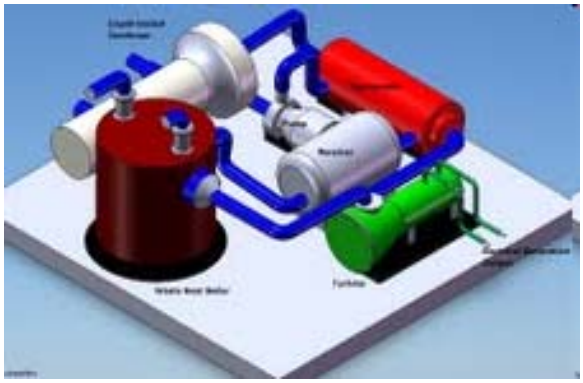
TransPacific Energy, Inc.

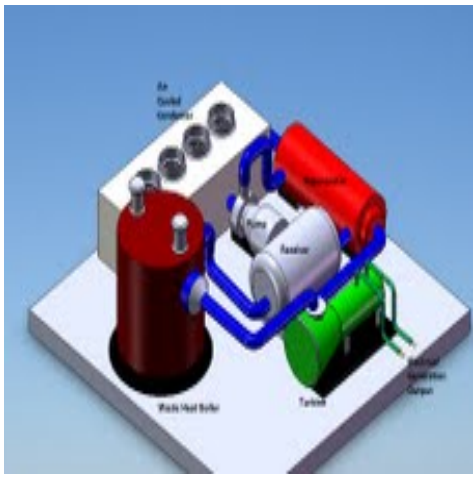
Innovative Energy Systems for A Cleaner World

TransPacific Energy (TPE) is a high-tech corporation that designs, builds, owns, operates, sells and installs proprietary, modular Organic Rankine Cycle ("ORC") utilizing multiple refrigerant mixtures to maximize heat recovery and convert waste heat directly (75F to 900F) from industrial processes, solar and geothermal converting it into electrical energy. TPE technology can also be utilized as alternative to cooling towers, steam condensers and use heat released to generate electricity.

TPE™ uses multi component fluids in contrast to the typical Orangic Rankine Cycle that uses binary cycles and organic fluids such as pentane, isobutene, butane, propane and ammonia instead of water.

Count on ***TransPacific Energy*** efficient waste heat recovery for power generation using its propriety technology. Other applications include solar, geothermal energy as well as warm ocean waters. We deliver innovative solutions for cleaner greener world. Help us stop global warming with our green energy conversion technology.





