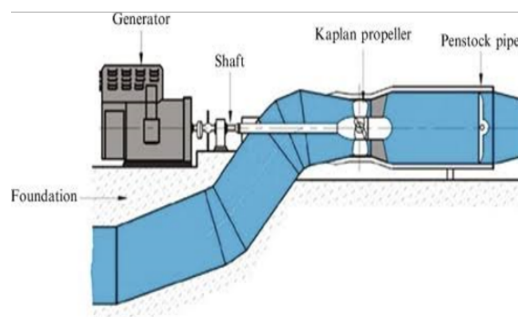


Figure 1: (a) Schematic of Selected In-Pipe Hydro Turbine (b) Installation Layout at Site

A detailed survey report was delivered to the authorities for approval, that was subsequently granted. A detailed bill of materials was delivered to the customer. In addition to these, the report contained details of installation layout at site, essential provisions to be made at site and scope of contractor post installation of hydel power plant. The complete document acted as reference for execution of hydro project.