

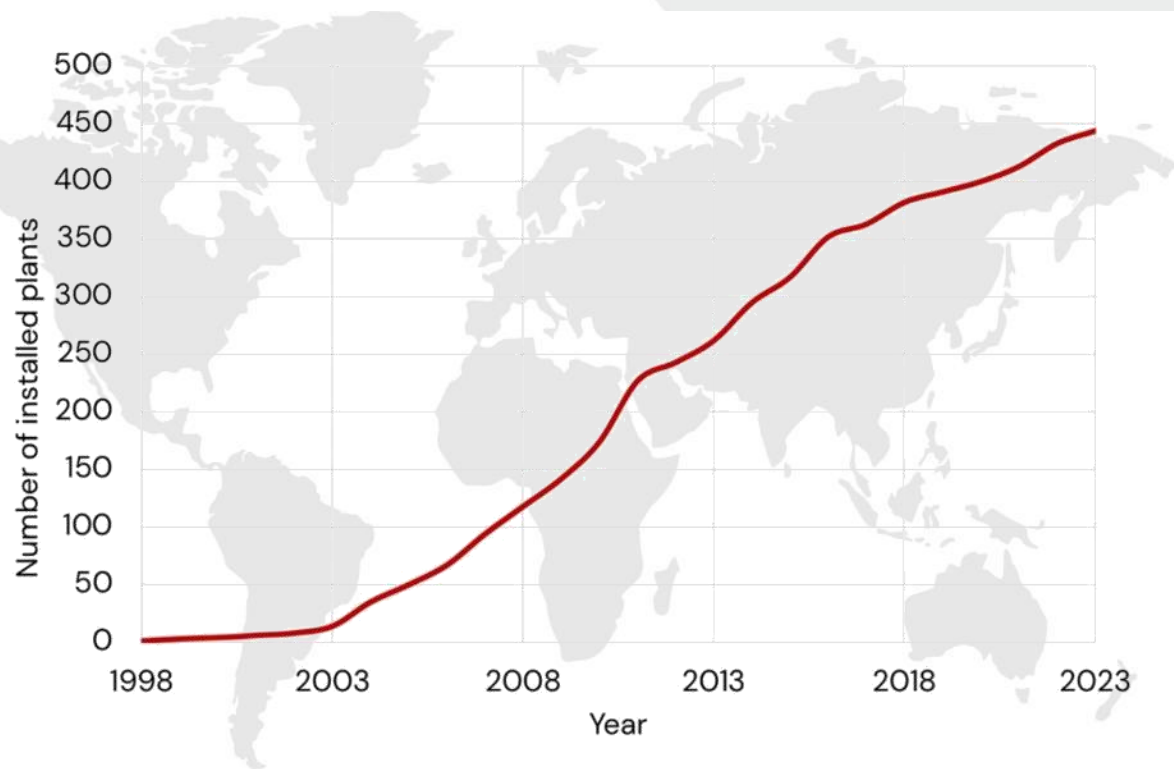
POWER
GENERATION

Geothermal Solutions

Turboden S.p.A.

A Group Company of  MITSUBISHI HEAVY INDUSTRIES

Global and Proven Experience



Worldwide presence in
50+ countries

Around
470 plants



GEOTHERMAL
POWER GENERATION

24 units, 458 MWe



HIGH TEMPERATURE
POWER GENERATION*
+ COGEN

444 units, 830 MWe



HEAT
ELECTRIFICATION

2 units, 18 MWth

Last update: June 2025
*ORC and gas expanders included.
Heat source temperature >250°C.



