



ABOUT US



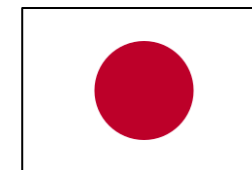
SINCE 1980 Turboden is an Italian firm and a global leader in the design, manufacture, and maintenance of Organic Rankine Cycle (ORC) systems.

ORC systems can generate electric and thermal power exploiting multiple sources, such as renewables (biomass, geothermal energy, solar energy), traditional fuels, and waste heat from industrial processes, waste incinerators, engines or gas turbines.

GLOBAL AND PROVEN EXPERIENCE



Head-quarter

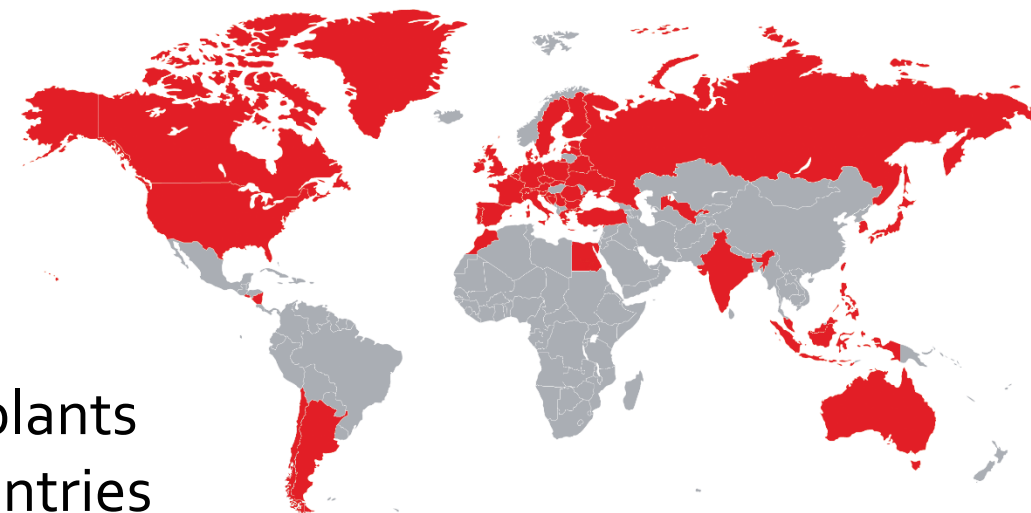


51% share-holder

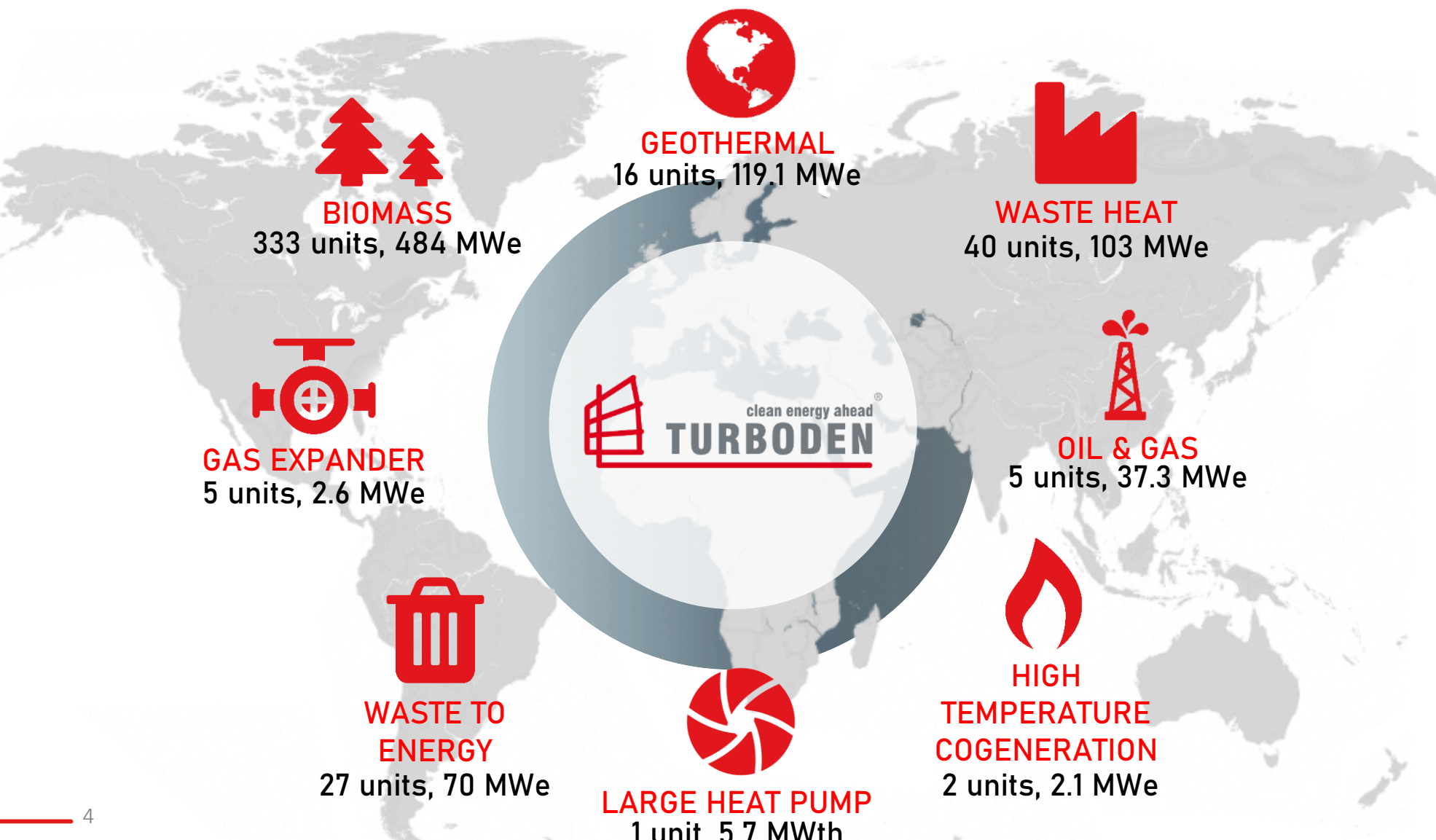


