

ICAC GHG Technology Solution Offered by Evergreen Energy Inc.

1. Technology Description: Evergreen Energy Inc. refines coal into a cleaner, more efficient and affordable solid fuel that is available today to meet the growing energy demands of industrial and utility customers while addressing important environmental concerns. Our proprietary K-Fuel® process uses heat and pressure to physically and chemically transform high moisture, low BTU coals, such as subbituminous and lignite, into a more energy efficient, lower emission fuel. A co-benefit of the K-Fuel® process is the removal of significant amounts of mercury and reductions in the emissions of carbon dioxide, sulfur dioxide and nitrogen oxides.
2. Commercial/Implementation Status: Evergreen Energy operates a 750,000 tons per year demonstration coal refining facility near Gillette, Wyoming. Utilizing local Powder River Basin (PRB) feedstocks, K-Fuel® is being produced for coal boilers (utilities, industrials, etc) to be transported throughout the country. Additionally, Evergreen Energy is working with TXU and other utilities to potentially develop K-Fuel® production facilities at the plant site, called K-Direct. Evergreen is also testing international low-rank coals for implementation of the K-Fuel® process in other countries.
3. Pollutants Controlled and Performance: By reducing the moisture content of high moisture fuels K-Fuel® has an increased energy content of 30-40%. Utilizing low rank feedstocks, such as Powder River Basin subbituminous coal and lignites, Evergreen Energy creates K-Fuel® with higher BTU content and low sulfur content. A co-benefit of the K-Fuel® process is the removal of significant amounts of mercury and reductions in the emissions of carbon dioxide, sulfur dioxide and nitrogen oxides. Test results have demonstrated a pre-combustion reduction of up to 70% of mercury and reduction of emissions of sulfur dioxide of approximately 40% and nitrogen oxides of 10-22%. Due to the increased efficiency of K-Fuel® associated with reducing the moisture content of high moisture feedstocks, K-Fuel® can offer carbon dioxide reduction of 6-12%. Results vary as they are site specific and dependent upon the characteristics of the feedstock used for K-Fuel® production.
4. Customers: K-Fuel® provides a cost-effective energy and environmental solution to coal-fired boilers, including electric utility and industrial coal consumers. Old and small capacity boilers where post-combustion add-on controls may be cost prohibitive are well-suited to K-Fuel® as well as derated boilers seeking to increase generation capacity.
5. Cost: K-Fuel® is priced on a per ton basis into high BTU, low sulfur demand markets. Accordingly, K-Fuel® is priced competitively to coals with similar characteristics and is currently selling to various customers for \$35-70/ton. In the future, the cost of K-Fuel® will be impacted by the pre-combustion removal of mercury and CO₂ reduction due to increased energy efficiency.