Overall capacity
installed
1+ GWe

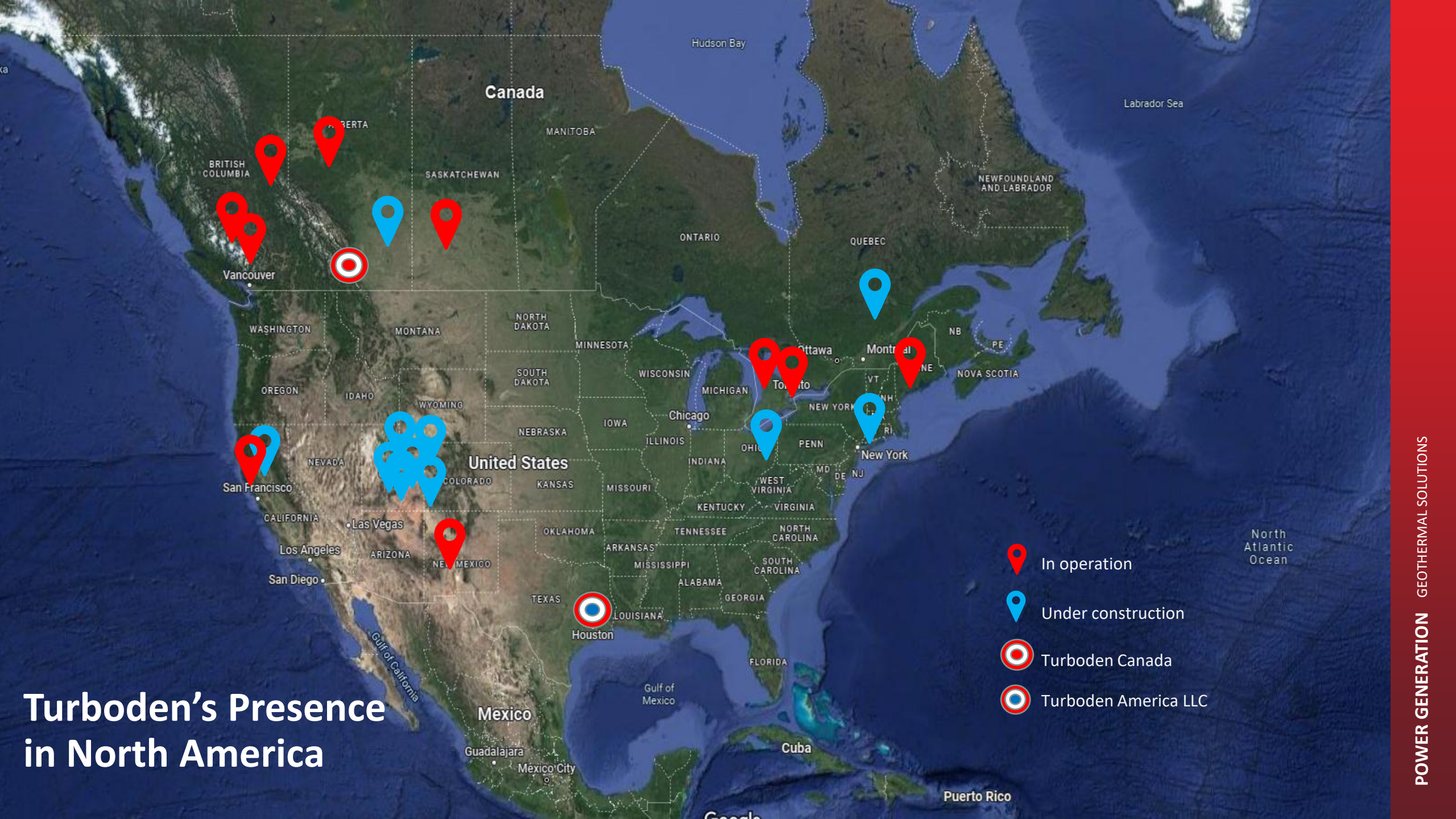


Largest plant
under construction
300 MWe



Largest plant
in operation
29 MWe

Turboden's Presence in North America



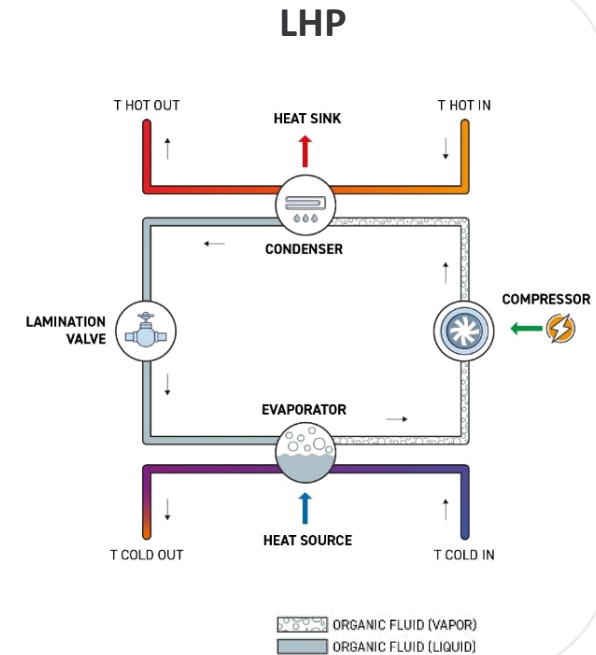
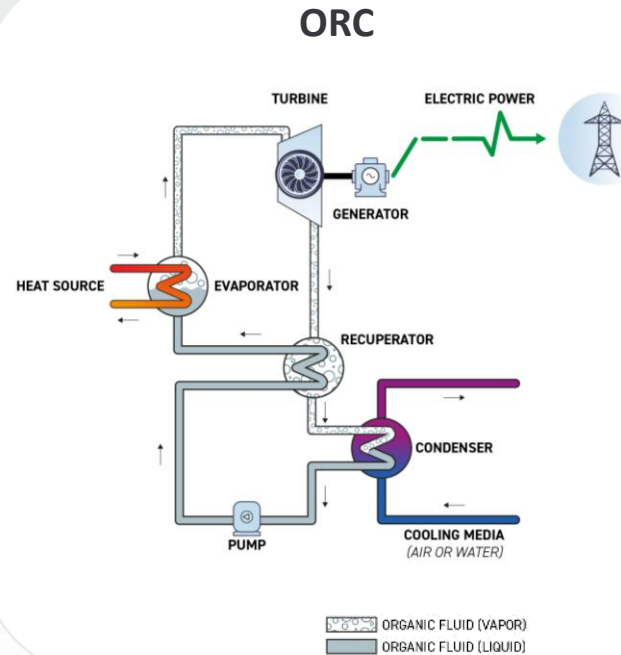
Our Products



Innovation Rooted in Strong Engineering Capabilities

MAIN FIELDS OF INNOVATION

- Thermodynamic cycle design (configurations).
- Wide range of working fluids.
- In-house tailor-made turbomachines (Turboden and MHI Compressor Corporation) and ORC pumps.
- In-house made Air Cooled heat exchangers.
- Grid regulation.
- Control system and machine learning: Turboanalytics IA tool.



Ability to Manage the Complexity of Large Projects

Thermodynamic process and control philosophy designed by Turboden

Possibility to control the power plant remotely

Process characteristics and related equipment defined according to project needs

Air Cooled Condenser designed and manufactured in-house

Key components fully-designed in-house

Multi-stage axial turbine (Turboden proprietary design)

Wider working fluid portfolio: hydrocarbons, HFCs, HFOs

Operation in remote areas: off grid capability (island mode) and automatic operation

