

# CASE STUDY – EMERALD CITY LFG-TO-ENERGY FACILITY OPERATIONS

Since 2014, ESI has provided full-time Operations and Maintenance for the 4.8MW landfill-gas-to-energy facility with support of internal Engineering, Compliance, and Electrical Services. ESI took over the facility commissioning to keep the project on schedule and start generating revenue for the owner.



## UNIQUE CHALLENGE

In order to begin routine Operations of the facility, ESI had to step in for the design/construction contractor to finish the facility commissioning which was going on its third month. ESI brought in our engine techs and control techs, experienced in tuning landfill gas systems for stability and reliable control. Once the startup issues were addressed and the facility was operating continuously, the facility was found to have major condensate issues that flooded the fuel piping to the engines, hindering them from operating. Immediate patches were installed to allow the engines to operate, while liquid knockouts and sumps were fabricated to remove the condensate before it reached the engines. After updating the design of the LFG fuel piping, the engines have boasted a 95% availability. This would not have been possible without ESI's integration between Operations and Engineering to support any issue the facility encountered. ESI's experience in Operations and Maintenance of over 55 MW of renewable power at similar facilities plays a critical role in Emerald City's continued performance.

## PROJECT OVERVIEW

### LOCATION:

Emerald City LFGTE Facility  
Graham, Washington

### OWNER:

Emerald City Renewables LLC

### COMPLETION:

Ongoing Operations since 2014

### EQUIPMENT:

3 Caterpillar G3520C Engine/  
Generators

### CAPACITY:

4.8 MW Facility Capacity

### SCOPE OF WORK:

- Facility Commissioning Assistance
- Facility Startup coordination
- Routine Operations
- Major Overhaul Maintenance
- Compliance Reporting
- Advanced SCADA systems



### 3<sup>rd</sup> PARTY INDUSTRY LEADERS IN OPERATIONS

In addition to daily routine operations and maintenance of LFGTE facilities, ESI provides a range of services that benefit the facility performance. These services are integrated to provide the client with the best uptime and response for their facility.

- Dedicated Major Overhaul Team (30+ CAT 3516/3520 Overhauls per year)
- Electrical and Controls Engineer support
- Engineering Design support
- Compliance Reporting services
- SCADA Development including an Operational Data Management System (ODMS)
- Inventory stocked across the country for quick response to failures
- Wellfield design and monitoring assistance



In house electrical and controls engineers support our Operations Team.



ESI's dedicated Overhaul Team travels nationwide providing specialized biogas maintenance while being cost conscience.



The key to operational excellence is integration across the facility including wellfield management and flare operations. ESI is experienced in bringing various parties together for an integrated approach to LFGTE facilities.