



Solutions To Reverse Global Warming



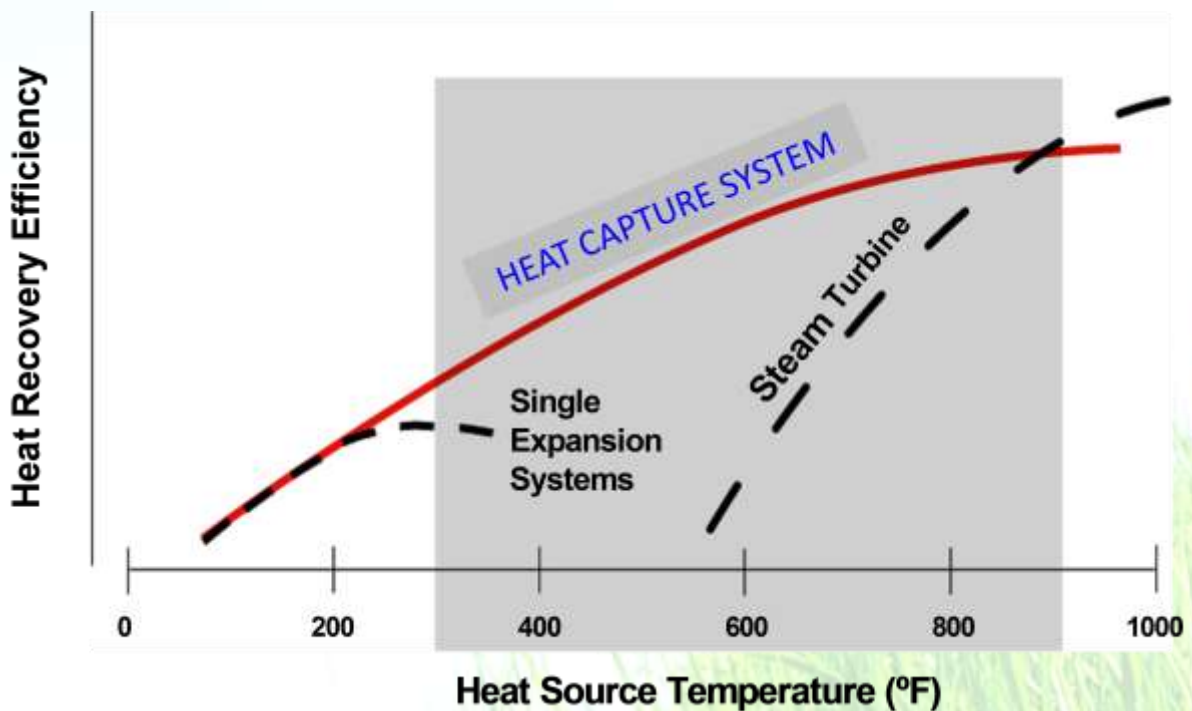
Waste Heat 2 Energy



Introduction

Waste heat energy represents the single, largest and readily available source of energy today. In particular, industrial waste heat recovery is the largest source of untapped and easily available energy. Until the introduction of waste heat to energy system, there was no efficient method to capture medium grade heat to convert it into electricity.

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The system has higher efficiencies than competing technologies and is designed to handle a wide variability in the temperature of the heat source. Most importantly it can be used to generate electricity in the following industries:

Waste Heat Captured From Process Industries

- Steel Furnaces and Smelters
- Pulp and Paper
- Lime and Cement Plants
- Glass & Fiberglass Manufacturing
- Mineral Processing
- Oil Refining & Petrochemicals
- Chemical Plants
- Incinerators & Gasifiers
- Municipal Solid Waste (MSW) Thermal Treatment
- Brick Manufacturing

Renewable Energy Generation

- Solar Power Plants
- Biomass Plants
- Geothermal Power Generation
- Diesel /Biodiesel Power Generation