Plant integration capability

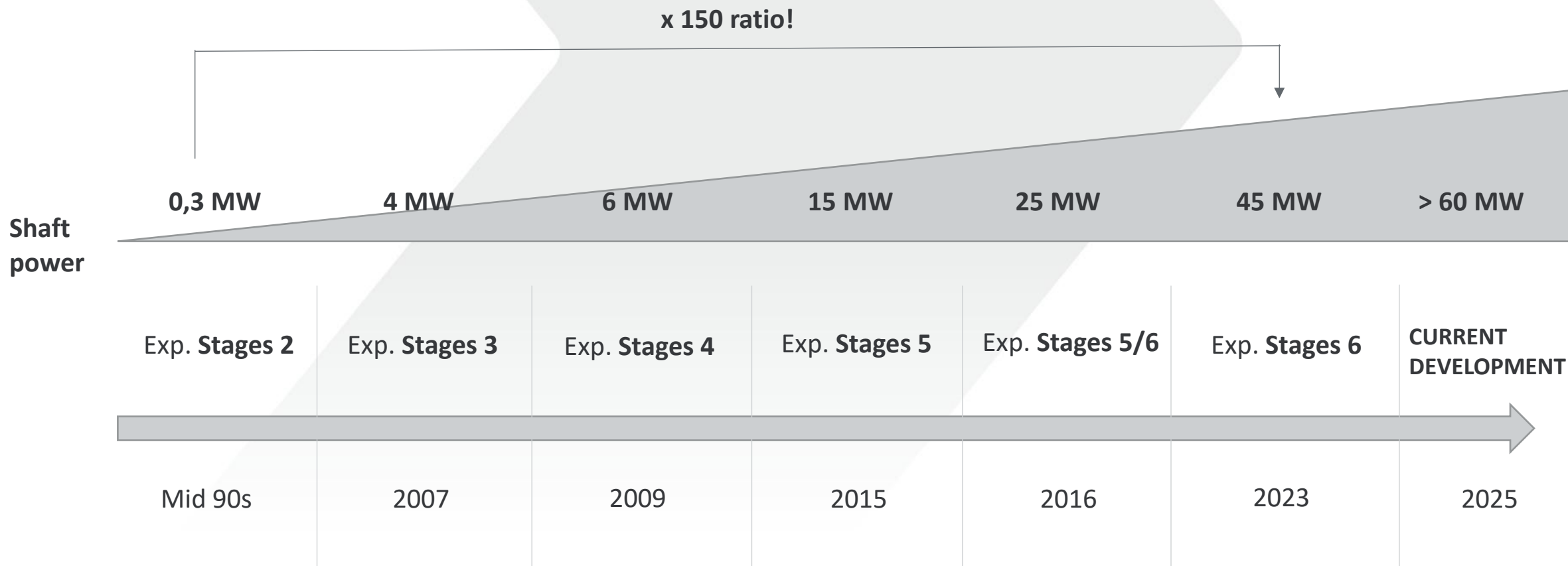


Large-scale (up to 45 MWe per single shaft)

