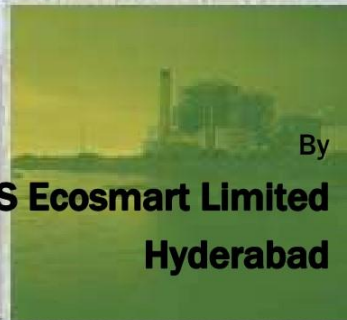




DEVELOPMENTAL ACTIVITY-SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES

Submitted to

**The Ministry of Environment and Forests
Government of India**



By
**IL&FS Ecosmart Limited
Hyderabad**



THERMAL POWER PLANTS

TOR for EIA studies in respect of the proposed TPPs include, but not limited to the following:

1. Executive summary of the project - giving a prima facie idea of the objectives of the proposal, use of resources, justification, etc. In addition, it should provide a compilation of EIA report, EMP and the post-project monitoring plan in brief.

Project Description

2. Justification for selecting the proposed unit size.
3. Land requirement for the project including its optimization, break up of land requirement and its availability. Norms prescribed by CEA should be kept in view.
4. Complete process flow diagram describing each of the unit processes and operations, along with material and energy inputs and outputs (material and energy balance).
5. Fuel analysis report (sulphur, ash content and mercury) including details of auxiliary fuel, if any. Details like quantity, quality, storage etc.
6. Quantity of fuel required its source and transportation, a confirmed fuel linkage/ copy of the MOU.
7. Source of water and its availability. Proof regarding availability of requisite quantity of water from the competent authority.
8. Details of water balance (water intake, use, wastewater generation) taking into account reuse and re-circulation of effluents. Additional water conservation measures, if any, proposed for the project.
9. Location of intake and outfall points (with coordinates) based on modeling studies. Details of modeling and the results obtained. It may be kept in view that the intake and outfall points are away from the mangroves.
10. Examine the feasibility of zero discharge. In case of any proposed discharge, its quantity, quality and point of discharge, users downstream, etc.
11. Explore the possibility of cooling towers installation. Details regarding the same.
12. Details regarding fly ash utilization as per new notification
13. Detailed plan of ash utilization / management.
14. Details of evacuation of ash.



15. Details regarding ash pond impermeability and whether it would be lined, if so details of the lining etc.
16. Details of desalination plant and disposal of sludge.
17. Explore the possibility of expansion of Port facilities instead of Copy of the MOU for Port facilities.

Description of the Environment

18. Toposheet with all the coordinates of the plant site demarcated (1:50000 scale).
19. The study area shall be up to a distance of 10 km from the boundary of project area for air quality considerations in view of impacts occurring at distant locations once emitted from a tall stack particularly in view of absence of source control for SO₂ in tail gases whereas for impacts on other components (such as water, soil quality and noise monitoring, etc.) the study area may be up to a distance of 5 Km.
20. Land use of study area should include data about the residential/institutional/nearest village/ township/ locality/ housing society, etc., based on the satellite imagery.
21. Topography of the area clearly indicating the presence of pits deeper than one metre, if any. If these pits require to be filled in, details of filling material to be used, quantity required, its source, mode of transport, etc.
22. Baseline data of the study area with respect to different components of environment viz. air, noise, water, land, and biology and socio-economic as per the guidance given in the manual.
23. Information regarding surface hydrology and water regime and impact due to the project, if any, on the same.
24. Site-specific meteorological data of one season.
25. AAQ data (except monsoon) of one complete season along with the monitoring dates. The parameters to be covered shall include SPM, RSPM, SO₂, NO_x (ground level). The location of the monitoring stations should be decided in such a way that the pre-dominant downwind direction, population zone and sensitive receptors including reserved forests are considered. There should be at least one monitoring station in the upwind direction and one in down-wind direction where maximum GLC falls.
26. Noise level monitoring data collected from locations from all the four sides surrounding the project area and also at sensitive receptors. If any incompatible land-use attributes fall within a 10 km radius of the project boundary, proponent shall describe the sensitivity (distance, area and significance) and propose the additional points based on significance for review and acceptance by the EAC/SEAC. Incompatible land-use attributes include:



