

# ELECTRATHERM PRODUCT OVERVIEW

CONVERTING EXCESS HEAT INTO CLEAN ELECTRICITY

**THE FUTURE OF ENERGY EFFICIENCY**

 **ElectraTherm**  
BY BITZER GROUP

## WHO WE ARE

Since our establishment in 2005 and the commercial release of the Power+ Generator in 2011, ElectraTherm has been an industry-leader of low temperature heat recovery systems using Organic Rankine Cycle technology. After many years of design adaptations, performance upgrades, successful demonstrations, and happy customers, we are pleased to provide the world solutions that we confidently stand behind.



**100+ INSTALLATIONS** WORLDWIDE

IN **14** COUNTRIES

OVER **2,000,000** OPERATING HOURS



## ABOUT BITZER



## BACKED BY BITZER

In 2016, ElectraTherm was acquired by BITZER, the world's largest independent manufacturer of refrigeration compressors and the centerpiece of our ORC solutions. Represented at 64 locations across the globe with over 3,400 employees generating sales approaching \$1 billion USD, BITZER is recognized as an industry leader in all their industries served.

The combined advantage of ElectraTherm's engineering along with the value of being supported by BITZER allows the ElectraTherm team to continue developing and delivering industry leading waste heat recovery technology.

Together, we bring a proven solution.



BITZER'S SEMI-HERMETIC TWIN SCREW EXPANDER,  
CENTERPIECE OF THE ELECTRATHERM ORC SYSTEM.



# PRODUCT LINE



## POWER MODULE 75

// Up to 75 kWe



## POWER+ GENERATOR

6500B / 6500B+

// Up to 150 kWe\*

\* For 50Hz systems, maximum gross output is 125 kWe



## ACTIVE COOLER

AC-800 (Up to 800 kWth) //

Up to 75 kWe

AC-1800 (Up to 1800 kWth)

// TBD



## HOW IT WORKS

ElectraTherm's heat to power and cooling to power solutions utilize a closed-loop Organic Rankine Cycle (ORC) to convert excess heat into electricity, with no additional emissions or fuel consumption. It's simple really, the ORC exploits the temperature difference between hot and cold water to generate electricity.



# DIVERSE HEAT SOURCES

## NUMEROUS APPLICATIONS

Low temperature heat sources between 150-300°F are ideal for ORC power generation. Higher temperature heat sources such as exhaust gases require an additional heat exchanger.

- // Net-zero cooling to power
- // Compression Heat Recovery
- // Industrial Process Heat Recovery
- // Engine Waste Heat Recovery
- // Flare Reduction / Elimination
- // Micro-Geothermal Power Generation
- // Biomass / Biogas Power Generation
- // Combined Heat and Power





# CURRENT US INSTALLATIONS

// Unalaska (Dutch Harbor, AK) – Engines (3)

// Wisewood (Quincy, CA) – Biomass / CHP

// Port Richmond (Staten Island, NY) – WWTP

// Air Burners (California) – Biomass (2)

// Air Burners (Florida) – Biomass

// Pharmaceutical (Virginia) – Industrial

// US Naval Academy (Maryland) – Engine

// BHSL (Maryland) – Incinerator

// University of Louisiana – Solar



Wisewood / Quincy, CA



Waste Water Treatment Plant / Staten Island, NY

# RETURN ON INVESTMENT

## CASE STUDY

- // 800 kW engine + AC800
- // 8000 hours of operation per year
- // Power Output: 35 kW
- // Radiator Offset: 8 kW
- // Total Annual Output: 344 MWh

## COST SAVINGS

- // \$34,400 per year at \$0.10/kWh
- // \$51,600 per year at \$0.15.kWh

## CASE STUDY

- // 1.1 MW engine + 6500B
- // 8000 hours of operation per year
- // Power Output: 95 kW
- // Radiator Offset: 15 kW
- // Total Annual Output: 880 MWh

