

7.1 Development/Evaluation of Dry FGD Technology

Objective: To develop and evaluate a potentially more reliable and cost-effective alternative to wet FGD systems; to assess the ability of dry FGD systems to achieve recent utility boiler NSPS and industrial boilers NSPS (under development).

Approach: Dry SO₂ control systems show potential for significant economic/reliability improvements when applied to SIP boilers and western utilities. They may have application to high sulfur coal as well. Annual evaluation of dry scrubbing technology state-of-the-art developments and commercial applications will be conducted. An in-house IERL-RTP dry FGD pilot plant will be used to evaluate methods for improving the performance and reducing the costs of dry FGD systems. Field evaluations of selected pilot/prototype spray-dryer/baghouse and dry injection systems will be undertaken to determine the relationship of key process parameters. Field evaluations of industry-funded full-scale dry scrubbing units will also be conducted to determine performance and reliability of first generation dry systems. Economic studies will also be performed to evaluate the cost effectiveness of using physical coal cleaning and dry FGD systems to control sulfur emissions from high sulfur coals.

Rationale: Impetus for the development and evaluation of dry FGD technology stems from the revised utility boiler NSPS which limits SO₂ emissions on a variable scale over a wide spectrum of fuel sulfur content. Dry FGD appears to present the most cost-effective option for the 70% level required for typical Western coals and may also be the preferred economic choice for certain high-sulfur Eastern coals as well. Compared to the present generation of wet FGD systems, dry FGD technology is expected to be less complex (more reliable), require less water and energy, produce dry wastes and require lower capital/operating/maintenance costs.

Resources (\$1000's):

FY81	FY82	FY83
1025	283	100

Milestones:

- Complete final reports describing results of pilot/prototype testing of spray-dryer/baghouse and alkali injection/baghouse systems applied to utility boilers; 2/82, 5/82
- Complete reports of industrial boiler spray dryer field evaluation (high sulfur coal); 7/82, 7/83