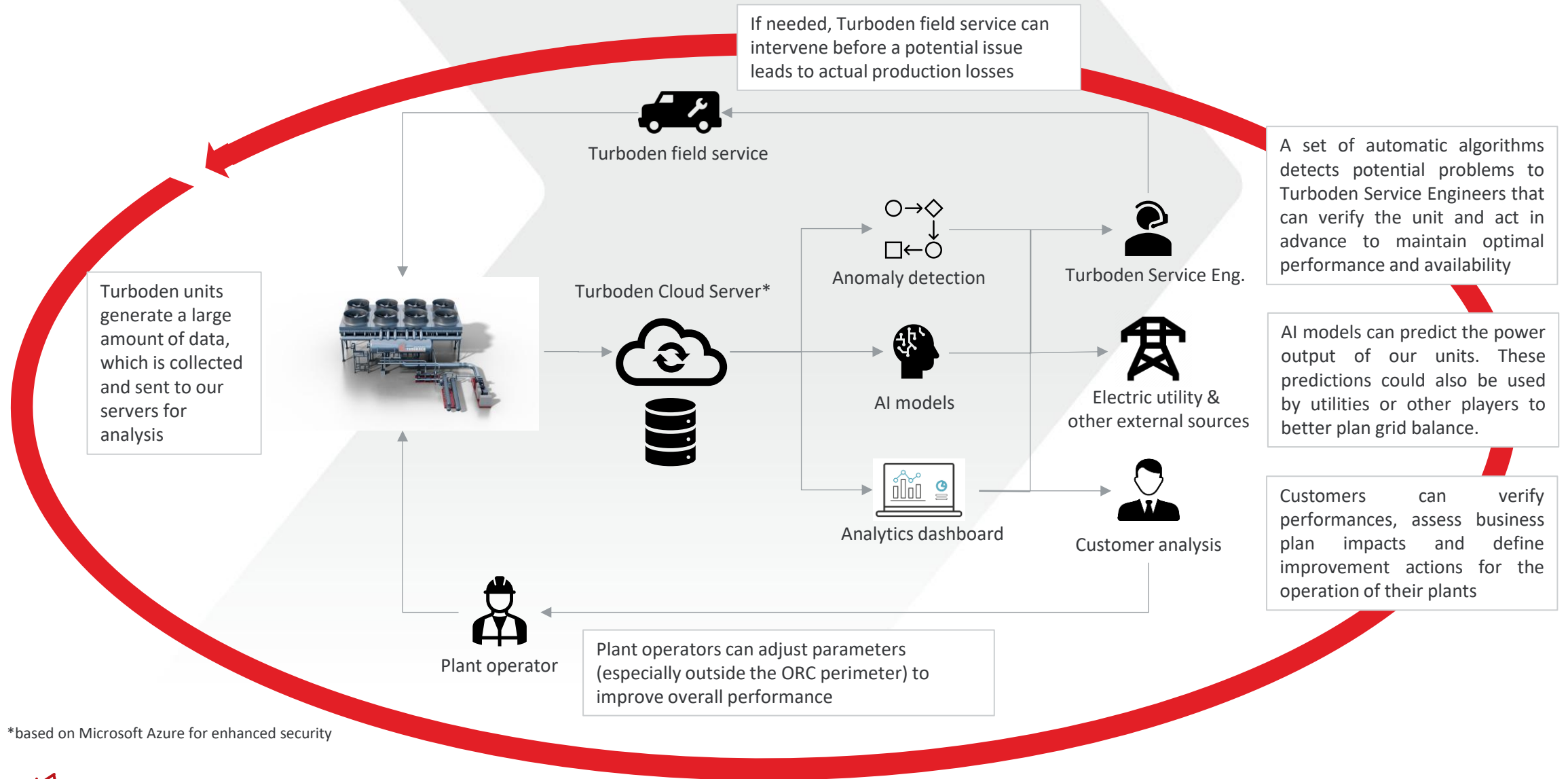


High temperature (output temperature from 100°C beyond 200°C)

ORC Turbine Capacity Scale-up



Turboanalytics: big data AI tool



*based on Microsoft Azure for enhanced security

NEXT



Geothermal Next Generation



NEXT
↑↑↑



Cape Station Unit 1 (40 MW)
As of September 22nd 2025



*Cape Station Unit 1 (40 MW)
As of September 22nd 2025*



Unit 1 (40 MW)

Unit 2 (40 MW)

*Cape Station Unit 3 (40 MW)
As of January 16th 2026*



