

CHAPTER – II

INTRODUCTION

1. The Government of India has envisaged capacity addition of 100,000 MW by 2012 to meet its Mission of Power to All. Achievement of this target also requires the development of large capacity projects at the national level to meet the requirements of a number of States.
2. Recognizing the fact that economies of scale leading to cheaper power can be secured through development of large size power projects, Ministry of Power, Central Electricity Authority (CEA), and Power Finance Corporation Ltd.(PFC) are working together for development of ultra mega power projects under tariff based competitive bidding route. These projects will be awarded to developers on Build, Own and Operate (BOO) basis. The ultra mega power projects each with a capacity of 4000MW (Nominal), would also have scope for further expansion. The size of these projects being large, they will meet the power needs of a number of states through transmission of power on regional and national basis.
3. PFC has been appointed as nodal agency with the task of establishment of ultra mega power project (UMPP) of 4000 MW (Nominal) capacity at Mundra taluka in Kutch district, Gujarat. Coastal Gujarat Power Limited (CGPL) as special purpose vehicle (SPV) has been incorporated by PFC to carryout various preparatory activities at site. Such activities include initial and detailed survey, site selection, fuel tie up, expediting various clearances, preparation of the project report along with plant layout and detailed investigations. These activities would be initiated and completed to bring the project to a stage of readiness for handing over to developers who would be selected through a process of competitive bidding.

THE PROJECT

4. The proposed power plant will be located near Tundawand village at Mundra taluka, Kutch district of Gujarat Coastal area. The site is well connected with state Highway no. SH-50 (via Anjar) and SH-6 (via Gandhidham) and would be near to proposed NH-8A (Delhi-Khandla). The latitude and longitude of the project site is 22^o 49' 48" N and 69^o 30' 58" E. The proposed 4,000 MW(Nominal) power plant would have a total 1242Ha of land that includes 617Ha for main plant and 241 Ha of land for disposal of ash generated in 9 years. Approximately 182 Ha of land required for colony has been identified within 3 km distance from the power plant. Sufficient land is kept for green belt development and rainwater harvesting.
5. Coal for the project would be imported from countries like Indonesia, Australia and South Africa. The annual coal consumption for the proposed power plant is estimated to be 11-13 million tonnes considering design coal having gross calorific value (GCV) of 5700 kcal / kg and worst coal having GCV of 5350 kcal/kg with annual plant load factor (PLF) of about 85%. However, the existing facilities at Mundra port for storage and handling of coal would not be adequate. Hence, the facilities at the port will be augmented and a captive rail link will be established from the port to proposed power project site.
6. The vicinity map of the proposed power project site is shown in Figure II.1.

JUSTIFICATION OF THE PROJECT

DEMAND FOR ELECTRICAL POWER

7. The deficit in peak power demand in Gujarat would be 1785 MW in the year 2007-08 and 3656 MW by the year 2011-12. The peak power demand for the western region (Gujarat, Maharashtra, Haryana, Punjab, Rajasthan and Uttar Pradesh) would be 56,928 MW by the year 2006-07 and 78,849 MW by the year 2011-12. Even considering installation of new plants, there would be a shortfall of 22,829 MW by the year 2011-12 in the western region.
8. The peak power demand and the energy requirement of Gujarat from the year 2007-2008 to the year 2011-2012 as projected in 16th Electric Power Survey Report is presented in Table II.1.

Table II.1
Projected Peak Power Demand & Energy Requirement of Gujarat

Sl no.	Year	Projected Peak Power demand (MW)	Projected Energy requirement (MkWh)
1	2007-2008	11215	65236
2	2008-2009	11861	68993
3	2009-2010	12545	72967
4	2010-2011	13267	77170
5	2011-2012	14031	81615

AVAILABILITY OF POWER

9. The Power Survey of India recognized that while computing the available peak power from the installed capacity, the following factors need to be considered:
 - a) Planned outage due to maintenance
 - b) Forced outage
 - c) Spinning reserve
 - d) Auxiliary power consumption
 - e) Other factors relevant to the aspect of peak power availability.