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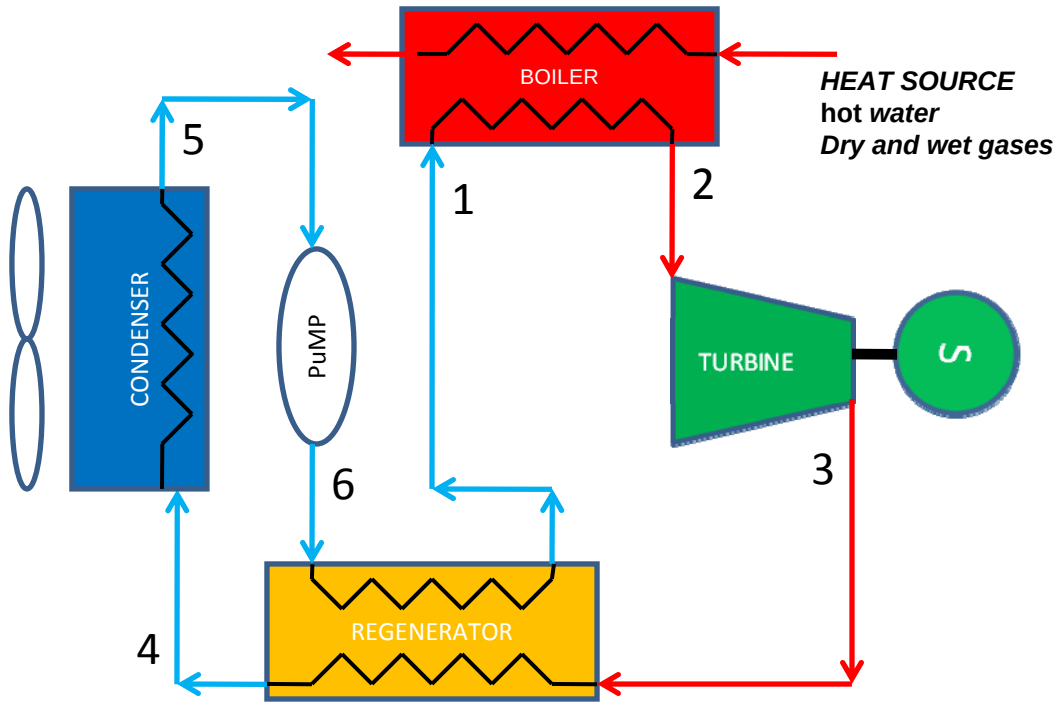
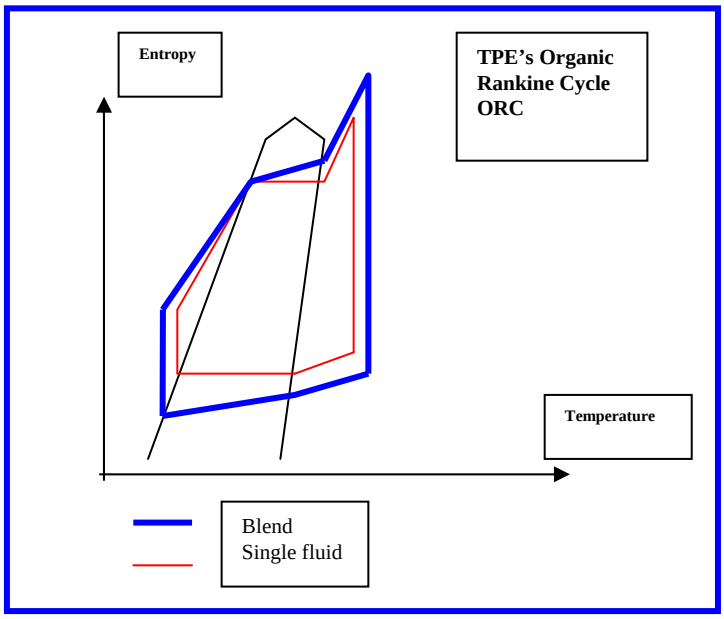
ORGANIC RANKINE CYCLE ORC

The Rankine cycle is a closed loop thermodynamic cycle with a working fluid where an external heat source generates steam at its boiler. Water is the working fluid. Steam turbines, installed in power plants (coal fired, nuclear or biomass) are based on the cycle. In an Organic Rankine cycle (ORC), the working fluid is not water but an organic fluid such as butane or pentane, ammonia etc. This cycle is more suitable for low temperature heat source application than steam cycle.



1-2: *The organic fluid (blend) is vaporized and superheated in the evaporator*
2-3: *The organic vapor is expanded through the turbine*
3-4: *Expanded vapor heat up the organic liquid*
4-5: *Vapor is condensed*
5-6: *Organic liquid is pumped*
6-1: *Organic liquid is heated up with vapor from turbine outlet*