*Cape Station Unit 1 (40 MW)
As of September 22nd 2025*

Cape Station Phase 1

Fervo Energy

Cape Station, USA

NUMBER OF ORC UNITS: 3

NOMINAL CAPACITY (each generator): 62,5 MVA

TOTAL ORC net capacity: 108 MW

ELECTRIC GENERATOR: synchronous 4 poles / 1800 rpm

ORC TURBINES/TYPE: 6 / Turboden axial multistage

CONFIGURATION: two level pressure

ORC WORKING FLUID: i-pentane

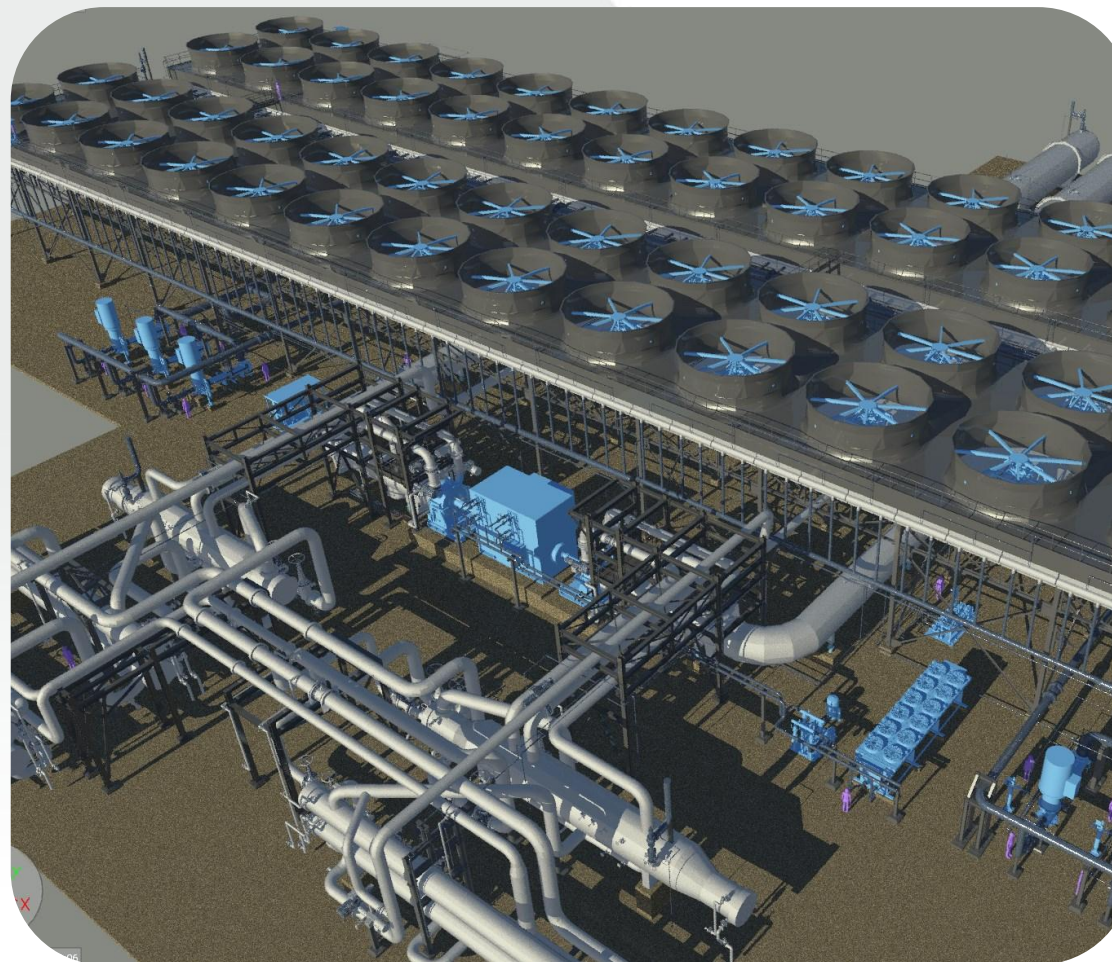
TYPE OF COOLING SYSTEM: Air Cooled Condenser (ACC)