Table II.2
Deficit in Installed Capacity for the State of Gujarat

SI No	Details	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
1	Peak Power Availability (MW) - note 1	9430	9873	10251	10375	10375
2	Peak Power Demand (MW)	11215	11861	12545	13267	14031
3	Power Deficit (MW)	-1785	-1988	-2294	-2892	-3656

Note 1: Peak power and energy availability are calculated based on their availability factors, considering auxiliary power consumption, transformation losses and benefits from projects under construction.

AVAILABILITY OF ENERGY

- Energy availability from thermal plants depends on the plant load factor of individual plants. In case of hydroelectric plants, the availability of water for power generation based on hydrology and head considering the dependability of the plant, determines the availability of energy. The energy requirement projected considering the growth of various sectors and the energy availability along with the deficit are shown in Table II.3., for the state of Gujarat.

Table II.3
Deficit in Energy Demand for the State of Gujarat

SI No	Details	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012
1	Energy Available (MU) – note-1	65395	71278	75081	76695	76812
2	Energy Requirement (MU)	65236	68993	72967	77170	81615
3	Energy Deficit (MU)	159	2285	2114	-475	-4803

Note 1: Peak power and energy availability are calculated based on their availability factors, considering auxiliary power consumption, transformation losses and benefits from projects under construction.

NEED FOR AUGMENTATION OF POWER

- It can be noticed from Table II.2 that deficit in peak power demand is 1785 MW in the year 2007-2008. Considering the load growth and the installation of the new power plants, the additional-generating capacity to meet this deficit would be 2231 MW with plant load factor of 0.80.
- In terms of energy, it may be noted from Table II.3 that the surplus would be around 159 Million units during the year 2007-2008. Any delay in the implementation of power projects, due to any reasons such as lack of clearances, financial constraints, etc., would result in much larger deficit in subsequent years.

13. There is no power plant located near the project area. The nearest power plants are Sikka located at 250km and Akrimota at 150km from Bhuj.
14. Considering the above scenario, there is immediate necessity of addition of power generation capacity in the state of Gujarat, and the installation of the proposed project is justified to meet part of peak demand as well as energy demand for Gujarat state and the balance demands of other neighboring states.

JUSTIFICATION OF THE PROJECT FROM ENVIRONMENTAL ANGLE

15. There are no eco-sensitive spots such as reserved forest areas or protected monuments as per MOEF guidelines in the site or in the vicinity of the site proposed. The site is situated in generally barren area with minimum cultivation, habitation and with minimum patches of lean forests.
16. Main plant area is located outside the coastal regulation zone more than 500 m away from the hightide line. The location is suitable for intake and outfall channels which comes under permitted activity of water front project as per CRZ notification.
17. Adequate land is available for coal handling and storage, ash handling and colony for the personnel to be employed for the project.
18. The proposed power project area has no permanent structures or habitation. Therefore, rehabilitation and resettlement (R&R) issue are not primarily involved. Felling or cutting of trees will not be required for setting of the UMPP project.
19. Huge amount of water required for once through cooling system will be available from sea through open channel. The vicinity of sea with the project site is an added advantage for intake and out fall structure.
20. Initiatives and support of Government of Gujarat, mega power status and over and above sound economic and favorable environmental conditions also justify the location of proposed 4000 MW (Nominal) Ultra Mega Power Plant (UMPP).

OBJECTIVES OF THE REPORT

21. The objectives of the report are as follows:
 - a) Identify and evaluate the environmental impact due to the construction and operation of the proposed plant
 - b) Delineate the mitigation measures for the impacts
 - c) Outline the Environmental Management Plan and post project monitoring requirements
 - d) Risk and Consequence Analysis and Disaster Management Plan



VICINITY PLAN
FIGURE II.1