Opportunities for ORC Technology in Oil and Gas Fields

Organic Rankine Cycle: concept

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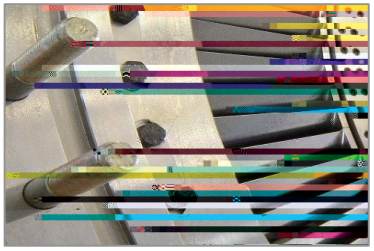
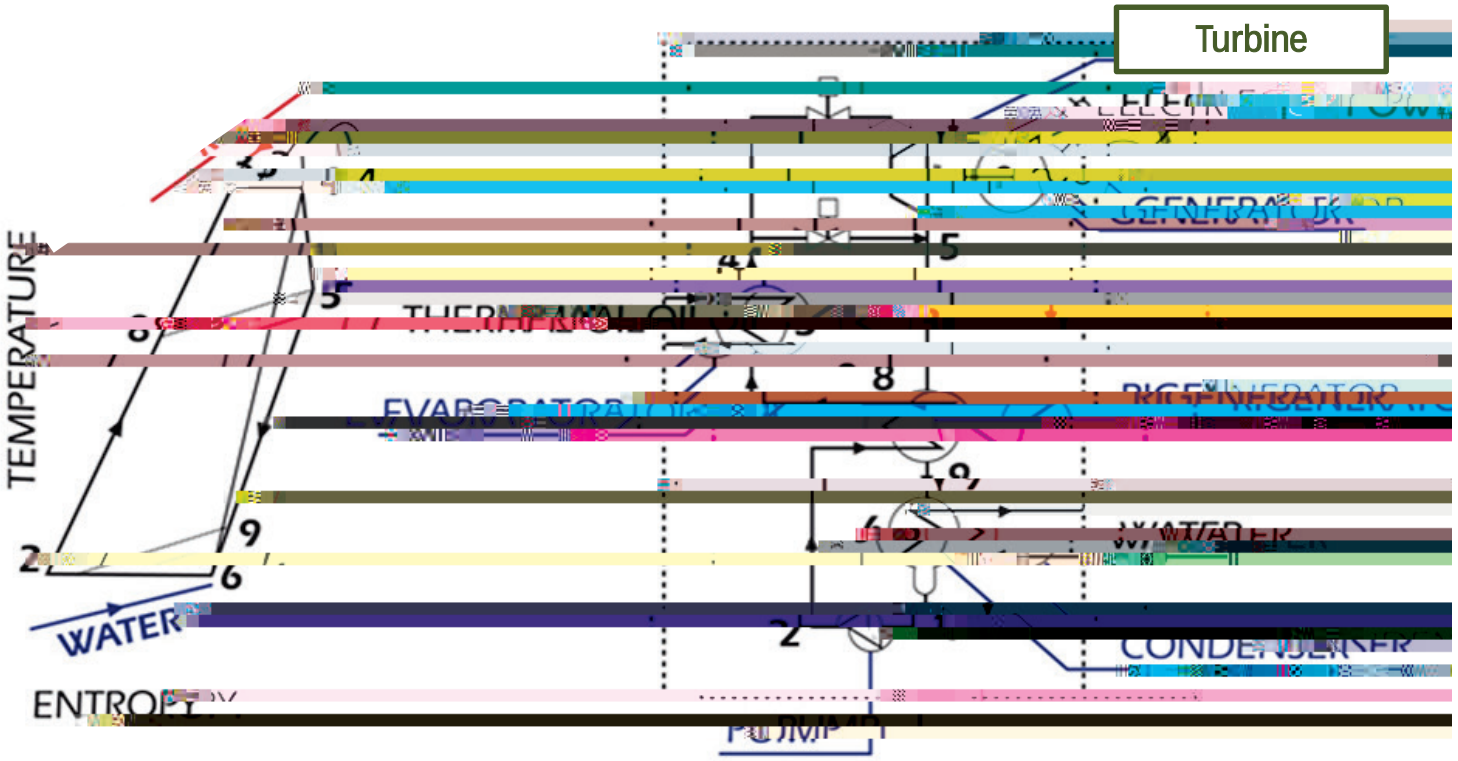


Organic Rankine Cycle: Thermodynamics



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Traditional Rankine Cycle vs. Organic Rankine Cycle

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Turboden references

Application	Size	Plants in operation(*)		Heat carrier
	MW	no.	MW	
Wood biomass	0.2 - 8	218	245.8	• Thermal oil
Geothermal	1.0 - 6.0	6	19.2	• Hot water
Combined cycle (bottoming of gas turbines or reciprocating engines)				

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ORC finds several applications in the Oil&Gas sector

A. Hot water from exhausted oil wells

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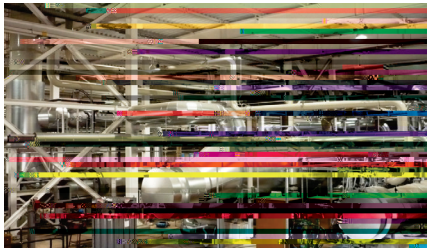
References – Geothermal



Sauerlach

Customer: SWM- StadtWerke München (Munich multi-utility)
Site: Sauerlach, Germany
ORC size: 5.6 MWe + 4 MWth to district heating
Start up: January 2013
Scope of supply: Complete ORC supply, air condenser includes

Kirchstockach

Customer: Hochtief Energy Management GmbH **ORC** **size** 1 Tf 0.003 Tc 0.001 Tw 3.52 01 Tv

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References – Low temperature water

Waste to energy – Mirom, Belgium

Heat recovery from **pressurized water** boiler in **waste incinerator**

Customer: MIROM

Location: Roeselare, Belgium

Source: hot water at 180C 356F (back at 140C284F)

Cooling source: air coolers

Mmovery from : MIROM

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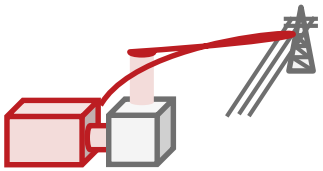

Turboden case study

Thermal oil power: 53 MWth
ORC electric power: 10 MW

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Thankyou!

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