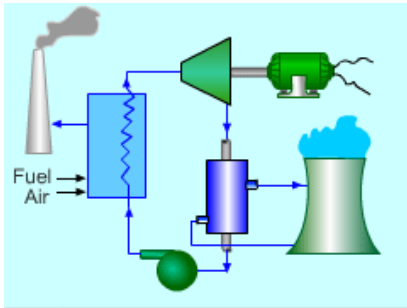


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## ***Thermal Power Stations***



**Faculty of Engineering  
Mechanical Engineering Dept.**

## ***Lecture (4) on***

# ***Common Thermal Power Plant Siting Criteria***

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# Siting Techniques

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Site selection techniques can be classified into two broad categories: comparative evaluation, and classification and rating.

In the comparative evaluation approach, all plant/site alternatives are compared to a fixed standard or design envelope. This may be a list of required or desirable qualities or an existing plant considered to have acceptable cost and impacts. In the early phases of the site selection study, a multi-disciplinary study team establishes minimum standards based on acceptable criteria which are used to eliminate less acceptable regions or site areas and thus move on to compare candidate sites.

# Siting Techniques

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**In the classification and rating approach**, costs and impacts are summarized, generally in a numerical way, for each plant/site alternative in a common or standard format. The objective is to place the alternatives on an equal basis and rate them for comparison.

The main difference between these two approaches is the manner and amount of detail in which the study results are presented or summarized. **In practice, a site selection study may include elements of both approaches.**

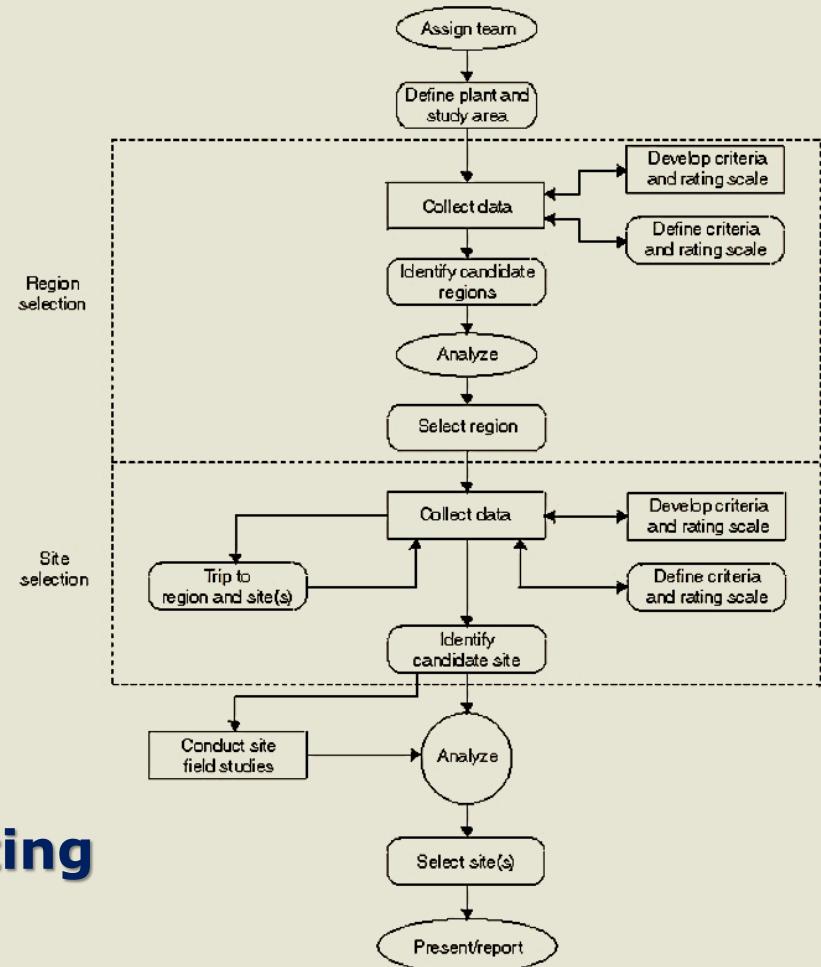
# Siting Activities/Tasks

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Every industrial site selection has four elements:

