

CHAPTER - 9

POWER PLANT ELECTRICAL AND MECHANICAL EQUIPMENT

9.1 INTRODUCTION

The Chutak H.E. Project powerhouse will be of Underground type. The scheme envisages installation of 4 Nos. generating units of 11 MW each operating under a rated head of 52 m. The generating voltage of 11kV would be stepped up to 33 kV voltage level by single-phase transformer bank. The generator main leads would be connected to its step-up transformers by means of air insulated isolated phase bus ducts. The HV bushing of transformer will be further connected to 33kV switchyard through XLPE cables.

The salient features of the project are as follows: -

Installed capacity	- 44 MW
No. & size of units	- 4 units of 11 MW
Type of power house	- Underground type
Design head	- 52 meters
Design discharge per unit	- 24.05 cumecs
Type of switchyard	- 33 kV open switchyard
Turbine type	- Vertical Francis
Speed of turbine	- 333.33 rpm
Generation voltage	- 11 kV
Transmission voltage	- 33 kV
GSU Transformer	- 4.5 MVA, 1 ϕ , 11/33/ $\sqrt{3}$ kV (3 Nos. for one unit)
<u>Energy generation at 95% machine availability</u>	- 216.41 MU