

Managing Energy efficient Renovation & Modernization Project

Presented By
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Introduction

- ❑ Global warming has drawn attention of world towards clean coal technologies.
 - ❑ Energy effective R&M is essential for this challenge.
 - ❑ Lot of old operating capacity needs to be made efficient.
 - ❑ In india capacity for R&M during 11th plan is envisaged as 19200+13000 MW.
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Need for energy efficient R&M

- Climate change mitigation.
 - Conservation of fuel.
 - Increased generation at lower cost.
 - Emission within new norms.
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EER&M projects undertaken by World Bank

- Focus on Heat Rate improvement in addition to life extension, capacity augmentation, reduction in auxiliary consumption, improved availability & reliability for 640MW capacity in Bandel TPS; unit 5 (210MW) in West Bengal, Koradi TPS unit 6 (210MW) in Maharashtra, Panipat unit 3&4 (110MW) in Haryana.
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Addressing Constraints to Accelerating R&M

- ❑ Demonstrate that R&M is still attractive proposition.
 - ❑ Support to design studies and project preparation activities for EER&M.
 - ❑ Focus on building institutional capacities for better O&M of TP stations.
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Strategies for EER&M Program

- Established procedures for appointment of consultant and procurement procedure.
 - Planned and time bound project.
 - Detailed analysis done before hand to decide whether to
 - Scrap and replace
 - Continue until possible
 - Renovate & modernization.(contd.)
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Strategies for EER&M Program

- Identify and evaluate alternate cost-benefit option for each plant.
 - Focus on cost effective technology upgrades.
 - Upfront identification of
 - Targets & objective plans
 - Key R&M milestones
 - Key performance indicators
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Evaluation of R&M Schemes

- Evaluation of R&M Schemes could be based on one of following perspectives
 - Engineering Cost
 - Genco's Perspective
 - Discom's Perspective
 - Consumer Perspective
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Constraints for R&M

- ❑ R&M investment is considered as high risk due to performance uncertainties
 - ❑ OEM's are busy with new plants.
 - ❑ Limited institutional capacity of utilizes to prepare and implement R&M project.
 - ❑ Limited competent consultants for design of R&M projects.
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Challenges in Implementation of R&M schemes

- ❑ There are challenges in design, procurement, execution and final acceptance.
 - ❑ Selection of optimal design options for repair, restoration and replacement.
 - ❑ Sequential supplies of equipment, timely execution, availability of additional items due to surprises are important aspects in execution.
 - ❑ Guarantees, penalties and incentives to watch interest of all concerned.
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Barriers in realizing Benefits of R&M

- ❑ Poor R&M practices do not enable realize expected benefits of R&M.
 - ❑ Shortage of energy (difficulty in getting shutdowns).
 - ❑ Uncertainty about clearance of R&M cost by regulatory authorities.
 - ❑ Poor financial health of power utilities.
 - ❑ Long term debt for R&M to keep cost of generation low.
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High End technological Solutions

- ❑ Retrofitting existing sub critical boilers with super critical designs
 - ❑ Modification of steam pipe work and a few stages of HP turbine.
 - ❑ Conversion of existing boiler to circulating fluidized bed firing (This will overcome problems of pulveriser, ESP and handle deteriorating quality of coal).
 - ❑ Provision of biomass co-firing
 - ❑ Using Solar energy for heating feed water
 - ❑ Substituting water cooled condensers with air cooled condensers.
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Award of R&M contracts

- ❑ Encourage non OEM parties to under take R&M by liberal sharing of benefits of R&M.
 - ❑ Do necessary analysis ,optimization studies before inviting bids on cost basis.
 - ❑ Invite bids on tariff based competitive bidding and transfer plants on B00 or BOOT basis.
 - ❑ Let distribution companies take initiative in R&M of generating Plants.
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Incentivising R&M Programme

- ❑ Liberal grant for technical studies of old plants to renovate and modernize them to improve efficiency.
 - ❑ Schemes of sharing of benefits of R&M with executors of R&M scheme.
 - ❑ Simplified schemes for award of carbon credits for plants which have undergone EER&M.
 - ❑ Institute awards to individuals/institutions who come out with workable suggestions to achieve EER&M.
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Road Map for Successful EER&M

- ❑ Build institutional capacity for better O&M
 - ❑ Plan for adequate shutdown time for R&M in advance.
 - ❑ Remember that R&M projects are difficult to design, procure and implement . Prepare and plan for these properly based on adequate studies.
 - ❑ Utilize services of reputed consultant
 - ❑ Prepare enough justification for Financial Institution to grant debt.
 - ❑ Take R&M as project and execute it like a new plant.
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