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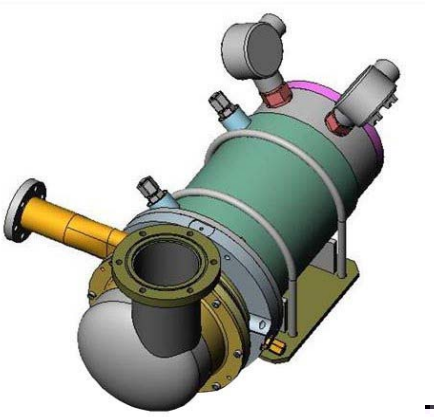
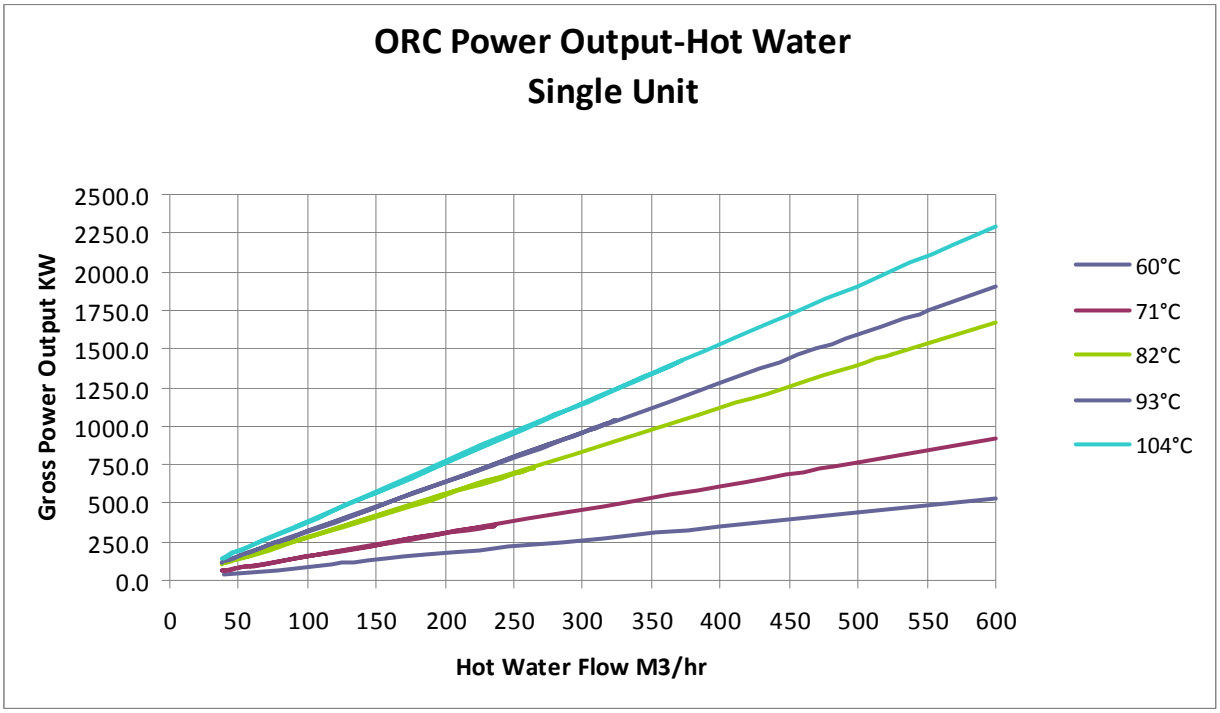
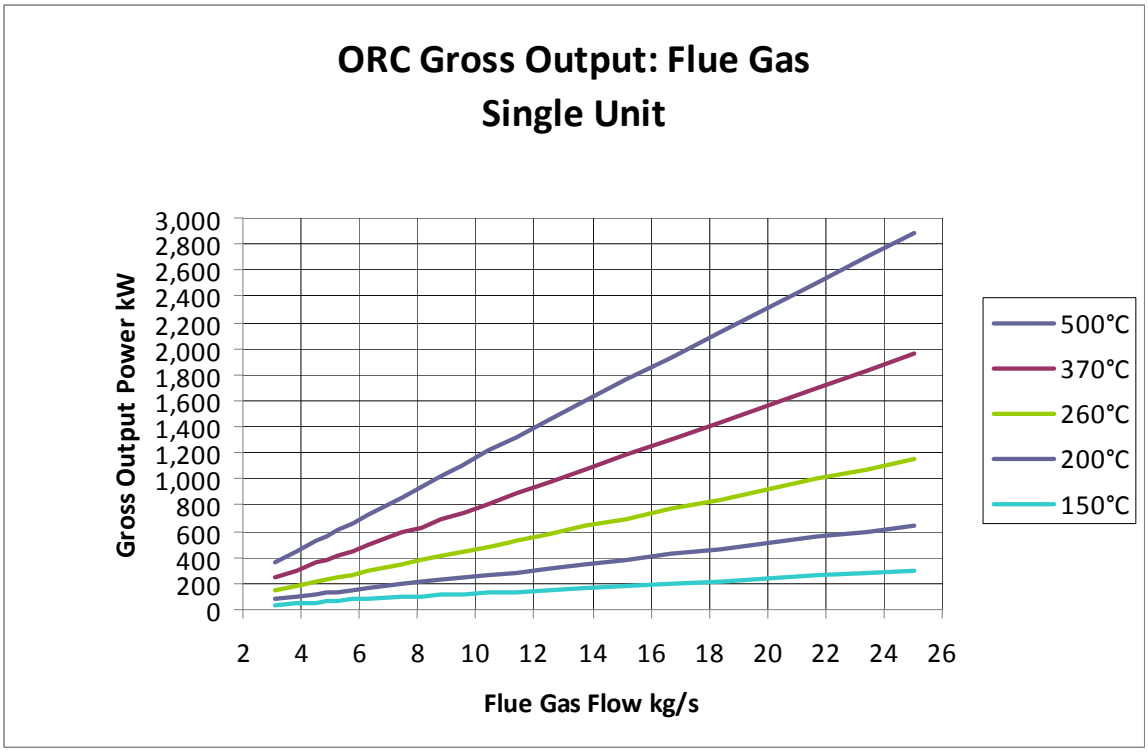
TransPacific Energy (TPE) *ORC uses environmentally sound refrigerant mixtures (blend) formulated to maximize heat recovery at heat source temperatures from 25°C up to 500°C with enhanced electrical efficiency up to 35%. This permits a wide range of applications of the TPE ORC to generate power from waste and untapped heat sources such as liquid and effluent flue gases. Typical turbo generator shown below is for illustration purposes only and final product may vary.*



