FEDERATION ENGINEERING

ORGANIC RANKINE CYCLE
Strathcona Resources | Cold Lake, AB

- Waste energy source study
- Technology selection
- Process design basis
- Design basis memorandum
- Detailed engineering
- Front-end engineering & design
- Regulatory application support
- Project cost estimating
- Project scheduling
- Project engineering

Federation's knowledge, creativity and support has enabled Strathcona to develop an economically viable opportunity at Orion with the goal of maximizing energy efficiency, offsetting grid power supply requirements through self-generation and reducing the operation's overall greenhouse gas (GHG) impact. It is a project that Strathcona is extremely proud of, and an opportunity we were able to leverage thanks in large part to the hard work of the Federation team.

"

- Michael Stobart, P.Eng, PMP
Project Manager, Strathcona Resources

"

In 2019, Federation framed an opportunity for Strathcona to recover waste heat from the Orion SAGD process and self-generate approximately 80% of the electrical power required to operate the facility through the addition of Organic Rankine Cycle (ORC) technology. The ORC process converts waste thermal energy into electric energy in a closed-loop thermodynamic cycle with zero emissions. Turboden S.p.A., a global leader in the design, manufacture, and maintenance of ORC systems, was selected as the technology provider. Since 2020, Strathcona and Federation jointly progressed engineering and regulatory development for the project in order to refine the scope in preparation for full funding. Full funding was finally approved and detailed engineering was officially kicked off in 2023.

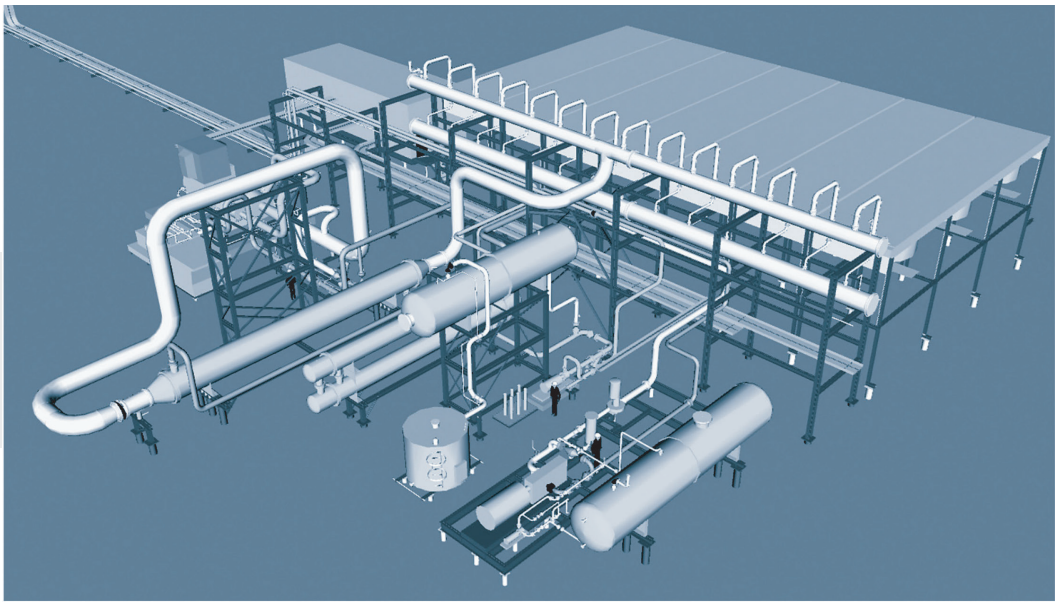
Image property of Turboden

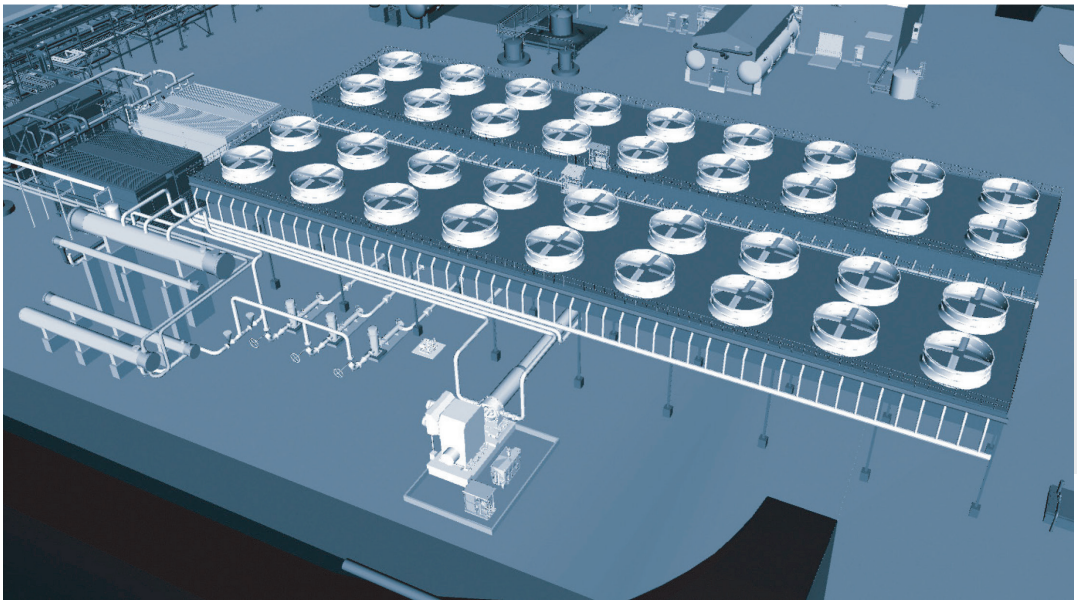
P: 780-201-8697 • federationengineering.com

FEDERATION ENGINEERING

ORGANIC RANKINE CYCLE
Waste Heat Recovery Power Plant Design

GAS TURBINE EXHAUST
WASTE HEAT STREAMS





THERMAL IN-SITU
OIL SANDS PROCESS
WASTE HEAT STREAMS

P: 780-201-8697 • federationengineering.com