TRYDEN ENERGY

Generate Power from your waste heat with the Tryden Energy System (TES) low-temperature ORC. The TES technology can produce from 2-200kWe, decreases emissions impacts and increases overall plant efficiency.

TRYDEN ENERGY SYSTEMS (TES)

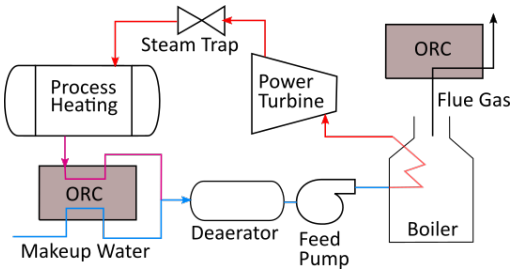
- Flexible and configurable, depending on your parameters
- The patented kinetic turbine has no frictional or erodible parts
- Advanced grid feed inverters & permanent magnet generators
- Process fluids/gasses kept separate flowing through heat exchangers

PRODUCT HIGHLIGHTS

- 5, 10, 20, 40 KW systems *
- Use low-grade heat sources as low as 160°F
- Pre-Assembled, Plug-and-play, single skid systems
- Standard flange connections
- Remote access and control 24/7

TYPICAL WASTE HEAT SOURCES

- Boiling, Sterilization, and Pasteurization used in Food Processing
- Bleaching and Dyeing processes used in Textile Processing
- Process heat used for feed water, autoclaves, and district/plant heating



HEAT RECOVERY

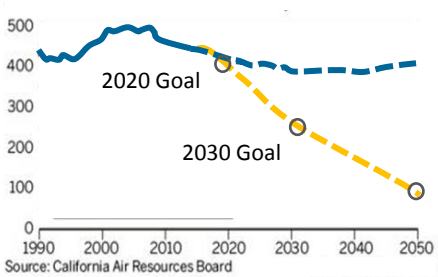
70% of all energy is lost as waste heat. Natural Gas is inexpensive and used broadly, but most of the energy gets burned away as heat. By capturing the excess heat left over from its normal use, it is possible to recover energy that can be put back to good use for you. Why pay for energy twice?

WHAT IS AN O.R.C.?

ORC stands **for "Organic Rankine Cycle"** and is similar to an Heat Pump. The TES is the first commercially available Low Temp ORC. It has a special low maintenance expander and uses the same parts as a standard HVAC system where HOT + COLD = Electricity.

CALIFORNIA GREENHOUSE GAS EMISSIONS

California is on track to meet its goal for greenhouse gas emissions by 2020, but will need to do far more to reach targets for 2030 and 2050.



Source: California Air Resources Board

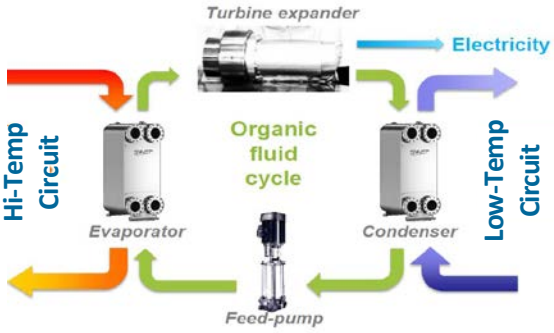
SEPA PECAN STREET ENOGIA

**System electrical energy output dependent on thermal energy Input*

TRYDEN ENERGY

POTENTIAL APPLICATIONS

- **Brewery's** - capture heat from the Boiler and Wort Coolers
- **Dairy Agricultural Digesters** - capture generator exhaust heat
- **New multi-story buildings** - capture heat from sewage system
- **Hotels & Hospitals -** capture unused heat from central heating & sewage



Dual 40kW Systems – Biomass - Birmingham, UK

SPECIFICATIONS

		2kWe	10kWe	40kWe
Electrical Ratings	**Max gross power generation [kWe]**	***2***	***10***	***40***
	Grid Connection	400V, 3 phase, 50-60 Hz		
Hi-Temp Circuit	Temperature Range [°F]	160-250	160-250	160-250
	Thermal input [kWth]	30-50	50-160	450-640
	Medium	Water, Steam, Oil, Custom		
	Connections	ANSI-B 16.5, 1-10", 300lbs or PN16, DN 25-300		
Low-Temp Circuit	Temperature Range [°F]	160-250	160-250	160-250
	Thermal input [kWth]	30-50	50-160	450-640
	Medium	Water, Steam, Oil, Custom		
	Connections	ANSI-B 16.5, 1-10", 300lbs or PN16, DN 25-300		
Main Components	Working Fluid	R1233zd		
	Heat Exchangers	Brazed Plate		
	Controls	Industrial PLC		
	Monitoring	Remote Web Support		
Code Compliance		IEEE 1547-2018		
		UL 1741		
		API 579		

APPLICATION EXAMPLE

Recovery of Low Temperature 180/155°F @ 150kWth

Data: 10KW system

Hi-Temp Circuit	
Thermal Power	150 kWth
Inlet T°F	180°F
Outlet T°F	155°F
Flow Rate	38 gpm
Low Temp Circuit	
Inlet T°F	70°F
Outlet T°F	86°F

Annual Performance	
Gross Production	42 MWh
Consumption	6 MWh
Net Production	36 MWh
Assumes 8000 hours/year	
Annual Emissions Reduction	
68°F	14mT
CH4	0.7 lbs
N2O	0.2 lbs

For more information on how Tryden energy can generate power and reduce emissions for your business contact us at:

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