

Modeling of Constantly Evolving CCP Management Options At a Coal Fired Power Plant

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ABSTRACT

Proactive planning for the beneficial utilization and cost efficient disposal of Coal Combustion Products (CCPs) is required due to constantly evolving CCP markets, plant operational requirements, and changing regulatory requirements such as the EPA's pending mercury emission standards. At Great River Energy's (GRE) Coal Creek Station (CCS) generation facility, management recognized that these issues will likely impact the marketability, disposal practices, environmental aspects, and economic issues associated with CCP's, and ultimately affect power costs to its rate payers. GRE and Golder Associates (Golder) collaborated to evaluate this complex interdependent dynamic system. This paper will describe the methods used to quantify uncertainty with respect to potential CCP markets, regulatory requirements and disposal strategies, so that GRE could develop a long-term CCS site-wide CCP management plan with the objective to reduce disposal costs, minimize environmental risks, minimize marketability disruptions, and evaluate the likely effects of change.

GRE and Golder performed a process of planning, modeling and engineering activities, to evaluate the economic and environmental impacts associated with various CCP management scenarios at CCS. Use of Golder's GoldSim modeling software was key to this evaluation and allowed for the dynamic and probabilistic modeling of various interconnected systems, enabling for the prediction of future behavior of the various CCP management scenarios both with respect to material and financial implications. Results of the modeling effort have led to the development of a long-term comprehensive CCP management plan, which will minimize the impacts on power cost for GRE's rate payers.