

ELECTRATHERM HEAT TO POWER



TOMORROW'S TECHNOLOGY TODAY

ELECTRATHERM – PACIFIC FOCUS

 **ElectraTherm**
BY BITZER GROUP

WHO ARE ELECTRATHERM?

ElectraTherm is a dedicated **Renewable Energy Company** singularly focused on practical solutions to achieve **Energy Efficiency and Carbon Emissions Reduction** through **Heat to Power Generation**.

We combine US entrepreneur spirit and passion with German manufacturing expertise

Commercially Proven ORC Technology providing Energy Efficiency and Renewable Energy, that has been in service since 2011, with in excess of 100+ units successfully shipped worldwide.

Fleet Hours exceeding 1.85 Million Hrs
Fully Supported Worldwide by **BITZER**

Active Allied Member of the PPA since 2016

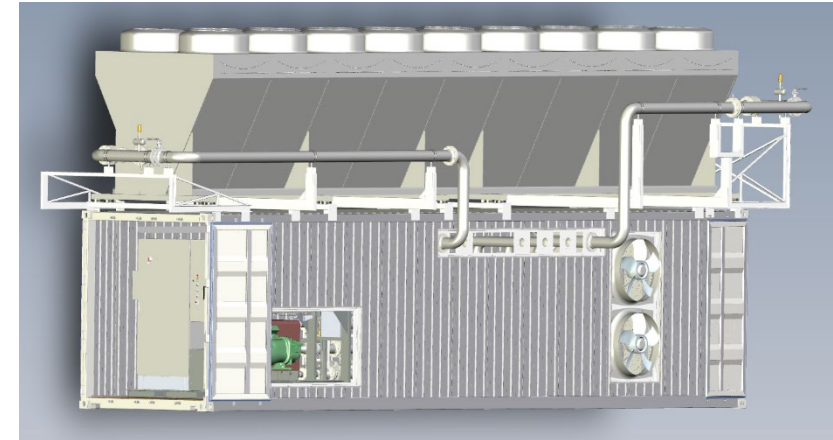
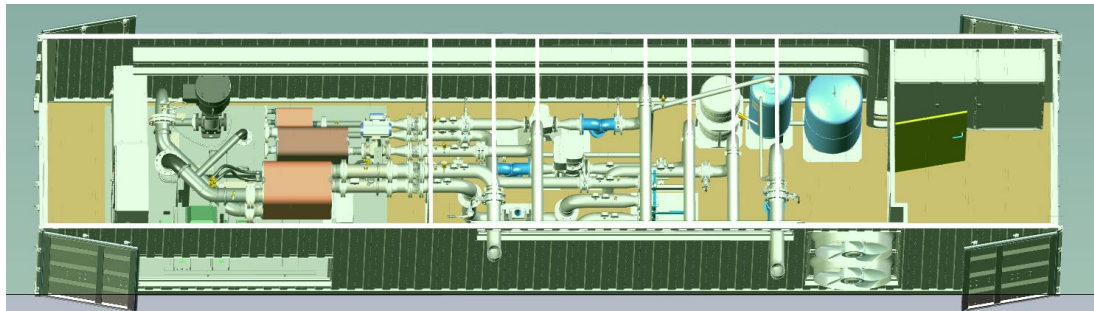


POWER+GENERATOR - POHNPEI

Engine Waste Heat Recovery Project based on Container Solution. ORC by **ElectraTherm** and System Integration by **B:Power**.

System incorporates recovery of waste heat from both Engine Exhaust and Jacket Water Cooling System. The ORC, pumping and electrical panels are all installed in a 40' Shipping Container and have been tested prior to shipment.

Onsite installation will be limited to placement of containers, installation of dry cooler and final pipework interconnection to the Engines



Current Status

All Containers delivered onsite. Awaiting the lifting of travel restrictions to allow installation and commissioning.

What will the future energy mix look like in the Pacific?

Wind and Solar A fact but needs to be coupled with other technologies to ensure reliable power generation 24/7

Engine based Technology Providing Baseload Power Generation/ Grid Stability will remain an important part of the energy mix especially with new fuels such as Hydrogen, Ammonia and Plant based liquid fuels providing the opportunity to reduce carbon based emissions.

