



Sulfur-Resistant CO Catalyst for New York Gas Turbine Power Plant

Client | Astoria Energy LLC

Location | Astoria, Queens, NY

Project Summary

Catalytic Combustion Corporation was given the opportunity to bid on a project for a Sulfur-Resistant CO Catalyst to be installed at a large gas turbine HRSG project in Astoria, New York. The facility is comprised of two 2x1 combined cycle (with duct burners) power blocks capable of providing up to 1,200 MWs to New York City. Each power block consists of 2 GE 7FA combustion turbines and a steam turbine. Steam for each steam turbine comes from the two HRSGs that have duct firing capability for power augmentation when required. The primary plant fuel is natural gas, and the secondary fuel is ultralow sulfur #2 oil.

The site provided a bid specification for a sulfur-resistant CO Catalyst. Sulfur contamination or poisoning is a primary cause for CO catalyst degradation. This project was

scheduled for one of the four HRSG units during a 14-day planned outage in which the new Sulfur-Resistant CO Catalyst was installed after the spent catalyst was removed.

Catalytic Combustion Corporation partnering with Groome Industrial Service Group, provided a turnkey supply and installation service for the Astoria project. During the project scaffolding was erected and more than 290 spent catalyst modules were removed, gaskets and sealing materials were replaced and the new CO Catalyst modules were installed. The project was completed in less than four days.

The original spent catalyst was removed and installed in the original shipping crates for recycling of the precious metals (platinum and palladium).

Sample coupons for future catalyst testing were installed at ground level for easy access to ensure no scaffolding will be needed to remove and replace sample coupons with fresh catalyst.



Quick Facts for Astoria Energy

Fuel-primary	Natural gas/ultra-low sulfur fuel oil
Resource type	Base load
Electricity	1,200 MW
Electric customer	Consolidated Edison of New York & New York Power Authority
Technology	Combined cycle
Gas turbine generators	(4) GE 7FA-7241 series
Steam turbine generators	(1) Alstom and (1) GE D11
Boilers (HRSG)	(4) Alstom
Plant emissions	Gas: NOx (3hr) 2.0 ppm, CO (1hr) 1.5 ppm, NH3 (3hr) 5 ppm
	Oil: NOx (3hr) 6.0 ppm, CO (1hr) 4.0 PPM, NH3 (3 hr) 10 PPM
Fuel handling	Fuel unloading dock capable of handling ocean going barges
Water treatment plant	Demineralized water trailer
Cooling water system	Air cooled auxillary cooling water systems
Condensing system	Air cooled condensing system
Plant controls	GE MK VI gas turbines, Emerson Ovation-balance of plant
Output voltage	138 kV and 345 kV

Project completed with cooperation from:



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Catalytic Combustion Corporation
311 Riggs St., Bloomer, WI 54724
Toll-free 1-888-285-5940
Power-Gen@CatalyticCombustion.com
www.CatalyticCombustion.com

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