TPE ORC ADVANTAGES:
- *Enhanced Heat to power electrical efficiency*
- *Availability higher than 98%*
- *Easy to install and limited footprint (skid mounted)*
- *Simple automated operation*
- *Low operation and maintenance cost*
- *Non flammable, non toxic working fluid*
- *Broad Temperature Applications*
- *Environmentally sound; no fuel consumption, reduce carbon emission, and greenhouse gases, zero acid rain.*

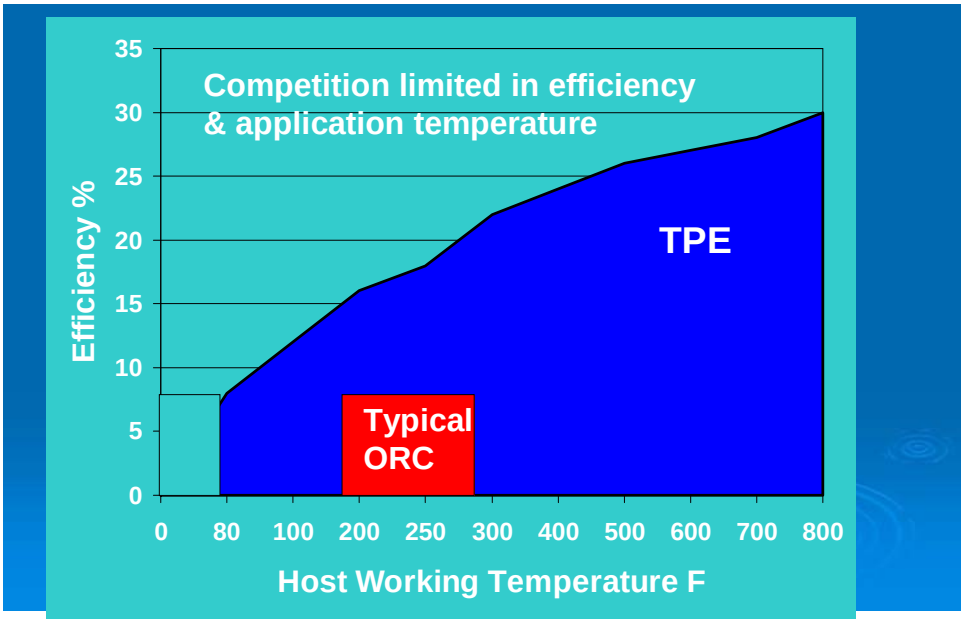
TPE ORC UNITS:
- Custom-made systems: 100 KW to 5,000 KW
- Multiple, Split and Cascade units.

