Enhanced Use of Clean Coal in India: An Essential Step towards Energy Security and Environmental Protection

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INTRODUCTION

- Indo-US Energy Dialogue Coal Working Group and Asia-Pacific Partnership Coal Mining Task Force identified coal beneficiation as priority need for international collaboration;

- US Department of Energy funds review and analysis of recent coal beneficiation experience in India;

- Results lay foundation for discussing barriers and plans for enhancing coal washery capacity;
INTRODUCTION - Continued

- Coal Beneficiation Study is one of several US Department of Energy activities associated with the Indo-US Energy Dialogue and the Asia Pacific Partnership that address coal preparation and use of clean coal, including joint R&D proposed work;
  - Developing a Coal Cleaning Plant Simulator;
  - Cost Effective Technology for Beneficiation and Recovery of Fine Coal; and
  - Beneficiation Technology for Low Volatile Coking Coal

- Critical role for US technology and assistance, and efforts underway to:
  - Improve visibility and access to US firms and products through technical visits, workshops, etc.
  - Improve existing programs and policies for facilitating transfer of technology and assistance.
BENEFITS FROM COAL BENEFICIATION:
CASE STUDIES and SPECIFIC FINDINGS

CASE STUDY LISTING

- Satpura Thermal Power Station, 210MW, National Thermal Power Corporation - 1987
- Simulation by National Energy Technology Laboratory, US DOE - 1994,
- Dadri Power Plant (4x210 mw), National Thermal Power Corporation
- BSES (currently Reliance Natural Energy’s) Dahanu Thermal Power Station, 2X250MW - 2000
- Technical Economic Feasibility of Low Ash Power Station Fuel in India, - 2004
BENEFITS FROM COAL BENEFICIATION: CASE STUDIES and SPECIFIC FINDINGS

- More immediate power generation without investment or lag time
  - 10% Increase
- Sustainable, highly efficient power generation
  - Efficiency improvements
- More railway transport capacity
  - 7.5% lower tonnage shipped with 10% ash reduction
- Lower pollution emissions
  - 13 million tons of Carbon from existing plants, additional 8.0 million when applied to planned capacity growth of 50,000MW
EXTRAPOLATION TO POTENTIAL NATIONAL BENEFITS

- Coal based generation in 2006-2007 approximately 50,000 MkW
- Washed coal has shown at least a 10% improvement in generation in all studies, which would add 5,000MkW from existing infrastructure
- Estimated capital cost to built this 5000MkW of capacity would be the equivalent of 12 x 500MW plants operating at 80%PLF or approximately US$7,500 Million (Rs36,900 crores).
- Reduction in rail freight of 7.5% will increase capacity to deliver coal on existing system.
- Higher efficiency means lower emissions. A 10% ash reduction has proven to reduce CO2 by 190kg/kWh. On average this will mean 650 tons of CO2 reduction per year from a 500MW power plant.
SUMMARY AND NEXT STEPS

- Benefits of coal preparation well documented

- Expansion of coal beneficiation capacity not a technical problem

- Changes are needed to build upon recent initiatives and establish appropriate regulatory and market based systems
  - Duties on coal preparation equipment at par with other energy sector imports
  - Costs of coal effectively tied to coal quality
  - Restrictions on emissions, generation/disposal of fly ash, etc.

- Coal Preparation Workshop provides excellent forum to identify key actions needed to foster growth in coal washing and the use of clean coal.
FOR MORE INFORMATION

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