



LDX Solutions supplies state-of-the-art clean air technologies to industry with a complete line of Geoenergy® technologies. This includes the GeoTherm® II RTO, the E-Tube® Wet ESP, and wet scrubber systems. Since 1984, the Geoenergy technologies have solved difficult air emission control issues, while meeting demanding air quality regulations with unmatched availability and low operating costs.

For complete engineering, project management and construction services, as well as comprehensive aftermarket service and spare parts supply, contact LDX Solutions today.

### LDX Solutions

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## We are a Global Supplier of Clean Air Technologies

Our experienced staff designs engineered systems, under the Dustex® and Geoenergy® brands, that control Particulate Matter, Heavy Metals, Acid Gases, VOCs (Volatile Organic Compounds), and HAPs (Hazard Air Pollutants).

#### Our Technologies Include:

- GeoTherm® Regenerative Thermal Oxidizer (RTO)
- Circulating Dry Scrubber (CDS)
- Fabric Filter Dust Collector (Baghouse)
- Geocat® Regenerative Catalytic Oxidizer (RCO)
- Activated Carbon (ACI) & Dry Sorbent Injection (DSI) Systems
- SCR/SNCR
- Air-to-Air Heat Exchanger
- Cyclone
- Wet Scrubber
- E-tube® Wet Electrostatic Precipitator (WESP)

## GEOENERGY® E-TUBE® WET ESP



Lundberg®

Dustex®

Geoenergy®

# WET ELECTROSTATIC PRECIPITATOR

## The Technology Choice For Fine Particle Collection

The collection of fine particulate is often one of the most difficult environmental control problems faced by industry. These sub-micron particles present a significant threat to human health and are one of the leading causes of visibility degradation. Thus, there is increasing regulatory pressure to reduce the emission of these particles to the environment. Industrial operators are looking for technologies that can meet this challenge at reasonable capital and operating costs.

The E-Tube® Wet Electrostatic Precipitator (Wet ESP) is just such a technology. Developed by Geoenergy® International Corporation and now part of the LDX Solutions family of emission control products, E-Tube® Wet ESPs have been successfully applied to hundreds of tough particulate control applications around the world. Presently, over 15 million CFM of emissions are being treated with E-Tube® Wet ESPs.

## TYPICAL INSTALLATIONS

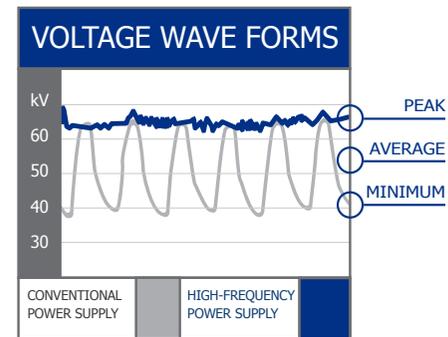
- Biomass-Fired Boilers
- Sewage Sludge Incinerators
- Wood Dryers and Press Vents in the Panelboard and Pellet Industries
- Hazardous Waste Incinerators
- Insulation Manufacturing
- Food Processing
- Fiberglass/Mineral Wool Forming and Curing Operations
- NGG Incineration
- Clean Room
- Fine Particle Source Process Application
- Mining Ore Drying
- Refinery FCCU
- Semiconductor Fabrication

# GEOENERGY® E-TUBE® WET ESP

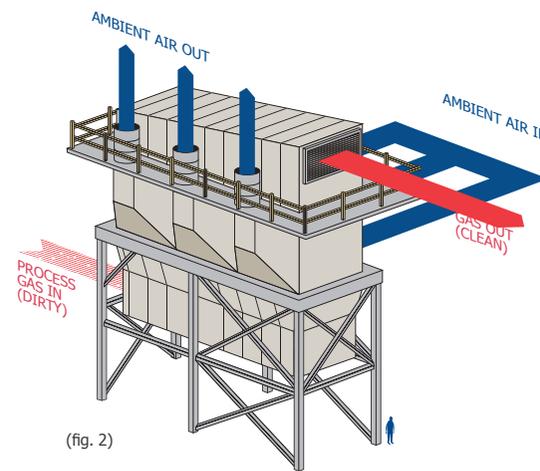
## Advanced Technology Means Top Performance

The basic E-Tube® design features a number of technologies that ensure the best particle collection performance and ease of operability. Each of these has been proven in full-scale operation at many installations.

In addition, each E-Tube® project is custom designed to fit the requirement of a particular installation. This includes inlet/outlet ductwork, support and access facilities and integrated water recycling and treatment systems. Finally, each E-Tube® project, whether it is an equipment-only project or a complete turnkey installation, is supported by the entire LDX Solutions' engineering and project management team.



