

Multi-Pollutant Reduction System

Test Results

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INTRODUCTION

Wow Energy, Inc (WOW Energies) is pleased to submit this information in response to your request for information on a **WOWClean**[®] multiple pollution reduction system.

WOW ENERGY INC. (“WOW ENERGIES”)

WOW was formed to “Meet the World’s Energy & Environmental Challenges”. WOW Energies provides patented technologies to efficiently convert nearly any heat source to power (**WOWGen**[®]) and multi-pollution reduction technologies that remove nearly all pollutants from a flue gas stream, including Mercury and CO₂ greenhouse gases (**WOWClean**[®]).

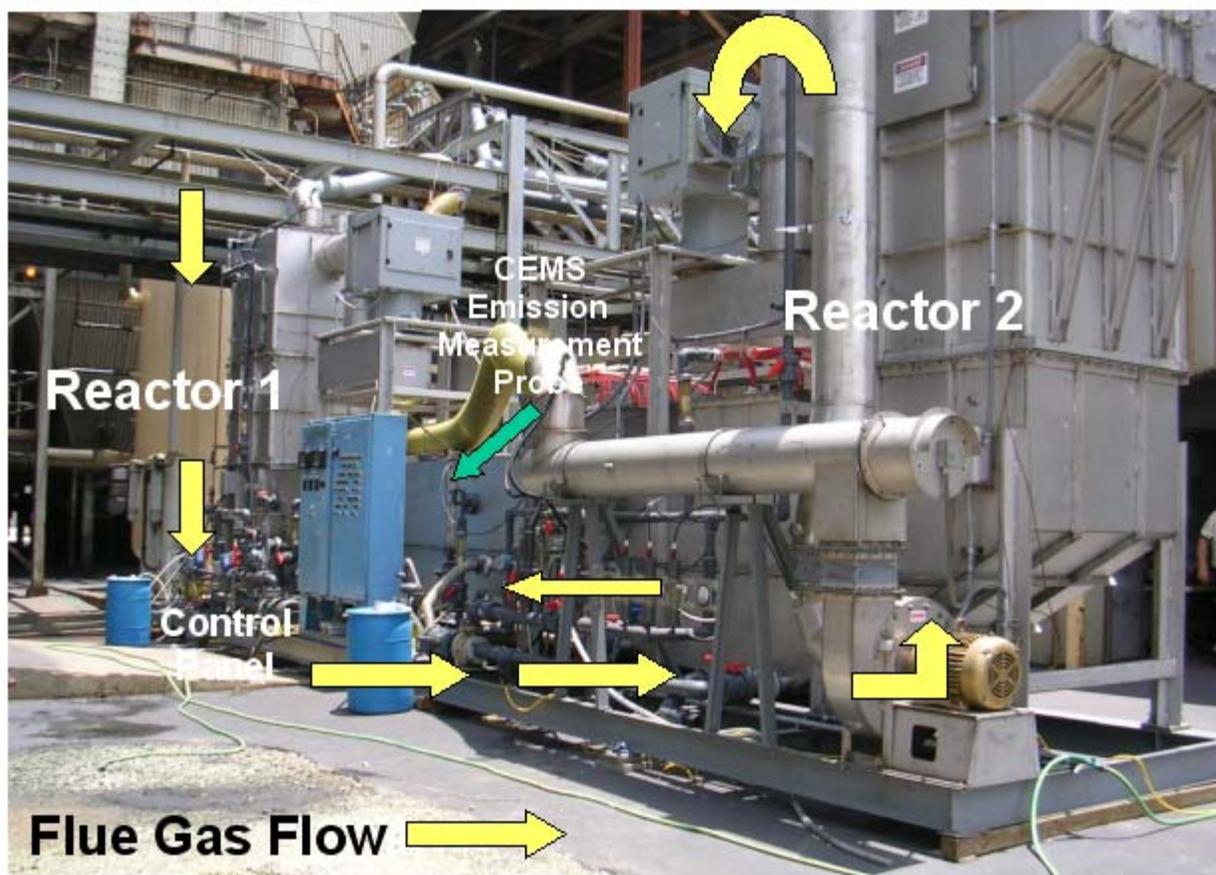
The WOW Energies patents represent the production of efficient power from low, medium and high temperature heat generated from the combustion of fuels; heat from renewable energy sources such as solar and geothermal heat; or waste heat sources. Waste heat sources can be in the form of exhaust stack flue gases or waste heat from vented steam or steam discharged from steam turbines as well as hot water, hot oils or combined waste heat sources. A major advantage of the **WOWGen**[®] power plant is the ability to produce without the use, consumption or contamination of valuable water resources.