GEOTHERMAL BRINE DESIGN TEMPERATURE: 200 °C

DESIGN AMBIENT TEMPERATURE: 13,6 °C

NTP: May 2024

COD: Q2 2026



Cape Station Phase 2 – New Project Features

Turboden will deliver 3 additional ORC units (60 MW each) for Phase II of Cape Station project

		PHASE I		PHASE II
Design Brine Inlet Temperature	°C	200	→	220
Desing Brine Flow Rate per ORC unit	kg/s	430		500
Net Power ORC per Unit at design point	MW	36		53
Working fluid		Isopentane		Isopentane
Efficiency	kW/kg/s	84	→	106

26% higher net specific power

EAHOR GERETSRIED (CLOSED LOOP)



References



Fervo Energy

Cape Station, USA

STATUS: Under construction

DESCRIPTION: EGS System

ORC ELECTRIC POWER: 120 MWe



Eavor Erdwärme Geretsried GmbH

Germany

STATUS: in operation

DESCRIPTION: Closed loop system

ORC ELECTRIC POWER: 8 MWe



LaGeo

El Salvador

STATUS: in operation

DESCRIPTION: Bottoming from Single Flash plant

ORC ELECTRIC POWER: 8 MWe

References



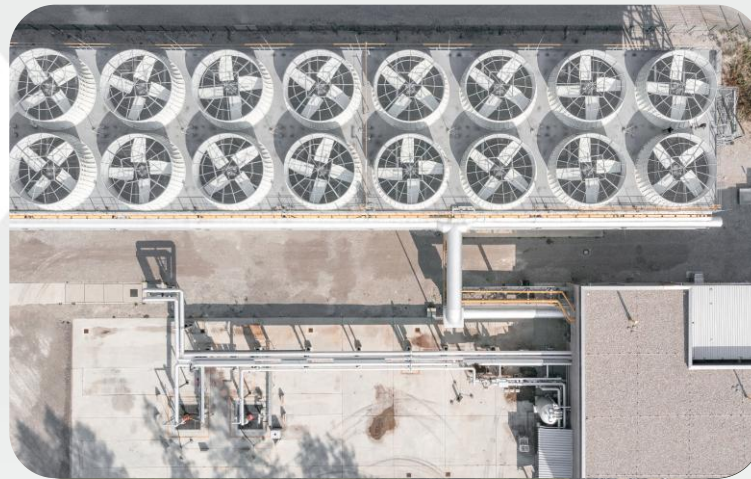
Energy Development Corporation

Philippines

STATUS : in operation

DESCRIPTION: Bottoming from Single Flash plant

ORC ELECTRIC POWER: 29 MWe



Geothermie Holzkirchen

Germany

STATUS: in operation

DESCRIPTION: Traditional Hydrothermal

ORC ELECTRIC POWER: 3.4 Mwe + 10 MWth



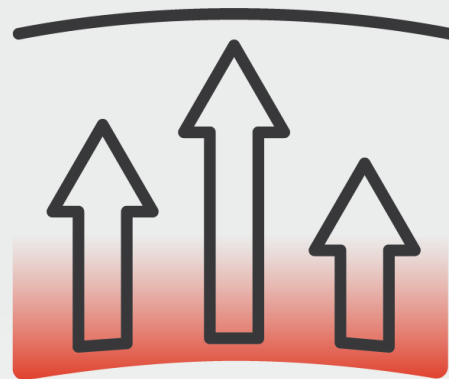
Zanskar

United State of America

STATUS: in operation

DESCRIPTION: Traditional Hydrothermal

ORC ELECTRIC POWER: 14 MWe



Geothermal Conventional

References



SWM - StadtWerke München

Dürrnhaar (Munich), Germany

STATUS: In operation since 2012

LIQUID BRINE: 138 °C

ORC ELECTRIC POWER: 5.6 MWe



SWM - StadtWerke München

Kirchstockach (Munich), Germany

STATUS: In operation since 2013

LIQUID BRINE: 138 °C

ORC ELECTRIC POWER: 5.6 MWe



SWM - StadtWerke München

Sauerlach (Munich), Germany

STATUS: In operation since 2013

LIQUID BRINE: 140 °C

ORC ELECTRIC POWER: 5 MWe + 4 MWth

References



Kyushu Electric

Sugawara, Japan

STATUS: In operation since 2015

LIQUID BRINE + STEAM: 142 °C

ORC ELECTRIC POWER: 6 MWe



GKT Traunreut

Traunreut, Germany

STATUS: In operation since 2016

LIQUID BRINE: 118 °C

ORC ELECTRIC POWER: 4.1 MWe + 12 MWth



Geo Power Energy Development

Velika Ciglena, Croatia

STATUS: In operation since 2018

LIQUID BRINE + STEAM: 170 °C

ORC ELECTRIC POWER: 17.5 MWe

References



Cyrq Energy

Animas (NM), USA

STATUS: In operation since 2018