## COST SAVINGS

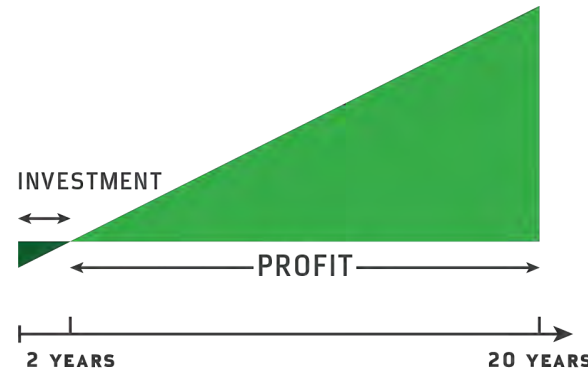
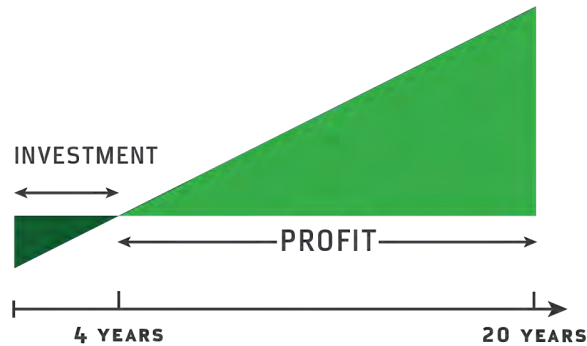
- // \$88,000 per year at \$0.10/kWh
- // \$132,000 per year at \$0.15.kWh



## INCENTIVIZED TECHNOLOGY

ORC technology can provide clean energy, increase efficiency, reduce emissions and fuel consumption, and eliminate flaring. Operators may be eligible for various incentives promoting sustainability and energy efficiency improvements.

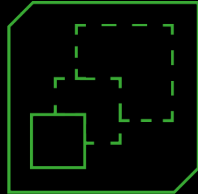
The Consolidated Appropriations Act 2021 grants a 26% tax investment credit to waste heat recovery projects in the U.S. that commence construction by 2023.



ROI is based on kW output, load offset, and annual runtime.



# GOOD FOR BUSINESS...



## SIMPLE

Our robust systems can be adjusted to fit the needs of any application. A modular and scalable design allows for easy integration with existing processes.



## PROFITABLE

Our systems use an existing resource as fuel, keeping operating costs minimal. This increases efficiency up to 10%, significantly reducing energy consumption and reliance on the grid.



## RELIABLE

Every ElectraTherm product goes through a rigorous testing process at our world-class R&D center to ensure output prior to shipment. Our technicians and dedicated global partners offer full support for any issues you may encounter.



## SUSTAINABLE

Approximately 50% of all energy across the globe is lost as heat. Increasing energy efficiency with an ORC is the single easiest way to generate clean energy and offset emissions. With ElectraTherm you can make a measurable reduction of your carbon footprint.

## WHAT CAN 5 ACTIVE COOLERS DO FOR YOU?\*



### CLEAN ELECTRICITY PRODUCED

By recycling waste heat into clean power, you generate 3,285 MWh of emission-free electricity annually. Enough to power 280 U.S. homes year-round.



### CARS NOT DRIVEN

Your annual pollution offset is equivalent to taking 500 cars off the road, or reducing gasoline consumption by 260,000 gallons.



### CO<sub>2</sub> ELIMINATED

By using a waste heat recovery system to achieve net-zero cooling with power generation, you effectively offset the equivalent of 2,330 metric tons of carbon dioxide annually.



### CARBON ABSORBED BY TREES

Your annual pollution offset is equivalent to the carbon sequestered by a 2,850-acre forest, or 100,000 mature trees.

SOURCE: EPA GREENHOUSE GAS EMISSIONS

\*CALCULATIONS BASED ON [5] ACTIVE COOLERS GENERATING 65 KW NET AND OFFSETING 10 KW EACH.

## AFTERMARKET SERVICES, LEAD TIMES, FINANCING



- // Service contracts available. (remote monitoring with contract)
- // 24/7 support from the BITZER Green Point global services.
- // Manufactured in USA, ships from Flowery Branch, Georgia.
- // Volume purchase discounts available.
- // Financing available – 24 months with 30% down.



THANK YOU!

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