

WELCOME

**R&M of Thermal Power Stations
(Current Perspective)**

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Growth of Power

- **1350 MW at Independence**
- **Currently, more than 1,50,000 MW**
- **Plan to touch 2,00,000 MW by 2012**
- **And 8,00,000 MW by 2032**

Growth of Power

- Phase-I - Power at **any** Cost
- Phase-II - Power at **some** Cost
- Phase-III - Power at **what** Cost

Current Scenario - Thermal

- Around 1,00,000 MW from Coal
- Major chunk of Generation is from 200 - 500 MW Group
- New Trends:
 - Large Units 600, 660, 800 MW ...
 - Introduction of Super Critical Units

Current Scenario – Thermal...contd

Performance 2008-09

	O.A %	PLF %
200/210 MW	90.1	81.5
250 MW	88.8	81.3
500 MW	92.7	88.6
All India	-	77.4

Current Scenario – Thermal...contd

Performance 2008-09

	O.A %	PLF %
60 MW	77.4	59.2
100 MW	68.3	67.3
110 MW	73.3	60.5
120 MW	59.5	40.8

Current Scenario – Thermal...contd

- **Around 20-25% of the Generating Capacity belongs to the Old Units with lower ratings**
 - **Some units have undergone R&M (Particularly 110 MW)**
 - **Performance levels of these units are far below National Level**
 - **Majority of old units continue to operate in present condition**

Current Scenario – Thermal...contd

Observations on Running Units:

- High Heat rate – Poor performance
- Highly depreciated equipment cost
- Safety & reliability
- Procedural/Administrative delays in decisions for R&M or Closure

Traditional Drivers for R&M

- **Extended Life**
- **Regain lost Efficiency**
- **Regain Lost Capacity**
- **Introduction of State-of-the Art Controls**

Old Power Stations

Conventional approach to R&M:

- Regain Lost capacity / efficiency
- Replace worn out components
- Improve emission control
- Introduce modern C&I
- Occasional up-rating

R&M – Journey So far

- **Initial attempts (Phase-I)**
 - **Equipment Specific**
 - **Problem Specific**
- **Subsequent attempts (Phase-II)**
 - **Life Extension (RLA Based)**
- **Plant Performance Improvement Program (PPIP)**
 - **Focus on Life, Performance & Efficiency**

Drivers for R&M

A. Traditional

- Extended Life
- Regain lost Efficiency
- Regain Lost Capacity
- Introduction of State-of-the Art Controls

B. Current

- Need of the Hour – Look for better options
- Improve efficiency
- Enhance capacity (Uprating)

Options

For new installations:

- **Use of Super Critical Technology**
- **Use of High Efficiency Advance Class equipment**
- **Application of IGCC, CFBC etc**

Options

For old installations:

- **Continue as it is**
- **Opt for R&M**
- **Opt for Total replacement or**
- **De-commission the Plant**

Difficult Decisions – Need Change of Perception

Considerations

- **Growth of Unit Size & Grid**
- **Concerns for Climate Change**
- **Concern for Efficiency**
- **Cost**

Considerations

- Can we install a new power station of appropriate size?
- Can we install a new unit with better efficiency on the same foundation?
- Can we change the turbine internals for enhanced output?

Opportunities

- **60 MW Units**

- Feasible to install 70 MW Unit with a matching FBC Boiler

- **110 MW Units**

- Feasible to uprate to 120 MW Unit

- **200/210 MW Units**

- Feasible to uprate to 225 MW Unit & more

Road Ahead

- **Evolve a National Standard of Performance**
- **Benchmark the Performance levels particularly w.r.t. the Heat Rate**
- **Discourage use of very old designs (e.g. Non Re-Heat)**
- **Allow R&M only when the modified unit complies with the proposed performance norms**
- **Maximise use of Technology in monitoring & optimising the performance**
- **Fine tune O&M Practices to cater to long term needs of Life and Efficiency**

Road Ahead

For Benchmarking:

- Classify the units as Very Good, Good & Not so good
- Evolve an appropriate band of Heat Rate covering first two groups,
 - e.g. Operating band for 200 – 500 MW group is around $2000 \pm X$ Kcal/Kwh

Road Ahead

For Compliance:

- Award the units operating in the proposed band of Heat Rate
- Introduce the concept of “Carbon Debits” for non performers
- Drive “Not so good” units to “Good” & “Very Good”
- Cut down time loss in decision making



Thank You