

Organic Rankine Cycle with Solution Circuit for Electronic Waste Heat Recovery

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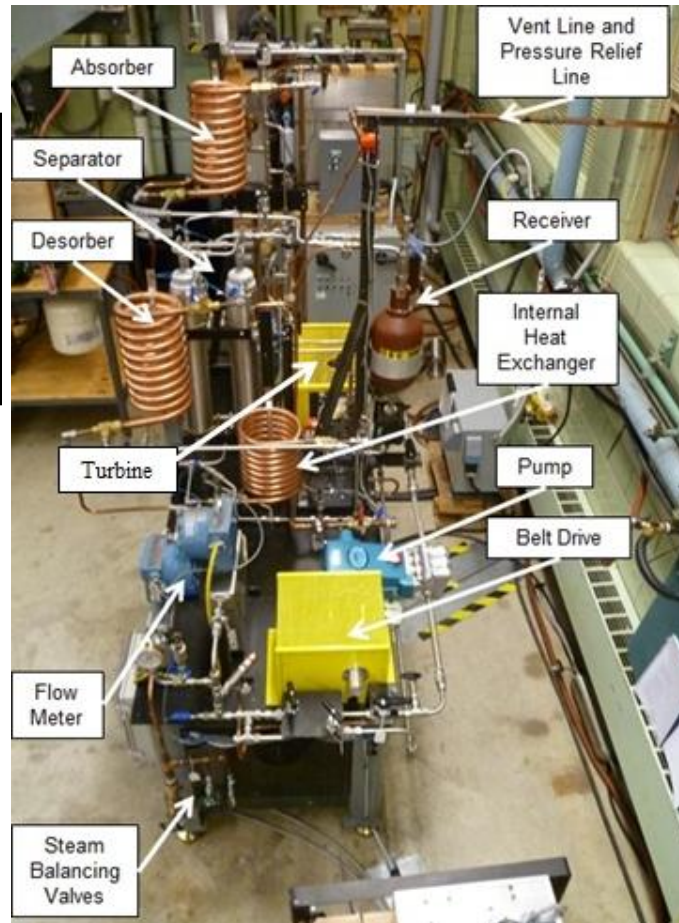
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OBJECTIVE

Determine the feasibility and performance of a power generating Organic Rankine Cycle with Solution Circuit for recovery of low grade waste heat

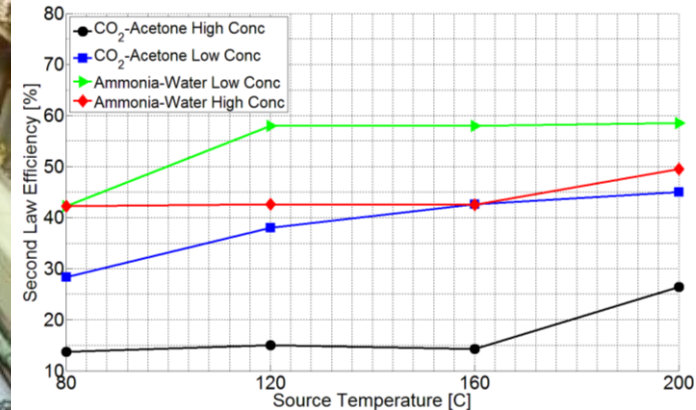
APPROACH

- Develop a simulation model to predict state-points and performance metrics of the system.
- Construct an experimental test-bed for model validation.
- Conduct parametric studies for component and system evaluation



Experimental Setup

IMPACT



- Possible to achieve more than 40% second law efficiencies for source temperatures as low as 80°C.
- Gliding temperatures during absorption and desorption can be adjusted to match sink and source temperature differences.
- Reduced system pressures due to solution circuit allows environmentally friendly refrigerants such as carbon dioxide to be used in the system.
- Provides solutions for energy usage and recovery in energy intensive applications, including data centers.

SELECTED PUBLICATIONS

- Krishna *et al.* 2011, IIR AS-SHPC11 Conference
- Woodland *et al.* 2012, 6th Heat Powered Cycles Conference