Alternative Power Generation Diversification through alternative Renewable Energy Sources – Micro Hydro, Biomass, Biogas, Waste to Energy, Geothermal

Energy Storage Matching Power Generation to Demand - Not just Batteries but other opportunities include heat storage, pumped hydro, green hydrogen, plant based liquid fuels.

Energy Efficiency From design to application – maximize use of every single energy input into the system

How does ElectraTherm's ORC Technology contribute to the future of power generation in the Pacific?

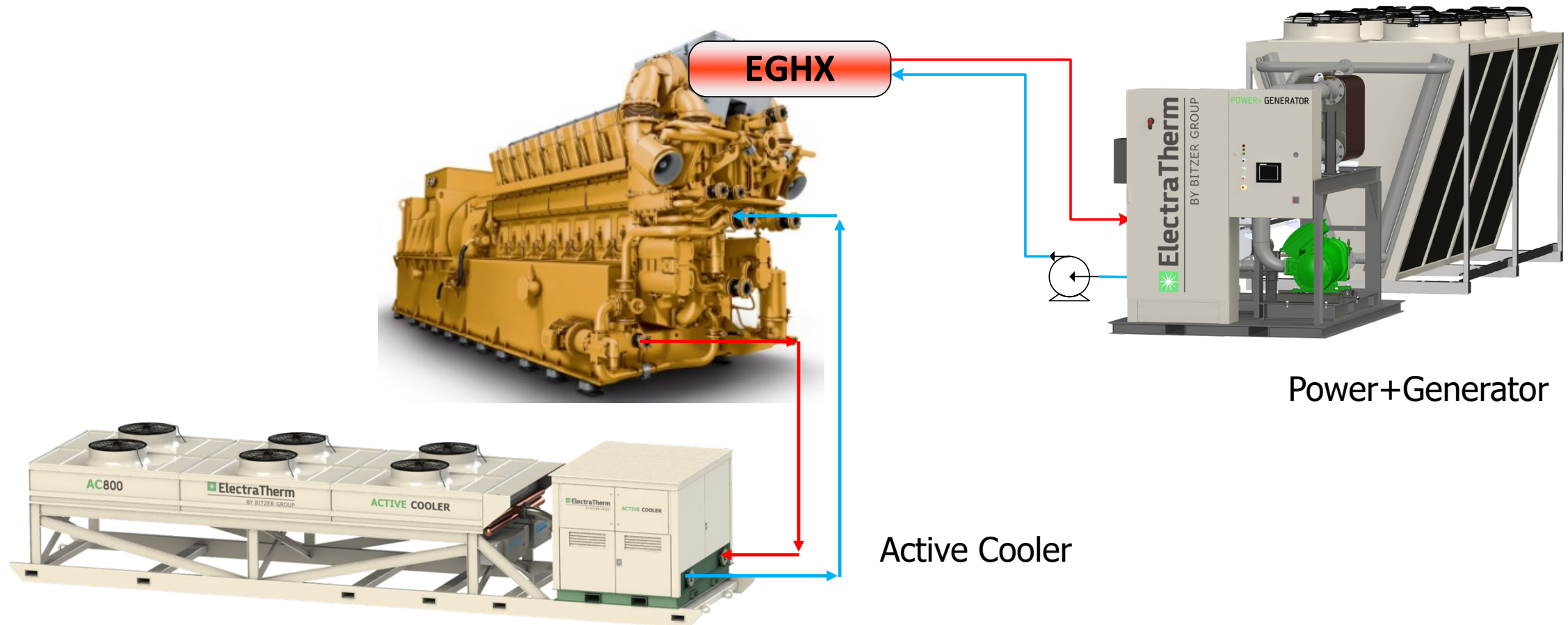
The Contribution that ElectraTherm's ORC Technology Provides to the Pacific Energy Needs are based on **Energy Efficiency** and **Innovation**.

