

For More Information, Contact:

Celeste Erlach: cerlach@electratherm.com, 775.398.4690

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Three ElectraTherm Waste Heat-to-Power Generators Running in Alaska

First Application on Diesel Prime Power Gensets Provides Significant Fuel Savings for City of Unalaska

Reno, Nevada – ElectraTherm, a leader in distributed, waste heat to power generation, commissioned three Green Machines to produce fuel-free, emission-free electricity from diesel gensets at the Dutch Harbor power plant in the remote Aleutian islands of Alaska. ElectraTherm’s “Green Machine” Organic Rankine Cycle (ORC) generators capture the waste heat from the jacket water of two Wartsila W12V32 and one CAT C280-16 at temperatures as low as 165°F to generate approximately 75kWe net for the site. The power generated is sent to the grid, where residential costs of power are some of the highest in North America at \$.45/kWh. The City of Unalaska and the Alaska Energy Authority purchased the three ORC generators to utilize an untapped, existing resource at the power plant. The City of Unalaska estimates approximately \$250,000 annual fuel savings. The project was funded by a \$1.3 Million grant from Alaska Energy Authority’s Renewable Energy Fund, which has allowed savings to be passed directly to utility customers.

The Green Machine ORCs offset the radiators on the gensets significantly; radiator power consumption is reduced by an estimated 8,000 kWh per month, equating to 6,000 gal of fuel saved per year. The reduction of cooling loads is an additional benefit to the electricity generated for profit, equating to a [“radiator with a payback.”](#)

The installation in Unalaska is ElectraTherm’s first application on diesel prime power, and ElectraTherm anticipates repeatable opportunities in remote locations where there are diesel reliant rural populations. At the site, hot water enters the Green Machines, where it heats a working fluid into pressurized vapor. As the vapor expands, it drives ElectraTherm’s patented twin screw power block, which spins an electric generator and produces power. All three ORC generators utilize one cooling loop, sea water with an input temperature of 45°F.

“I left ElectraTherm [training] with 100% satisfaction in the product that we have received and the support that comes along with the purchase,” said Matthew Scott, Electrical Engineering Technician for the City of Unalaska. “ElectraTherm is taking a business approach that tends to have been forgotten today: quality and service first. ElectraTherm’s upfront approach, product quality, customer service and attention to detail far exceed any industry standard.”

ElectraTherm’s Green Machine generates [fuel-free, emission-free](#) power from low temperature waste heat, on applications such as internal combustion engines, biomass, geothermal/co-produced fluids and solar thermal. ElectraTherm’s Green Machine fleet of 48 global installations has accrued more than 315,000 hours of runtime to date. A list of reference sites is currently available on the [website](#).

About ElectraTherm, Inc.

ElectraTherm, Inc. is a renewable energy company headquartered in Reno, Nevada. ElectraTherm’s product, the Green Machine, generates fuel-free, emission-free power from low temperature waste heat using the Organic Rankine Cycle (ORC) and patented technology. Our machines are modular, robust power generators with an attractive return on investment. For more information on ElectraTherm and its clean energy products, please visit www.electratherm.com.

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