- Public water supply areas from rivers/surface water bodies, from groundwater
 - Scenic areas/tourism areas/hill resorts
 - Religious places, pilgrim centers that attract over 10 lakh pilgrims a year
 - Protected tribal settlements (notified tribal areas where industrial activity is not permitted); CRZ
 - Monuments of national significance, World Heritage Sites
 - Cyclone, Tsunami prone areas (based on last 25 years);
 - Airport areas
 - Any other feature as specified by the State or local government and other features as locally applicable, including prime agricultural lands, pastures, migratory corridors, etc.
27. If ecologically sensitive attributes fall within a 10 km radius of the project boundary, proponent shall describe the sensitivity (distance, area and significance) and propose the additional points based on significance for review and acceptance by the EAC/SEAC. A map marking the location of such areas (existing or proposed) duly authenticated by the Chief Wildlife Warden. Ecological sensitive attributes include:
- National parks
 - Wild life sanctuaries Game reserve
 - Tiger reserve/elephant reserve/turtle nesting ground
 - Breeding grounds
 - Core zone of biosphere reserve
 - Habitat for migratory birds
 - Mangrove area
 - Areas with threatened (rare, vulnerable, endangered) flora/fauna
 - Protected corals
 - Wetlands
 - Zoological gardens
 - Gene Banks
 - Reserved forests
 - Protected forests
 - Any other closed/protected area under the Wild Life (Protection) Act, 1972, any other area locally applicable
28. If the location falls in a valley, studies on specific issues connected to the management of natural resources.
29. If the location is on Seashore:



- Identification of CRZ area: A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the project and associate facilities w.r.t. CRZ, coastal features such as mangroves, if any. The route of the pipeline, conveyor system etc. passing through CRZ, if any, should also be demarcated. The recommendations of the State Coastal Management Authority for the activities to be taken up in the CRZ.
- Provide the CRZ map in 1:10000 scale in general cases and in 1:5000 scale for specific observations.
- Environmental parameters - Temperature, sea level pressure, wind speed, mean relative humidity, visibility, salinity, density, rainfall, fog, frequency and intensity of cyclones, sediment transport, seismic characteristics, fresh water influx
- Details on marine biological parameters microbiological population, pathogenic bacteria, plankton distribution, fish spawning grounds in the adjoining waters, commercial fisheries potential, vegetation including inter tidal, flora and fauna in the marine, benthic quality assessment for biological species and heavy metals and estuarine environment.

Anticipated Environmental Impacts and Mitigation Measures

30. Anticipated generic environmental impacts that require specific studies for significance are given in impact matrix (Manual may be referred). Tools as given in the manual may be used for the assessment of environmental impacts.
31. Impact on drainage of the area and the surroundings.
32. Impact of the project on the AAQ of the area. Details of the model used and the input data used for modeling. The air quality contours may be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The wind roses should also be shown on this map.
33. Impact of the project on local infrastructure of the study area such as road network, etc. In case if the study area requires any additional infrastructure, details of the agency responsible for the same should be included along with the time frame. Details of the permission from Competent Authority for conveyor belt crossing the village road.
34. Impact of the activities to be taken up in the CRZ area including jetty and desalination plant etc. should be integrated into the EIA report; however, action should be taken to obtain separate clearance from the competent authority as may be applicable to such activities.
35. Details of rainwater harvesting and its proposed usage in the plant.
36. Details regarding infrastructure facilities such as sanitation, fuel, restroom, etc. to be provided to the workers during construction as well as to the casual workers including truck drivers during the operational phase.



37. Details of greenbelt giving details of species, width of plantation, planning schedule, etc.
38. Details of flora and fauna. Conservation plan in case of any scheduled fauna.
39. Proposed measures for occupational safety and health of the workers.
40. Oil spill control planning.
41. Off-shore coastal air dispersion models shall be applied.
42. Capital quantity of dredging material, disposal and its impact on aquatic life.
43. Fisheries study should be done with respect to Benthos and Marine organic material and coastal fisheries.

Analysis of alternative resources and technologies

44. Comparison of alternate sites considered and the reasons for selecting the proposed site. Conformity of the site with the prescribed guidelines in terms of Coastal Regulatory Zone (CRZ), river, highways, railways etc.
45. Details of alternative sources of energy such as photovoltaic cells use in the plant for various applications.
46. Details on improved technologies.

Environmental Monitoring Program

47. Appropriate monitoring network has to be designed and proposed for regulatory compliance and to assess the residual impacts, if any.

Additional Studies

48. Detailed compensation package for the people affected by the project shall be prepared, considering the socio-economic status of the area, homestead oustees, land oustees, and landless labourers.
49. Points identified in public hearing and commitment of the project proponent to the same. Detailed action plan addressing the issues raised, and the details of necessary allocation of funds.
50. Proposed plan to handle the socio-economic influence on the local community. The plan should include quantitative dimension as far as possible.
51. Details of risk assessment and proposed safeguard measures.

Environmental Management Plan

52. EMP devised to mitigate the adverse impacts of the project along with item-wise cost of its implementation.



53. Proposed post-project monitoring programme to ensure compliance to the approved Management Plan including administrative and technical organizational structure.

Note:

Above points shall be adequately addressed in the EIA report at corresponding chapters, in addition to the contents given in the reporting structure as per Appendix III of the EIA Notification, 2006.



Environment

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