(fig. 1)



(fig. 2)

### High-Frequency Transformer-Rectifier Sets

The Geoenergy® design, utilizes high-frequency transformer rectifiers (TR sets), to maximize the total electric field, and reduce energy consumption. This provides greater performance than traditional 60 Hertz designs. (See fig. 1)

### External Tube Cooling

Improves performance and reduces water consumption because tubes are cooled with external air, allowing for natural condensation to collect on the collection tube walls, aiding in irrigation. (See fig. 2)

### SPHERE™ Adjust Hardware

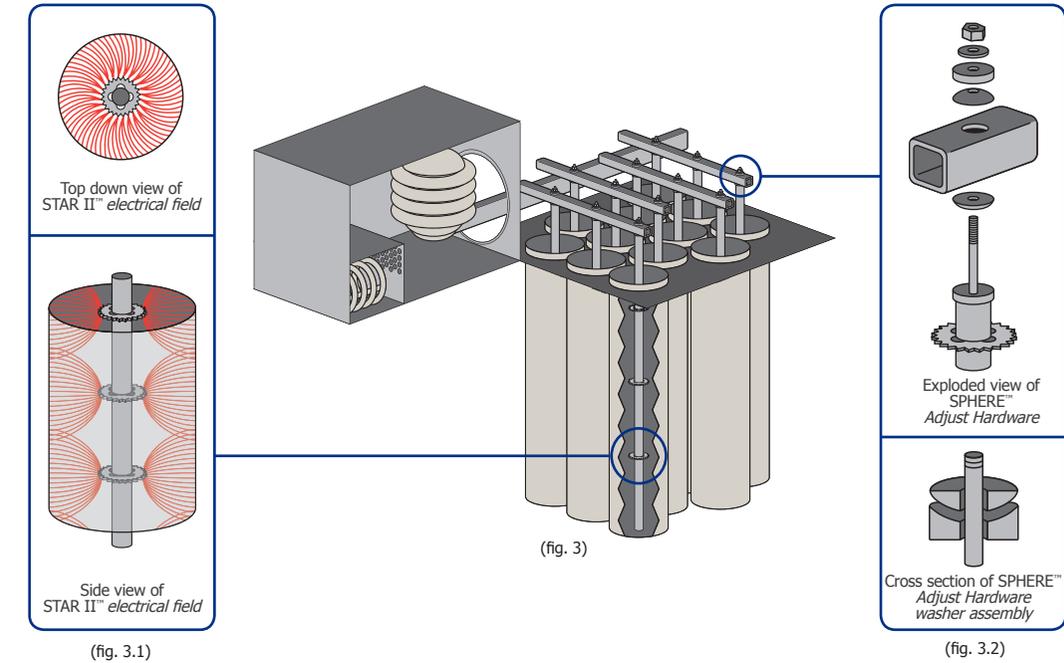
Lowers installation and maintenance costs through our unique one-bolt design. It also eliminates the requirement for a lower alignment frame, simplifying assembly and upkeep. (See fig. 3.2)

### STAR II™ Electrode Design

Maximizes electrical field and secondary current output through unique shape and design, enhancing efficiency and reducing Wet ESP size requirements. (See fig. 3.1)

# The Geoenergy® Wet ESP has been Deployed in Hundreds of Facilities

Facilities including sixteen installations in the last four years, all of which meet the strict emission requirements. Since its original design in 1984, the E-Tube® Wet ESP has been steadily refined and perfected, taking advantage of improvements in materials and technologies and rising to meet ever more stringent emission control standards.



### Circular E-Tube Design

Increases efficiency, lowers operating costs and reduces footprint by maximizing exposure to the electrical field while reducing corrosion common in hexagonal or square designs. (See fig. 3)

### The LDX Solutions Difference

For over 80 years, our engineers have been proud to analytically apply technologies to industry and helping our clients find solutions and adapt to changing technologies and emissions requirements. Today, we continue that tradition, offering complete engineering, project management and construction services, as well as comprehensive aftermarket service and spare parts supply.

## 30 YEARS OF LEADERSHIP AND INNOVATION

1984

1st Wet ESP on veneer dryer

DESIGNATED BACT BY OREGON DEQ

1988

1st Wet ESP on particleboard dryer

1995

Louisiana Pacific selects E-Tube® units for all northern division OSB mills

BOILER MACT I

2004

1st Boiler MACT compliant unit

2006

World's largest OSB mill installs E-Tube® units

2010

World's largest pellet mill installs E-Tube® units

BOILER MACT II

2013

IP selects E-Tube® Wet ESPs for Boiler MACT compliance

Contact LDX Solutions today to learn more about our Geoenergy® E-Tube® Wet ESP and other emission control solutions.

Call 770-429-5575 or email mail@LDXsolutions.com