Waste Heat Captured From Reciprocating Engines

- Between 12% to 20% additional power from exhaust

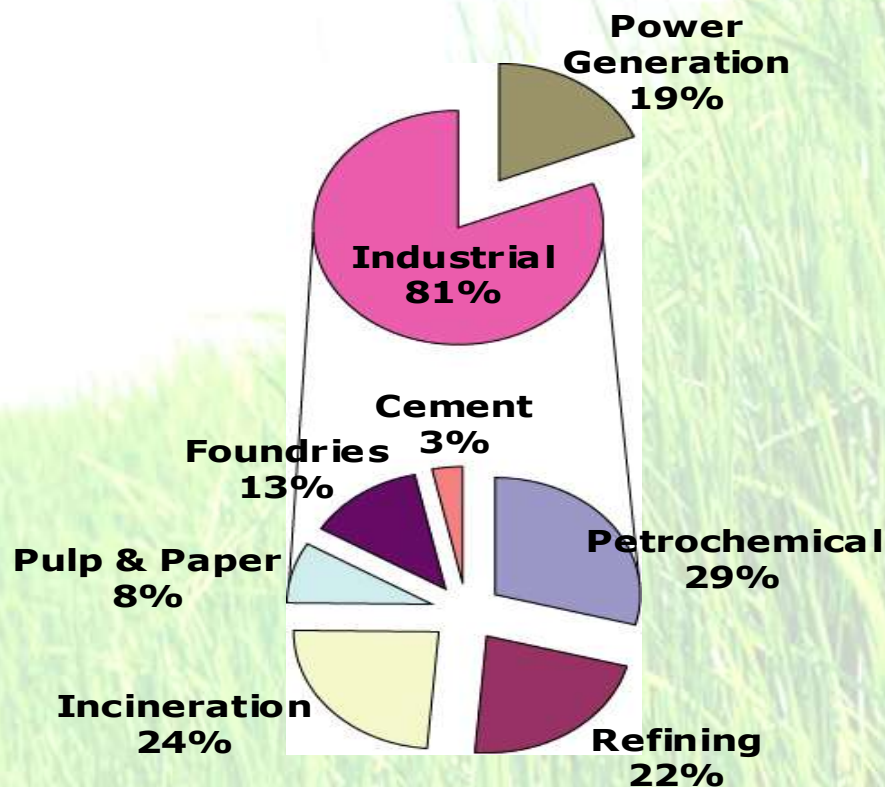
Waste Heat Captured From Oil & Gas

- Oil & Gas Pipeline Compressor Stations
- Gas Processing Plants
- Flared Gas / "Associated" Gas

Fossil Fuel Fired Power Generation

- Coal Fired Power Plants
- Petroleum Coke (Petcoke) Fired Power Plants
- Gas Fired Power Plants

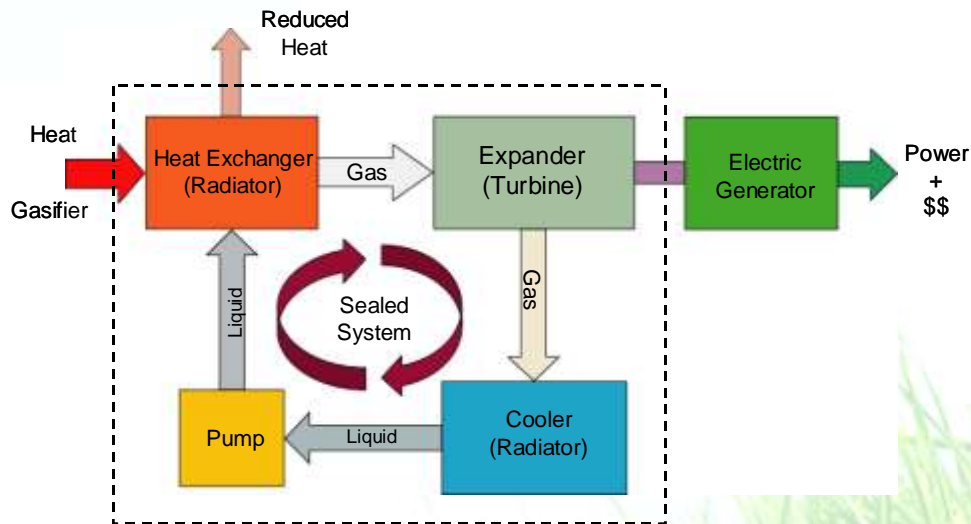
Primary Waste Heat Sources



A Breakthrough Patented Technology

For the first time, an efficiently captures medium temperature to convert it into electrical power finally arrive. The technology uses proven components to capture low, medium and high temperature heat to produce electricity.

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Based on the established theory of ORC (Organic Rankine Cycle)*, this system has the following technical features:

- Temperature range: 200 °F to 2,000 °F
- Main unit: two turbo expanders, heat exchangers and pumps
- Low Operations and Maintenance costs
- Handles a wide variability of heat source temperature and mass flow without significant losses in generating efficiency
- No need for intermediary heat transfer loop
- Can be operated remotely
- Efficiencies: 30% to 40%, up to twice the rate of competing technologies
- Can be designed to operate without any water consumption, although system efficiencies can be increased if water is available for evaporative cooling
- No reduction of efficiency with altitude
- Power generation linked to power consuming facilities creates optimal distributed generation value by reducing line and transformer losses and by providing generation when power consumption is highest
- Unlike steam generation, this technology does not suffer from corrosion or contamination issues due to the closed loop nature of the organic transfer fluid (propane)
- Reduces fuel & water consumption, stack emissions, and thermal pollution
- For every MW capacity, 21 Tons of NO_x, 59 Tons of SO_x and 8,615 Tons of CO₂ are not released into the atmosphere (as compared to coal powered generation over the course of 1 year)

*The ORC is named for its use of an organic, high molecular mass fluid with a liquid-vapor phase change, or boiling point, occurring at a lower temperature than the water-steam phase change. The fluid allows ranking cycle heat recovery from lower temperature sources such as industrial waste heat, geothermal heat, solar ponds, etc. The low temperature heat is converted into useful work that can itself be converted into electricity.

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