

# **Some Environmental Impacts of Thermal Power Plants (coal)**

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# Site Selection

- Technical Issues
- Economic Issues
- Social Parameters
- Environmental Considerations
- Ecological and Biodiversity



# Technical Issues

- Land
- Fresh Water
- Sea water
- Coal transportation – sea, train, truck, conveyors
- Transmission lines





# Economic Issues

- Viability
- Location of demand centres
- Fuel prices
- Electricity prices
- Willingness to pay
- Ability to pay



# Social Parameters

- Land use
- Direct displacement
- Indirect displacement
- Pollution
- Increase in cost of living
- Non-availability of traditional items – water, food, fuel, raw materials, etc.





# Environmental issues

- Alternate site selection
- Alternative energy scenarios
- Alternate energy options
- Land
- Water
- Air
- Biodiversity
- Ash disposal
- Transmission lines
- Other infrastructure – rail, road, conveyors, etc.
- Thermal discharges
- Radioactivity



# Ecology and Biodiversity

- Loss of Habitats
- Fragmentation of Habitats
- Impact on Corridors
- Reduction in quality of Habitats
- Reduction in productivity of Habitats
- Change in species composition





# Assessment of Total Impact

- Thermal power plant
- Port
- Rail lines
- Roads
- Dams and Water pipelines
- Cooling Water channels/pipelines
- Ash Ponds
- Transportation of Ash
- Transmission Lines
- Mining of coal

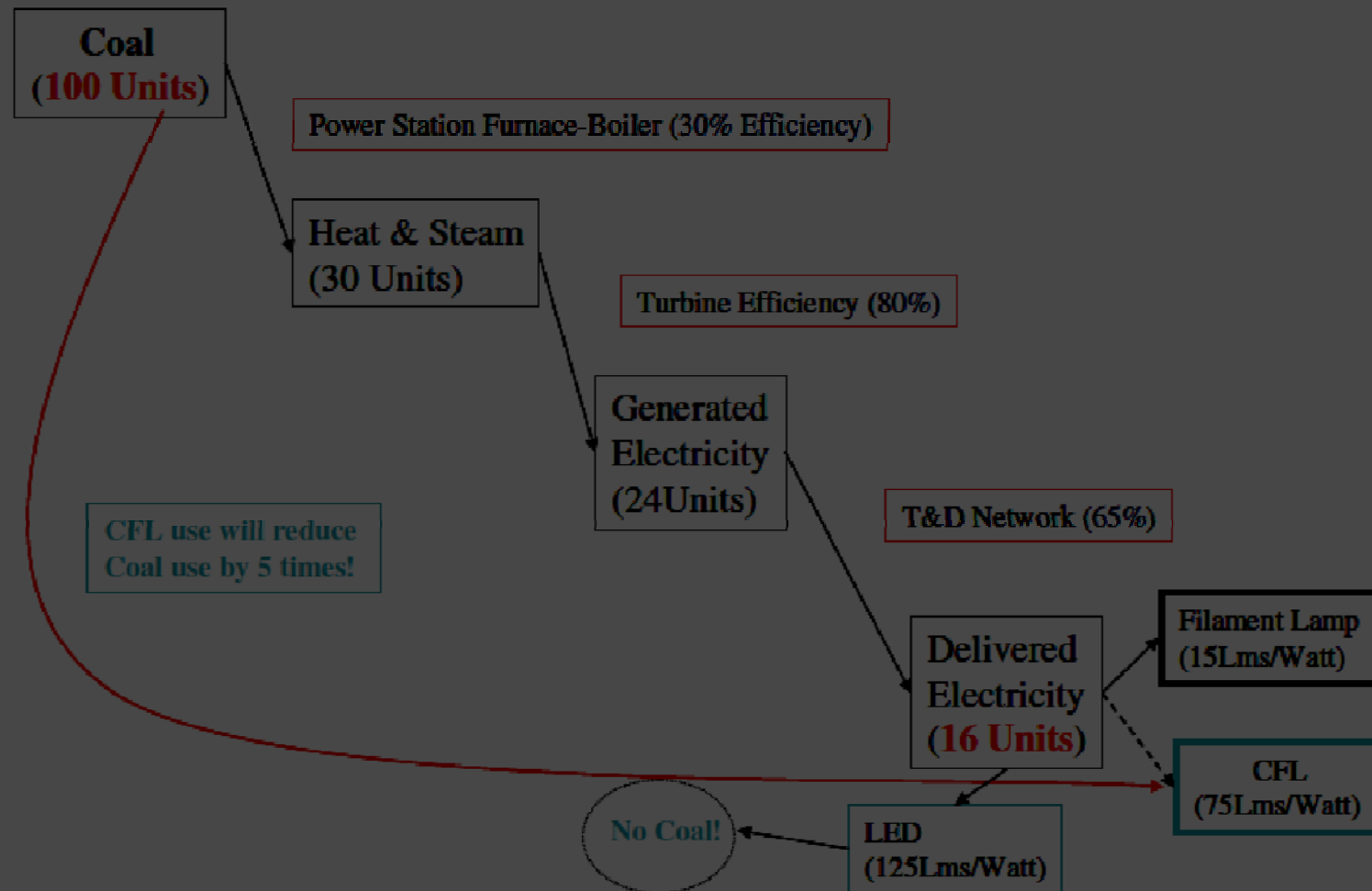




# Cumulative Impacts

- Impact of existing activities
- Impact of the proposed project
- Impact of other proposed projects

## Per Capita Energy Use vs Per Capita Useful Energy Available



## 1000 MW Coal-based Power Plant

(70% Indian coal 30% Imported coal)

Land	600 acres	
Water	2,952,000 CuM per day	
Employment	250 (largely skilled)	
Coal	14,240 Tonnes per day	
Ash	5,040 Tonnes per day	
Sulphur	740 Tonnes per day	
Nitrogen	153 Tonnes per day	
Mercury, Arsenic, Cadmium, Zinc, Radioactive isotopes	~	



## Pollution from Coal

Ash disposal difficult

Ash pollutes the air ( Dry ash spreads around the project site)

Coal & Ash dumps at project site cause

- o leaching into ground water sources (Contamination irreversible)
- o Toxic pollution of surface water bodies/ water courses/ sea water
- o Contamination of the soil around the site

Heat pollution: Impact on marine resources

Residents of villages around existing power plants have complained of bronchial diseases & skin irritation

## Diversion of Public Lands for Power Plants

Agricultural land	Affects food security (Hon'ble Supreme Court's guidelines)
Wetlands	Wetlands support traditional fishing and other livelihoods, bio-resources, migratory birds National Environment Policy & International Conventions for protection of wetlands, bio-diversity, migratory bird species-
Coastal lands	Affects fishing communities' access to sea, affects marine resources
Pasture lands & other "commons"	Affects livelihoods



# Weak Standards

- Only SPM standards are comparable
- There are no standards for NO<sub>x</sub>, SO<sub>2</sub>
- No standards for radioactivity
- No standards for heavy metals
- No standards for Flue Gas Desulphurization
- Standard for cooling water discharge disastrous to marine life
- Ash disposal is a huge problem





# Monitoring

- No effective mechanism exists for monitoring
- 6 monthly monitoring reports not available
- New Regulatory Authority may solve this issue



# Thank you

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