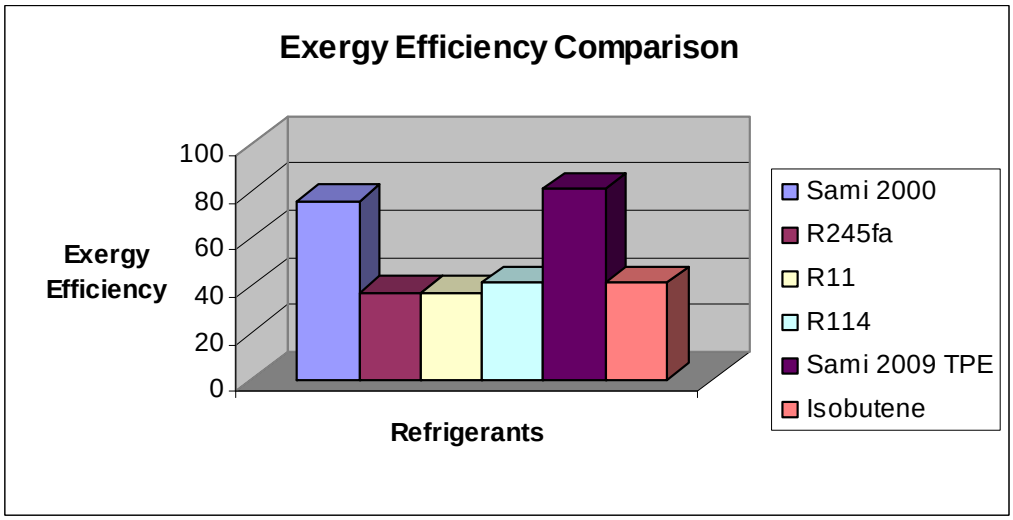

ORC Power Output-Hot Water
Single Unit
Gross Power Output KW
2500.0
2250.0
2000.0
1750.0
1500.0
1250.0
1000.0
750.0
500.0
250.0
0.0
0
50
100
150
200
250
300
350
400
450
500
550
600
Hot Water Flow M3/hr
60°C
71°C
82°C
93°C
104°C

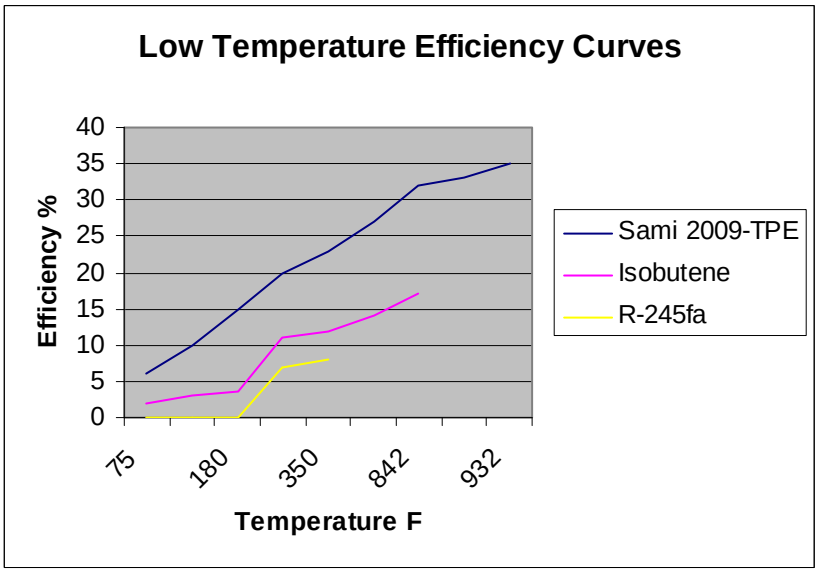

ORC Gross Output: Flue Gas
Single Unit
Gross Output Power kW
3,000
2,800
2,600
2,400
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2
4
6
8
10
12
14
16
18
20
22
24
26
Flue Gas Flow kg/s
500°C
370°C
260°C
200°C
150°C

Substantial Advantage….

TPE







FIELD APPLICATIONS OF TPE ORC

GAS FLARE:

- *Waste landfill*
- *Waste water treatment plant*
- *Refineries*
- *Petrochemical industries*

***INDUSTRY EFFLUENT*:**

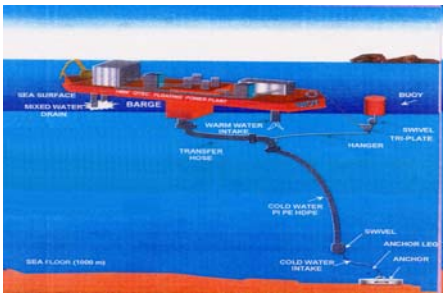
- *Paper industry*
- *Glass industry*
- *Cement industry*
- *Food industry (sugar, milk,…)*
- *Biofuel*

***THERMAL PLANTS*:**

- *All fossil fuel*
- *Solar thermal*
- *Geothermal*

***POWER PLANTS*:**

- *Cogeneration (gas turbine and engines)*
- *Biomass*
- *Biogas*
- *Wind turbine*



***OCEAN THERMAL ENERGY*:**

- *Coastal activities*
- *Offshore platform*
- *Ocean Thermal Energy Conversion (OTEC)*