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diesel-genset-orc

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**Infinity Turbine
LLC**

Using Waste Heat from Diesel Generator Sets for ORC Power



This webpage QR code

Structured Data

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Taking waste heat from diesel generators can produce free power in a Organic Rankine Cycle (ORC) system. The sources of waste heat are engine cooling (replacing large coolant system fan) and stack exhaust which is normally waste heat to the atmosphere. The ORC does require a cool liquid condenser flow, but generally can utilize the waste heat from the diesel engine to provide 28 percent savings. Generally a 500 kW diesel or larger are prime candidates for utilizing waste heat to make power.

PDF Version of the webpage (first pages)

Utilizing waste heat from Diesel Generators to make free power.

Taking waste heat from diesel generators can produce free power in a Organic Rankine Cycle (ORC) system. The sources of waste heat are engine cooling (replacing large coolant system fan) and stack exhaust which is normally waste heat to the atmosphere.

The ORC does require a cool liquid condenser flow, but generally can utilize the waste heat from the diesel engine to provide 28 percent savings. Generally a 500 kW diesel or larger are prime candidates for utilizing waste heat to make power.

Exhaust to Power: With an additional waste heat to thermal oil heat exchanger, you can capture the diesel exhaust from the pipe to supply heat to the Infinity turbine. This is about 40 percent of total fuel savings as shown in chart below.

Coolant to Power: Pipe straight to the Infinity turbine. This is about 32 percent of total fuel savings as shown in chart below.

IT250 Revenue based on gross sales or savings, not including cost of acquiring waste heat flow or pumps.

Revenue from IT250 (24 hours x 365 days per year x 250 kWh = 2,190,000 kWh per year):

at \$.20 per kWh = \$438,000 USD per year

at \$.40 per kWh = \$876,000 USD per year

at \$.80 per kWh = \$1,752,000 USD per year

IT1000 (1 MW) Revenue based on gross sales or savings, not including cost of acquiring waste heat flow or pumps.

Revenue from IT250 (24 hours x 365 days per year x 1000 kWh = 8,760,000 kWh per year):

at \$.20 per kWh = \$1,752,000 USD per year

at \$.40 per kWh = \$3,504,000 USD per year

at \$.80 per kWh = \$7,008,000 USD per year

Savings Utilizing a ORC on the waste heat from a Diesel Generator

If you run a diesel generator set or any of the engines below 24/7, you may be able to capture the waste heat to generate additional kilowatts of electricity. In addition, you may reduce or eliminate the HP need to drive your radiator coolant fan.

Exhaust to Power: With an additional waste heat to thermal oil heat exchanger, you can capture the diesel exhaust from the pipe to supply heat to the Infinity turbine. This is about 40 percent of total fuel savings as shown in chart below. For a 100 kilowatt Prime diesel genset, this is about 8 kWe per hour additional power. Savings calculated at \$4.50 per gallon.

Coolant to Power: Pipe straight to the Infinity turbine. This is about 32 percent of total fuel savings as shown in chart below. For a 100 kilowatt Prime diesel genset, this is about 7 kWe per hour additional power. Savings at \$4.50 per gallon.
