

**PUBLIC ABSTRACT**

Applicant (primary) name: LG&E Energy Corporation

Applicant-s address: 220 W Main Street, Louisville, KY 40202  
Street City State Zipcode

Team Members (if any): McDermott Technology, Inc. Alliance, OH 44601  
(listing represents only participants Name City State Zipcode  
at time of application, not necessarily  
final team membership)

Babcock & Wilcox Company, Barberton, OH 44203  
Name City State Zipcode

USFilter, Plainfield, IL 60544  
Name City State Zipcode

Airborne Pollution Control, Calgary, AB Canada  
T2H1J5  
Name City State Zipcode

(Use continuation sheet if needed.)

Proposal Title: Commercial Demonstration of the Airborne Process

Commercial Application:  New Facilities  Existing Facilities

**9** Other, Specify: \_\_\_\_\_

Technology Type: Environmental Performance

Estimated total cost of project:  
(May not represent final negotiated costs.)

Total Estimated Cost: \$ 120,126,569

Estimated DOE Share: \$ 31,122,268

Estimated Private Share: \$ 89,004,301

**PUBLIC ABSTRACT (cont=d)**

Anticipated Project Site(s): Carrollton, Carroll County, KY  
Location (city, county, etc.) State Zipcode

\_\_\_\_\_  
Location (city, county, etc.) State Zipcode

\_\_\_\_\_  
Location (city, county, etc.) State Zipcode

Type of coal to be used: Eastern Kentucky Bituminous  
Primary - Alternate (if any)

Size or scale of project: 6,360 tpd  
Tons of coal/day input

And/or

524 MW Megawatts, Barrels per day, etc.  
Other (if necessary)

Duration of proposed project: 51  
(From date of award) (Months)

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**PRIMARY CONTACT:**

For additional information, Don Miller  
interested parties should contact: Name

Director of Project Development  
Position

(502) 627-3992  
Telephone Number

LG&E Energy Corporation  
Company

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220 West Main Street  
Address

Louisville, KY 40202  
City State Zipcode

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Alternative Contact: Philip Imber

Name  
Chemical Engineer  
Position

(502) 627-4144

Telephone Number

LG&E Energy Corporation

Company

Philip.imber@lgeenergy.com

e-mail address

220 West Main Street

Address

Louisville, KY 40202

City

State

Zipcode

## **PUBLIC ABSTRACT (cont=d)**

### **Brief description of project:**

LG&E Energy will lead the “Commercial Demonstration of the Airborne Process” Clean Coal Power Initiative project. This will be a cost-effective, full-scale demonstration of advanced emission control technologies integrated with existing emissions control equipment that will result in multi-pollutant emissions abatement while providing a highly desired, valuable fertilizer byproduct.

The goals of this project are as follows: LG&E Energy will retrofit its 524 MWe (gross) Ghent Unit 2 facility with the “Airborne Process” with the goal of removing 99.5% of sulfur dioxide (SO<sub>2</sub>), 90% of SO<sub>3</sub> (sulfuric acid mist precursor), 90% of nitrogen oxides (NO<sub>x</sub>), and 90% of the mercury across the total system, while turning the byproducts into a high-quality, valuable granular fertilizer. This fertilizer will produce a revenue stream for LG&E Energy while yielding stack emissions that will be lower than other coal-fired units currently in service in the Nation. To accomplish this goal, sodium based scrubbing will be used in conjunction with an innovative process for the regeneration of sodium bicarbonate, which can then be granulated using the state-of-the-art Airborne Process to produce high purity, valuable fertilizer.

Kentucky Utilities (“KU”), a wholly owned LG&E Energy subsidiary, was incorporated in Kentucky in 1912 and incorporated in Virginia in 1991. It is a regulated public utility engaged in producing, transmitting, and selling electric energy. KU provides electric service to approximately 469,000 customers in over 600 communities and adjacent suburban and rural areas in 77 counties in central, southeastern, and western Kentucky, and to approximately 30,000 customers in 5 counties in southwestern Virginia. In Virginia, KU operates under the name Old Dominion Power Company.

The Ghent Generating Station, owned by Kentucky Utilities Company, is located on the Ohio River in Carroll County, about nine miles northeast of Carrollton, Ky. on US 42. This facility is the newest and largest of Kentucky Utilities’ seven (7) generating stations. Its 1,670-acre grounds contain four electric generating units generating slightly over 2,100 megawatts of gross capacity. The plant itself stands 240 feet tall, or about 20 stories high, and the stacks rise 660 feet above the Ohio River Valley. Construction at Ghent began in 1970 with the total cost to date at approximately \$1 billion. The first unit was placed in operation in December 1973, Units 2 and 3 were brought on line in 1977 and 1981 respectively, and Unit 4 went into service in the summer of 1984. The proposed retrofit of the Airborne Process will take place on Unit 2.

LG&E Energy will host this project as well as serving as the prime contractor with the Department of Energy. McDermott Technology Inc. will support LG&E by participating in the test program and providing management of the CCPI contract with DOE. The Babcock & Wilcox Company, USFilter, and Airborne Pollution Control will provide the technical and project management resources throughout the four-year project including design, installation, start-up and testing. Airborne Pollution Control holds the patents for the granulation process. B&W, USFilter and Airborne Pollution Control will provide the hardware for the dry sorbent injection and sodium based scrubbing system, regeneration system, and fertilizer production system respectively.

The Airborne Process can be widely applied in the near term to satisfy the emissions reduction needs for retrofits into existing plants that are currently un-scrubbed as well as for new coal-based installations. Coal is our nation's most abundant indigenous energy resource, and its use is essential to ongoing national security interests. A successful outcome of this project will provide a cost effective option to meet domestic energy and environmental concerns with particular application to un-scrubbed units in the existing coal-fired fleet as well as new coal-based generation.

Installation and startup will be followed by a three-month field test phase. The fuel for the test period will contain 3.6% sulfur. This test program will focus on multi-pollution emission reductions and production of the valuable fertilizer. The test program will also demonstrate the availability of the Airborne Process with the objective of achieving a commercial level of availability beginning with the first year of commercial operation.

This full-scale commercial demonstration brings together industry leaders in the fields of power generation, air quality control systems, and chemical plant design. The commercial demonstration team is comprised of LG&E Energy, Airborne Pollution Control, McDermott Technology, Inc., The Babcock & Wilcox Company, and USFilter.