

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM



“COMPARATIVE ANALYSIS OF POWER PLANT SOURCES”
A PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT FOR THE
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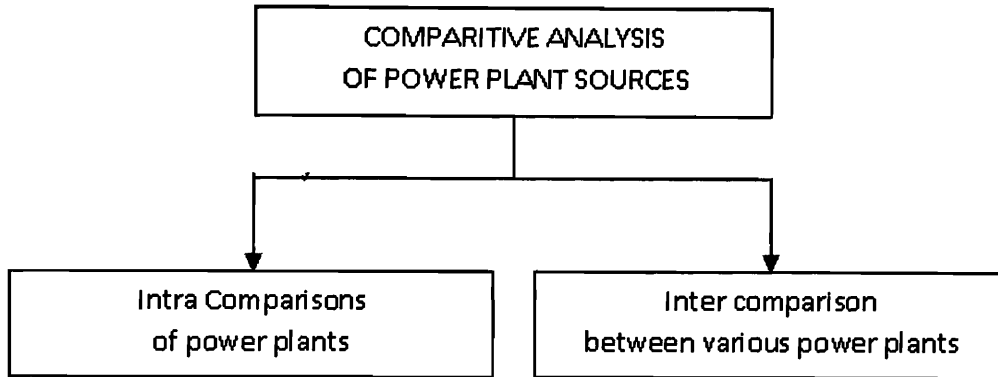
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ABSTRACT

The objective of the project is to compare power plant sources in two different ways. The project is divided into two parts, as seen in the layout:



1. Intra comparisons of power plants:

In intra comparisons, four energy resources i.e. Thermal, Hydel, wind and solar are considered one at a time and relative performance of each of them is analyzed by considering at least two power plants of each type of energy resource. The table below displays parameters and locations considered for comparison

Power Plant Sources	Parameters considered	Locations considered
Thermal	Output yield and Coal Consumption	1. Raichur thermal Power Station 2. Bellary Thermal Power Station 3. Yelahanka Diesel Power Plant
Hydel	Output yield and Input Power	1. Sharavathi Generating Station 2. Nagjhari Power House 3. Varahi Underground Power House
Wind	Wind Speed, Power Generated, Availability, Reliability and Utilization	1. Bharmasagara Wind farm (Green Infra Ltd.) 2. Telagi Wind farm (Green Infra Ltd.) 3. Kappadagudda
Solar	Power generation	1. Chikodi Plant 2. Budhikote Plant

2. Inter comparisons between various power plants:

In inter comparisons, a method has been utilized to compare the different energy resources i.e. Thermal, Hydel, wind and solar based on the following parameters: Input capacity/MW, Output yield/MW, MW/Cost, MW/Area, Availability, Pollution factor and Efficiency. The power plants considered for this kind of comparison are listed below:

Power Plants Sources	Locations Considered
Thermal	Raichur Thermal Power Station
Hydel	Sharavathi Generating Station
Wind	Bharamasagara Wind Farm
Solar	Chikodi Power Plant

In our analysis, we have used Binary dominance matrix for determining weights of the parameters and we have found that output yield/MW has the highest priority whereas MW/Area has the least priority. We have applied concept selection table for determining the performance of the various power plants.

From our comparison, it is found that Hydel power plants perform better than the other three, with respect to the parameters considered above.

The project work can be applied in location specific analysis to decide the best power plant for a given location. It can also be applied in Demand side management. This method will aid financial institutions to fund power projects, based on their relative merit.

The project work can be carried out on a larger scale by performing it on a national or international scale. The power plants can be divided into distinct capacity categories while performing such elaborate study. Parameters such as labour availability, time for setting up power plant etc can be considered for a much more detailed analysis.