- **Energy Efficiency** – Using waste heat to generate additional electricity from the same fuel input.
- **Efficient Generation Unit** – for small to medium sized alternative power generation systems.
- **Load Shift Power Generation** when coupled with Heat Storage
- **Localised Power Generation System** based on stand alone capability and local heat sources such as micro geothermal.
- **Innovative hybrid systems** incorporating the Power+Generator, Micro Grid, Battery Storage, Wind and PV Solar systems.

ELECTRATHERM CONTRIBUTION TO PACIFIC ENERGY NEEDS

ENERGY EFFICIENCY

Engine Technology Power Generation – Energy Efficiency through use of Waste Heat for additional electricity generation - maximizing power output from every litre of fuel input



ELECTRATHERM CONTRIBUTION TO PACIFIC ENERGY NEEDS

LOCALISED POWER GENERATION - SMALL SYSTEMS

Alternative Power Generation – Coupling the **ElectraTherm Power+Generator** with both primary and waste heat resources from small to medium sized Biomass, Biogas, Waste to Energy and Geothermal Resources and now with standalone capability.



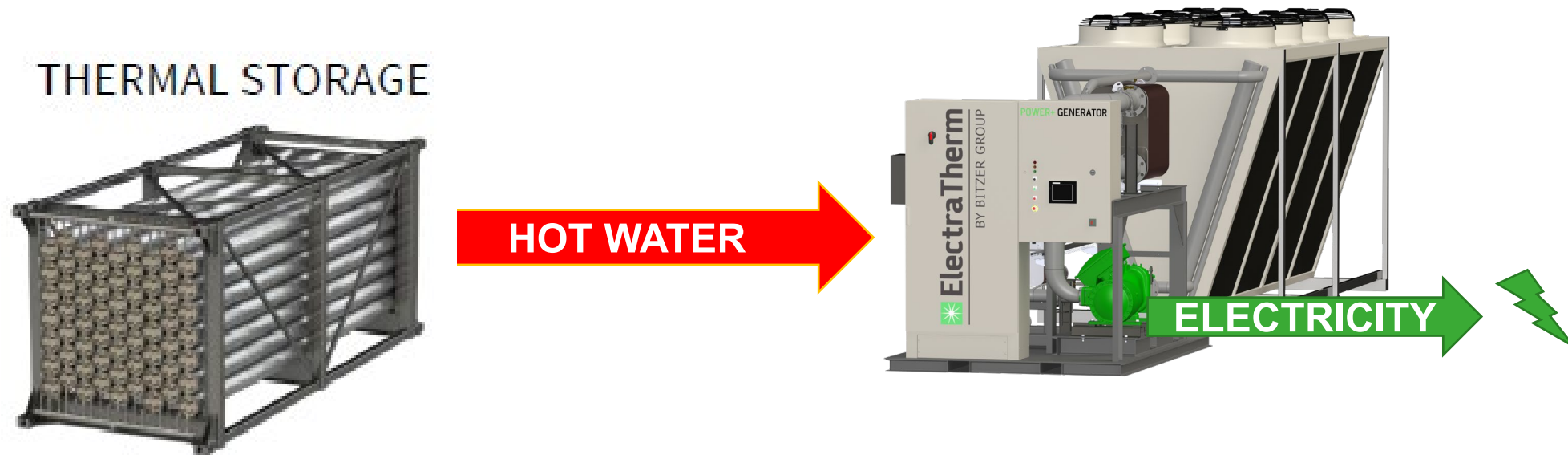
HOT WATER



ELECTRATHERM CONTRIBUTION TO PACIFIC ENERGY NEEDS

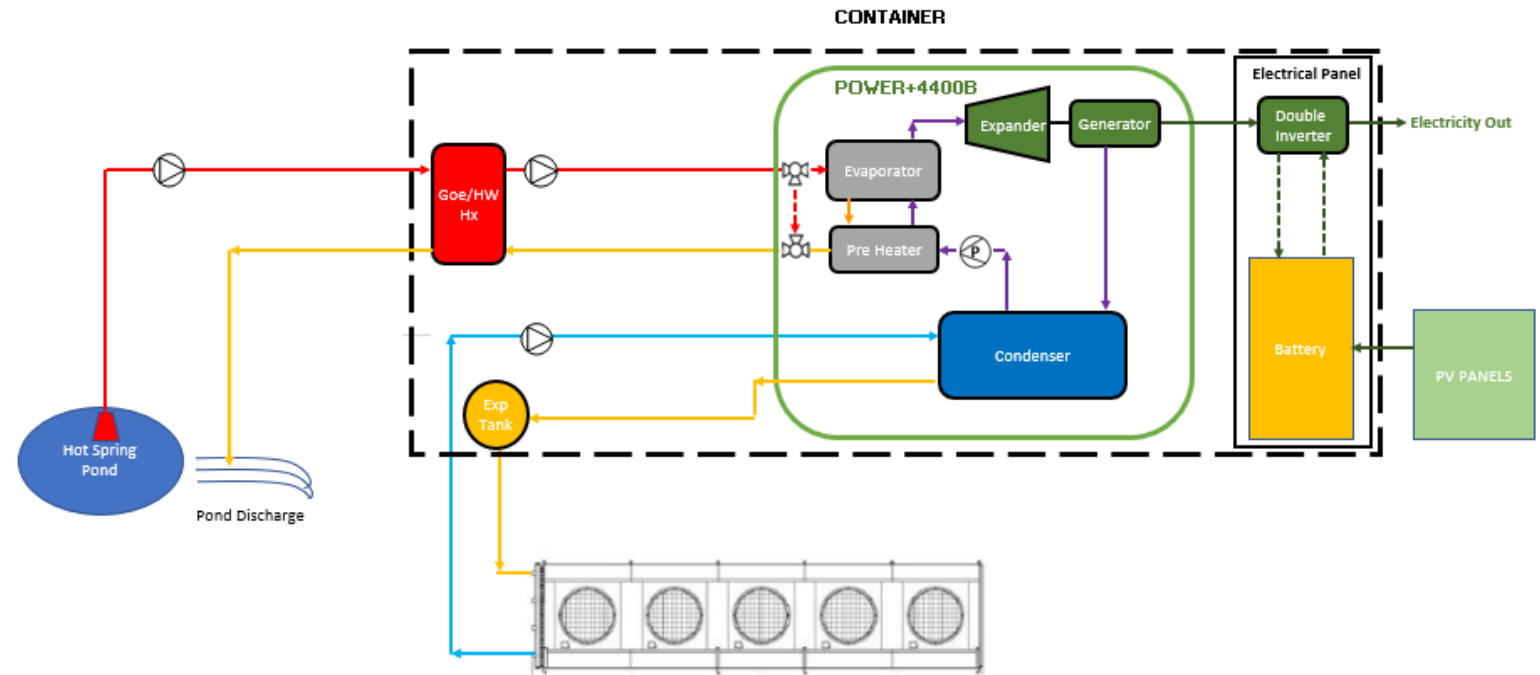
STORAGE TO POWER

Energy Storage – Coupling the **ElectraTherm Power+Generator** with a heat storage for the generation of Power when needed.



ELECTRATHERM CONTRIBUTION TO PACIFIC ENERGY NEEDS INNOVATIVE SOLUTIONS

Design concept Tano Group Remote Geothermal Project Pagan Island Northern Marianas



POWER+GENERATOR – HEAT TO POWER

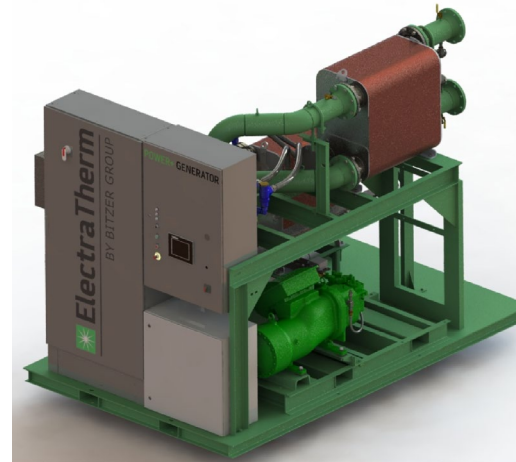
The **ElectraTherm Power+Generator** uses commercially proven technology to convert low temperature primary and waste heat resources into high value base load electricity. Where the heat input is waste heat or primary heat created from non fossil fuel sources then the electricity generated is recognised as renewable energy that contributes to a reduction in carbon emissions.



