

# STI's Six Years of Commercial Experience in Electrostatic Beneficiation of Fly Ash

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## ABSTRACT

Separation Technologies, Inc. (STI) has been operating commercial fly ash beneficiation systems since 1995. STI's electrostatic beneficiation technology reduces the carbon content of coal fly ash, producing a consistent, low LOI ash for use as a substitute for cement in concrete applications. Fly ash with carbon levels greater than 25% have been used to produce a concrete grade ash with a controlled carbon level of  $2 \pm 0.5\%$ , virtually eliminating fly ash related air entrainment problems for concrete producers. A carbon rich product is simultaneously produced, which can be introduced to the utility boiler to recover the fuel value of the carbon.

The technical details of the process will be discussed, along with the operating histories of STI's three commercial installations: U.S. Generating's Brayton Point Station, Carolina Power & Light's Roxboro Station, and Constellation Power Source Generation's Brandon Shores Station.

STI has also developed a process that removes ammonia from fly ash. The process can reduce the ammonia concentration on contaminated ash containing up to 2000 mg  $\text{NH}_3$  / kg (ppm) to less than 50 mg  $\text{NH}_3$  / kg. Design of a commercial size operation is underway which will handle 40 tons per hour of contaminated ash.