1. Information gathering
2. Analysis
3. Reporting
4. Decision making

**Flow chart of the siting activities/tasks**



# Siting Criteria

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The siting team described in the introduction considered power plant developers, government agencies, and the public when creating the criteria. The siting criteria are intended as a "common language" for power plant site characteristics. They do not create a "cookbook" for finding sites.





# Siting Criteria

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**Developers** can use the criteria as a checklist for public and agency interests and as a guide for clear communication to area residents.

**Government agencies** can use the criteria to review the developer's choice of site and ensure the project meets regulatory requirements. The standardized criteria can increase the efficiency of agency review. Members of the public need criteria that make the siting process easier to understand in order to provide appropriate input about detailed local factors.

**The general public** can use the siting criteria to:

- Compare sites.
- Understand why particular sites were chosen.
- Determine which factors of importance to them were considered.
- Influence siting or other project decisions.

# Siting Criteria

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## Impact Mitigation

Mitigation measures to reduce impacts might affect the project outcome. Methods for impact mitigation should be considered throughout the siting and regulatory review processes.

## Public Input

It's important that the general public have access to information about the siting process before an application is submitted to the PSC. People in the site areas have information that can be of value to a developer that could affect the choice of sites or the ultimate design or use of a site. A power plant developer might obtain public input by: soliciting input through a periodic newsletter; soliciting responses in personal letters sent to local governments, regional planners, and landowners; holding information meetings to solicit questions and comments or hand out questionnaires.



# Criteria Categories

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There are six major categories chosen to organize all the data that appeared important to the public. The Siting Team recommended that these criteria be considered as the minimum criteria in a siting study. Additional criteria may be useful, depending on project specifics. The criteria are discussed individually in this overview.



# Criteria Categories

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## Site Requirements

- Access
- Air quality
- Air space restrictions
- Buffering
- Floodplain
- Fuel delivery
- Need
- Site adaptability
- Site expandability
- Site geography
- Site size
- Solid waste management
- Transmission
- Water discharge
- Water supply

# Criteria Categories

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Community Impacts	<ul style="list-style-type: none"> <li>• Aesthetics</li> <li>• Archeology-historic sites</li> <li>• Community service costs</li> <li>• Effects on wells</li> <li>• Labor availability</li> <li>• Number of relocations</li> <li>• Public attitude</li> </ul>
Public Health & Safety Concerns	<ul style="list-style-type: none"> <li>• Degradation of local air quality</li> <li>• Dust</li> <li>• EMF    <b>Electric and magnetic fields</b></li> <li>• Noise</li> <li>• Operational odors</li> <li>• Traffic safety</li> <li>• Water treatment</li> </ul>

# Criteria Categories

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<b>Environmental Impacts</b>	<ul style="list-style-type: none"> <li>• Air quality</li> <li>• Groundwater impacts – recharge, discharge, quantity, quality</li> <li>• Protected species</li> <li>• Stormwater runoff</li> <li>• Waste minimization, recycling, reuse</li> <li>• Wastewater treatment</li> <li>• Wetlands</li> </ul>
<b>Land Use Impacts</b>	<ul style="list-style-type: none"> <li>• Industrial forests</li> <li>• Land acquisition</li> <li>• Land use compatibility</li> <li>• Previous land use</li> <li>• Prime agricultural land</li> <li>• Recreational areas</li> </ul>
<b>Economic Impacts</b>	<ul style="list-style-type: none"> <li>• Delivered costs of energy</li> <li>• Future development</li> <li>• Jobs and purchases</li> <li>• Local tax impact</li> <li>• Property values</li> <li>• Transmission and distribution changes</li> </ul>

Thank  
You