

1.6 MW Fuel Cell Distributed Generation Project

to demonstrate grid-parallel operation of eight ONSI fuel cells utilizing anaerobic digester gas as a primary fuel and to provide an additional 1.6 MW of renewable power capacity in the New York Metro

BACKGROUND

NYPA will operate the fuel cells to support the power requirements of the NYC DEP treatment facilities for a minimum period of three (3) years (the fuel cell systems are under warranty for 3 years). NYPA will be responsible for the permitting, procurement, installation, and operation of the fuel cells, the ADG processing equipment, and all balance of plant (BOP) systems. Monthly progress reports will document overall system performance, including but not limited to, efficiency, emissions, water consumption, power output, ADG flow/composition, and maintenance costs.

OBJECTIVE

The primary objective of the project is to demonstrate grid-parallel operation of eight (8) ONSI fuel cells (phosphoric acid) utilizing anaerobic digester (ADG) as a primary fuel, and to provide an additional 1.6 MW of renewable power capacity within the New York metropolitan area.

DESCRIPTION

The New York City Department of Environmental Protection (NYC DEP) owns and operates fourteen (14) waste water treatment facilities in the metropolitan area. These facilities use a process called "anaerobic digestion" to decrease the quantity and volatility of sludge collected during water purification. A significant portion of the ADG produced from the sludge digestion process is combusted in a conventional flare with poor emissions performance (NOx, SOx, CO, and VOC), and low overall energy efficiency. The NYC DEP has proposed a joint project with the New York Power Authority (NYPA) to deploy eight (8) ONSI fuel cells, at four (4) treatment facilities, to consume all of the currently flared ADG to produce a total of 1.6 MW of electrical power. The waste heat from the fuel cells will be used to maintain the temperature of the digester.

BENEFITS

An ADG-fueled fuel cell reduces emissions output compared to a conventional ADG-fueled flare, and is expected to produce high quality electrical power. Treatment facility emission reductions (NOx, SOx) can be used as emission offsets for the ten (10) peaking gas turbines recently deployed in the New York City area. Fuel cells operating on ADG provide a renewable source of electric power to help meet the New York State renewable energy mandate.

Funding	Encumb to Date	Pending	Total Anticipated
New York Power Authority,	\$11,950,000.00	\$0.00	\$11,950,000.00
NYSERDA	\$1,000,000.00	\$0.00	\$1,000,000.00
TOTALS	\$12,950,000.00	\$0.00	\$12,950,000.00

Manager	Torpey, Mark R.
Contracts	STD-6937
Contractors	New York Power Authority
Cities	Astoria, Bronx, Brooklyn, Staten Island
Counties	Bronx, Kings, Queens, Richmond