LIQUID BRINE: 155 °C

ORC ELECTRIC POWER: 14 MWe



Geothermie Holzkirchen

Holzkirchen, Germany

STATUS: In operation since 2019

LIQUID BRINE: 152 °C

ORC ELECTRIC POWER: 3.4 MWe + 10 MWth



Energy Development Corporation

Palayan, Bac-Man, the Philippines

STATUS: In operation since 2024

LIQUID BRINE: 170 °C

ORC ELECTRIC POWER: 29 MWe

References



LaGeo

Berlin, El Salvador

STATUS: In operation since 2025

LIQUID BRINE: 172 °C

ORC ELECTRIC POWER: 8 MWe



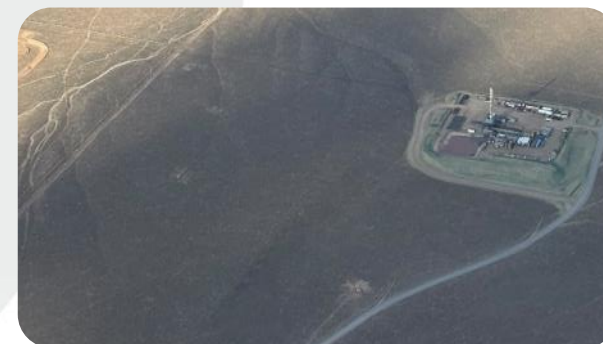
Eavor Erdwärme Geretsried

Geretsried, Germany

STATUS: Under construction

DESCRIPTION: Closed loop system

ORC ELECTRIC POWER: 8.2 MWe



Fervo Energy

Cape Station, Milford (UT), USA

STATUS: Under construction

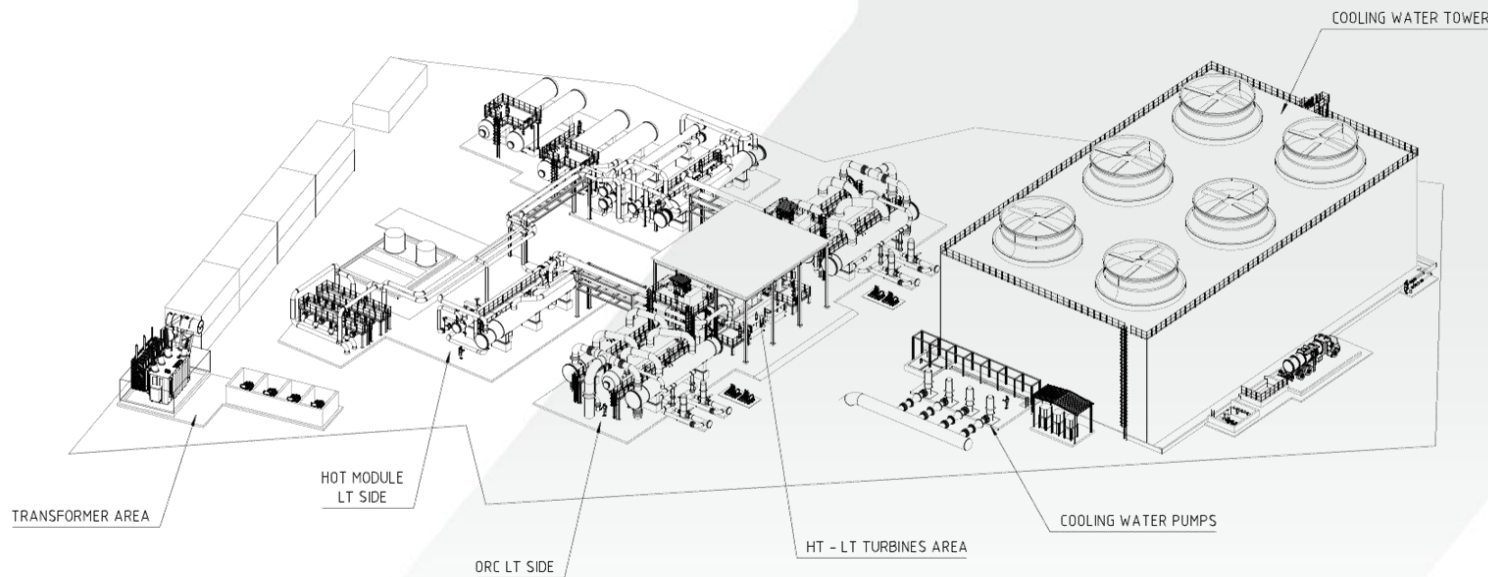
DESCRIPTION: EGS system

ORC ELECTRIC POWER: 120 MWe



*29 MW Turboden geothermal power plant in Palayan –
The Philippines*

Case History: EDC Palayan



In Bac-Man geothermal field, operated by BGI (100% subsidiary of EDC), the customer wanted to enhance the 140 MW current capacity by installing a 29 MW ORC binary plant inserted along the brine re-injection line (bottoming application). Project in operation since Q1 2024. JCM grant awarded.

PROJECT FEATURES

- Two-pressure level ORC cycle, using
- Hydrocarbon working fluids
- Water-cooled with cooling towers
- Acid dosing system for scaling inhibition

SCOPE OF SUPPLY

- Engineering
- Procurement
- Technical advisory for erection
- Commissioning
- Start-up services / training

Case History: Vulcan



Vulcan Energy needed to produce battery-grade lithium sustainably, while ensuring a local renewable energy source to enable a zero-carbon value chain within the Lionheart Project. The solution involves Turboden S.p.A., together with ROM Technik, delivering a 32 MWe geothermal power plant using ORC technology, capable of generating renewable energy as a co-product of lithium extraction through a closed-loop, zero-emission process.

PROJECT FEATURES

- Two-pressure level ORC cycle, using
- Hydrocarbon working fluids
- Air-cooled condenser

TURBODEN SCOPE OF SUPPLY

- Engineering
- Procurement
- Technical advisory for erection
- Commissioning
- Start-up services / training

ROM Technik: mechanical and electrical erection, civil works



www.turboden.com

Turboden S.p.A.

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