

THESIS

OPTIMIZATION OF INSTALLED CAPACITY OF HYDROPOWER
PROJECT NEAR BESHAM QILA ON INDUS RIVER



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Submitted by

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ABSTRACT

The stretch between the upstream end of Tarbela dam Reservoir and downstream of Dasu dam project on Indus river near Besham Qila has huge power potential. The two sites Thakot and Patan on Indus river are suitable for development of hydropower project. Two mutually exclusive projects, High Thakot and Low Thakot can be developed using a head of 292 meter or 138 meter respectively. The Patan site can be developed along with Low Thakot because High Thakot producing the same head as of these two sites.

The estimates of costs for these sites were made by HPC Model and annualized for economic analysis for the period of 50 years. The O & M cost was used 0.58 percent of the total cost. The LRMC of thermal power plant was used as benefits of hydel plants. The Transmission and Electro mechanical costs were calculated from National Power Plant (NPP) WAPDA documents. The Marginal analysis was carried out for an increment of 500 m³/sec discharge starting from 1500 m³/sec to 4500 m³/sec. The optimal size was selected on the basis of Max. Net Present Value (NPV).

The analysis show that optimum project is the High Thakot with 6730 MW with 230 Million dollar NPV. However the site is recommended for further study and investigation which has a potential of 6500 MW to 9500 MW depending on the upstream storage levels.