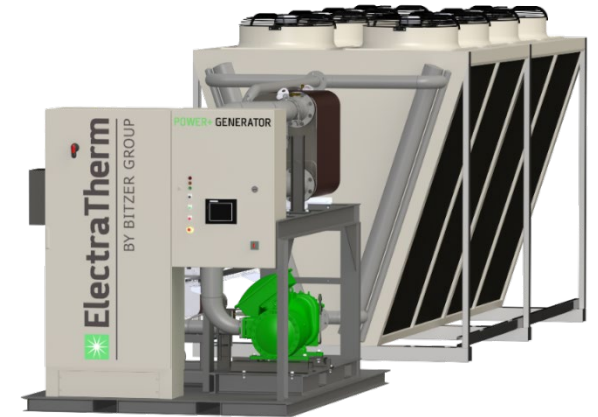
POWER+
4400B/4400B+
Up to 75 kWe



POWER+
6500B/ 6500B+
Up to
150 kWe (60Hz)
125 kWe (50Hz)



3rd Qtr 2022
POWER+300B+
Up to
300 kWe (60Hz)
250 kWe (50 Hz)



System Package
Includes Air Cooled
Radiator and Cold Water
Circulating Pump Skid

ACTIVE COOLER – NEXT GENERATION COOLING

The **ElectraTherm Active Cooler** is designed to use the waste heat in the fluid or gas to be cooled to provide the energy to generate electricity for the operation of the cooling system and under typical conditions provide additional electricity for other uses.

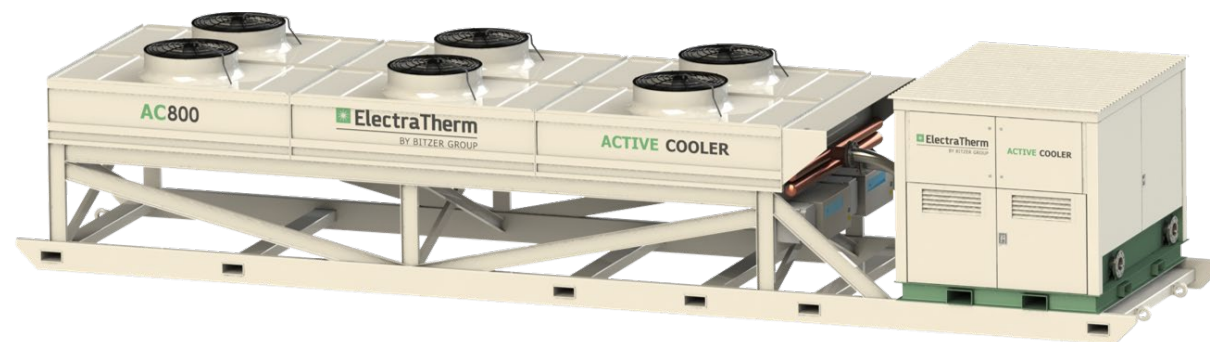
The **Active Cooler** saves operating costs by eliminating/ minimising operating parasitic loads and creates income through the generation of excess electricity for other uses and through the use of waste heat contributes to a reduction in carbon emissions.



**Active Cooler
Power Module**
(Only Makes Power)



Active Cooler Cartridge
(Power plus Return
Temperature Control)



Active Cooler System
(Power, Return
Temperature Control
and Always Cooling)

AC-800 (800 kWth)
Up to 75 kWe

AC-1800 (1800 kWth)
Up to 125 kWe

OUR COMMITMENT TO THE PACIFIC

- PROVIDE** Cost Effective Solutions for Energy Efficiency
- ASSIST** With the Preparation of Innovative Heat to Power Generation Concepts and assist in the preparation of documentation to access Project Finance
- DELIVER** A Proven Technology
- TRAIN** Local Staff In Operation and Maintenance
- SUPPORT** With Online Assistance and Technology Upgrades
- STAY** Continuing to Support Pacific Island Nations Through Technology and Innovation



Thank You

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