In addition to the patented **WOWGen**[®] power plants, WOW Energies has developed a patent pending multi-pollutant reduction **WOWClean**[®] system that eliminates nearly all pollutants, particulates and heavy metals, including Mercury, from flue gases exiting industrial exhaust stacks while simultaneously reducing CO₂ greenhouse emissions by 25% or more. The **WOWClean**[®] multi-pollutant reduction system was designed to operate in conjunction with the patented **WOWGen**[®] power plant or as a stand-alone flue gas cleaning system.

The **WOWGen**[®] power plant inherently reduces emissions and Greenhouse Gases (GHG) by producing power from waste heat without consuming fuel and without the use or consumption of valuable water resources. The combination of the **WOWGen**[®] and **WOWClean**[®] system increases the overall energy efficiency of any industrial plant while simultaneously removing nearly all the pollutants from a flue gas without the need to install multiple pollution reduction systems such as a Flue Gas Desulfurization (FGD) unit for SO_x; Selective Catalytic Reduction (SCR) system for NO_x; or Baghouse/ESP for particulate removal.

WOWClean® PILOT PLANT

Every flue gas stream has a unique combination of pollutants and testing can be conducted using the WOW Energies 2,500 to 4,000 ACFM pilot plant to determine the type and percentages of pollutants; the interaction between pollutants when exposed to the **WOWClean®** processes; the quantity and combination of chemical additives required; and the overall efficiency. The **WOWClean®** pilot plant was built with funds from a \$1.6 million cost-sharing grant to WOW Energies issued by the Texas Commission on Environment Quality (TCEQ) in 2005. The TCEQ grant program provides for testing of the mobile pilot plant at any facility interested in reducing/eliminating emissions from flue gas stacks. Pilot plant testing will be performed at no cost other than the cost of unique interconnect equipment and the shipping, operating and maintenance costs associated with installation, testing and reporting of test results.



WOWClean® PILOT PLANT TEST RESULTS

Testing of the **WOWClean®** pilot plant was completed in the fall of 2006 on the AES 150 MW petroleum coke (“petcoke”) fired cogeneration power plant in Pasadena, TX and on the Boralex 40 MW wood waste fired power plant in Livermore Falls, ME. Test results, verified by third party testing in accordance with EPA and TCEQ test procedures, demonstrated the

capability of the **WOWClean**[®] system to remove nearly all pollutants from a flue gas stream including Mercury while reducing CO₂ greenhouse gases. The results for each test site are summarized below.

WOWClean[®] Test Results
AES 150 MW Petcoke Fired Power Plant

<u>Pollutant</u>	<u>Inlet</u>	<u>Exhaust (3)</u>
SO ₂	2200 ppm to 2500 ppm	~ 0 ppm
NO (1)	350 ppm to 450 ppm	~ 0 ppm
NO _x (2)	350 ppm to 450 ppm	50 ppm to 75 ppm
CO ₂ - %	13.9	~ 11.3% (19% reduction)
Particulates/SFC	-	~ 0 (1.0 x E-7)
Vaporized Metals (3)	-	~ 0

- (1) Converted to water soluble NO_x
- (2) NO converted to water-soluble NO_x (NO₂, NO₃, N₂O₅). Reduced to zero at Boralex test site. Verified by third party testing per EPA/TCEQ test procedures
- (3) Vanadium/Copper/Zinc/Cadmium/Aluminum and others precipitated out in the wastewater effluent

WOWClean[®] Test Results
Boralex 40 MW Wood Fired Power Plant

<u>Pollutant</u>	<u>Inlet</u>	<u>Exhaust (7)</u>
SO ₂	< 20 ppm	~ 0 ppm
NO (1)	130 ppm	~ 0 ppm
NO _x (2)	80 ppm	~ 7 ppm
Total NO _x (3)	130 ppm	~ 0 ppm
Vaporized Metals (4)	-	~ 0
Mercury µg/DSCM (5)	2.18	0.37 (83% reduction)
CO ₂ - % (6)	11.6	7.25 (38% reduction)

- (1) Converted to water soluble NO_x
- (2) Water-soluble NO_x (NO₂, NO₃, N₂O₅) – client required 35 ppm
- (3) Demonstrated subsequent to 3rd party testing
- (4) Verified via effluent assaying
- (5) Hg precipitated out in the wastewater effluent
- (6) Reduced by as much as 85% during CO₂ reduction trials
- (7) Verified by third party testing per EPA/TCEQ test procedures

Subsequent to contractual pilot plant testing completed in 2006, WOW Energies performed three (3) additional tests in 2007 to verify applicability of the **WOWClean**[®] technology to remove pollutants: These tests included (1) Steel mill reheat furnace; (2) Tier 1 diesel engine exhaust and (3) CO₂ removal from atmospheric air.

(1) Steel Mill Reheat Furnace: Pilot Plant testing was conducted on a natural gas fired reheat furnace at a steel mill to demonstrate the reduction of NO_x and other pollutants including particulates. Test results are shown below:

WOWClean® Test Results
Natural Gas Fired Reheat Furnace

<u>Pollutant</u>	<u>Inlet</u>	<u>Exhaust (2)</u>
SO ₂	< 3 ppm	0 ppm
NO _x (1)	80 ppm to 100 ppm	5 ppm to 20 ppm
NO _x (1)	0.16 to 0.20 lb/MMBTU	0.016 lbs/MMBTU
NO _x (3)	80 ppm to 100 ppm	~ 0 ppm
Particulate Matter	TBD	(4)
CO ₂ - %	5.0 % to 5.5%	4.6 % to 4.9% (10% reduction)

- (1) Primarily NO - 4 ppm in the form of NO₂
- (2) Verified by third party testing
- (3) Reduced to zero but not 3rd party verified
- (4) Particulate matter should be close to zero based on prior testing.

(2) Tier 1 Diesel Engine Exhaust: Pilot plant testing was conducted on a diesel fueled Tier 1 reciprocating engine which demonstrated that the WOWClean® technology could be applied to existing and new stationary, marine and locomotive diesel engines to achieve Tier 4 results.

WOWClean® Test Results
Diesel Fueled Reciprocating Engine

<u>Pollutant</u>	<u>Inlet</u>	<u>Exhaust (1)</u>
SO _x (2)	45 to 65 ppm	0 to 7 ppm
NO _x	180 to 220 ppm	0 to 15 ppm
Particulate Matter	TBD	~ 0
CO (3)	80 to 90 ppm	70 ppm to 80 ppm (10% reduction)
CO ₂ - %	4.0 % to 5.5%	3.5 to 5 % (10% reduction)

- (1) Verified by third party testing
- (2) Pollutant levels depended on load
- (3) Ran as high as 305 ppm depending on load

(3) CAT3516 Generator Set Exhaust: Pilot plant testing was conducted on a diesel fueled Tier 1 reciprocating engine which demonstrated that the WOWClean® technology could be applied to existing and new stationary, marine and locomotive diesel engines to achieve Tier 4 results.

WOWClean® Test Results
Diesel Fueled Reciprocating Engine

<u>Pollutant</u>	<u>Inlet</u>	<u>Exhaust (1)</u>
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SO _x (2)	4 to 17 ppm	0 to 1 ppm
NO _x	124 to 912 ppm	12 to 176 ppm
Particulate Matter	TBD	~ 0
CO (3)	112 to 252 ppm	89 ppm to 198 ppm (20% reduction)
CO ₂ - %	3.0 % to 5.8%	2.5 to 3.8 % (20% reduction)

- (4) Not verified by third party testing
- (5) Pollutant levels depended on load
- (6) Ran as high as 1013 ppm depending on load

This test was conducted to reduce emissions of a Tier1 engine (920ppm NO_x) to comply with Tier4 requirements of 350ppm NO_x.

(4) CO₂ Removal from Atmospheric Air: The impact of CO₂ emissions on global warming has been a major political, environmental and societal discussion during the past decade. The scientific community continues to debate whether the billions of tons of CO₂ emitted daily by industrial and automotive sources is creating global warming. The Company's position is that regardless of which side of the argument one takes, the fact is that the flue gases that contain the high levels of CO₂ also contain the other pollutants that are damaging the environment and the health of individuals. Pollutants in the flue gases discharged into the atmosphere along with CO₂ include NO_x; SO_x; particulates in the form of PM_{2.5} and PM₁₀; Mercury and other heavy metals; and many other contaminants. WOW Energies developed the **WOWClean[®]** multi-pollutant removal technology to remove all pollutants not just a specific species. However, the capability of the **WOWClean[®]** system to remove high levels of CO₂ offers an immediate solution to the global warming issue.

Since WOW Energies **WOWClean[®]** multi-pollutant removal technology had already demonstrated the capability to remove up to 85% of the CO₂ in a flue gas, testing was conducted to determine how much CO₂ could be removed from atmospheric air. A typical 500 MW coal fired power plant, for example, can have as much as 450,000 ppm of CO₂ whereas atmospheric air has only 400 ppm of CO₂. Two (2) separate tests were conducted by WOW Energies to demonstrate removal of CO₂ from atmospheric air, one verified by third party testing, demonstrating CO₂ reductions ranging from 80% to 90 % as shown below.

WOWClean[®] Test Results
CO₂ Removal from Atmospheric Air
(Virgin Earth Challenge)

<u>Pollutant</u>	<u>Inlet</u>	<u>Exhaust (1)</u>
CO ₂ - ppm	400 ppm	35 ppm to 70 ppm

- (1) Two separate tests at two separate locations