Local company in for ACC production

400+ plants
50 countries



GLOBAL AND PROVEN EXPERIENCE



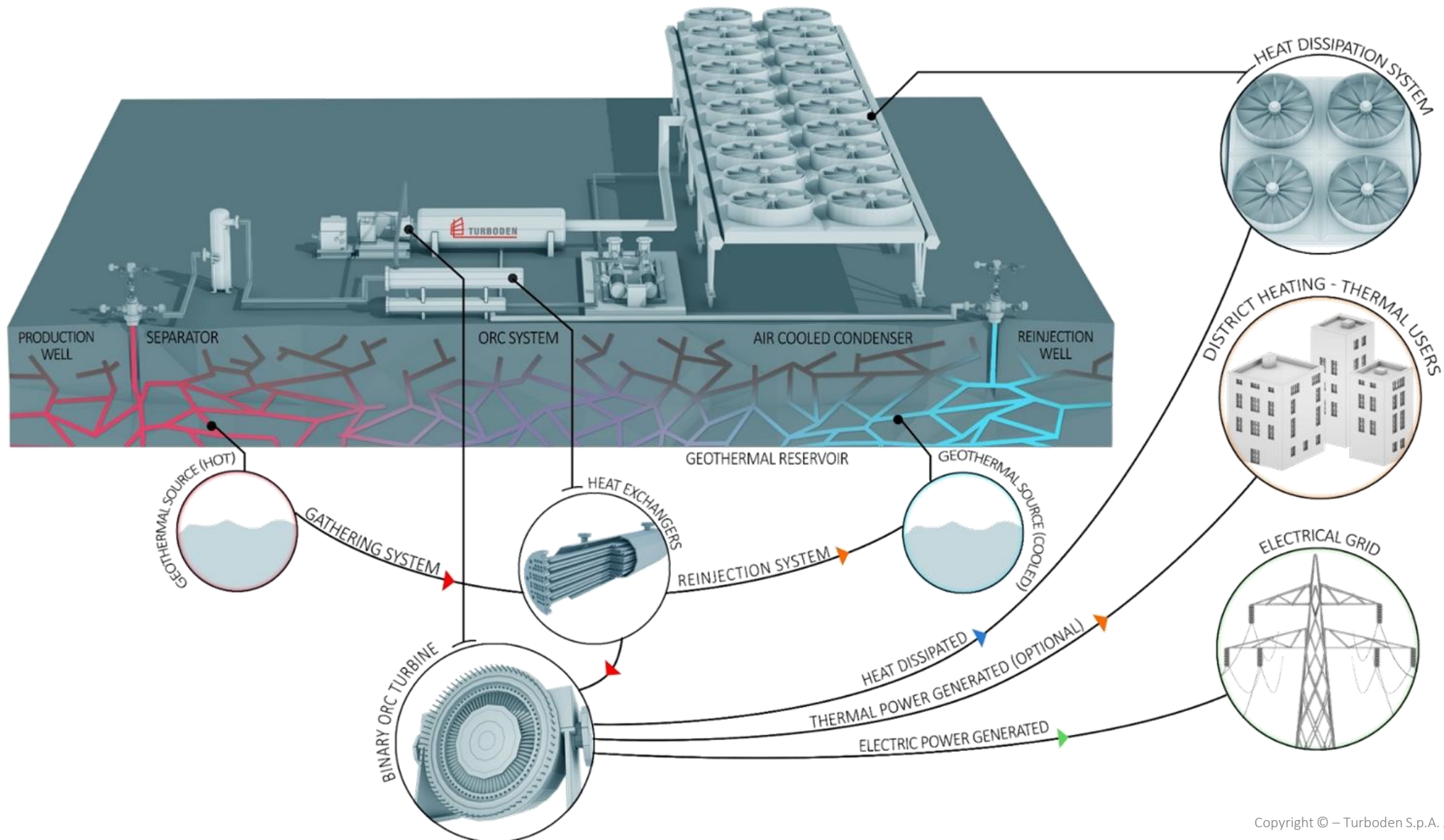
Experience in over
50
countries

With
430+
installations

Power generated
25 thousand
GWh

Cumulative operation time
20 million
hours

THE ORC CYCLE – HOW IT WORKS



TURBODEN SCOPE OF SUPPLY

Experience in delivering EPC / full turn-key solutions

Thermodynamic process and control philosophy designed by Turboden

Air Cooled Condenser designed and manufactured in-house

Heat Exchangers designed in-house, worldwide supply chain

Multi-stage axial turbine, Turboden proprietary design

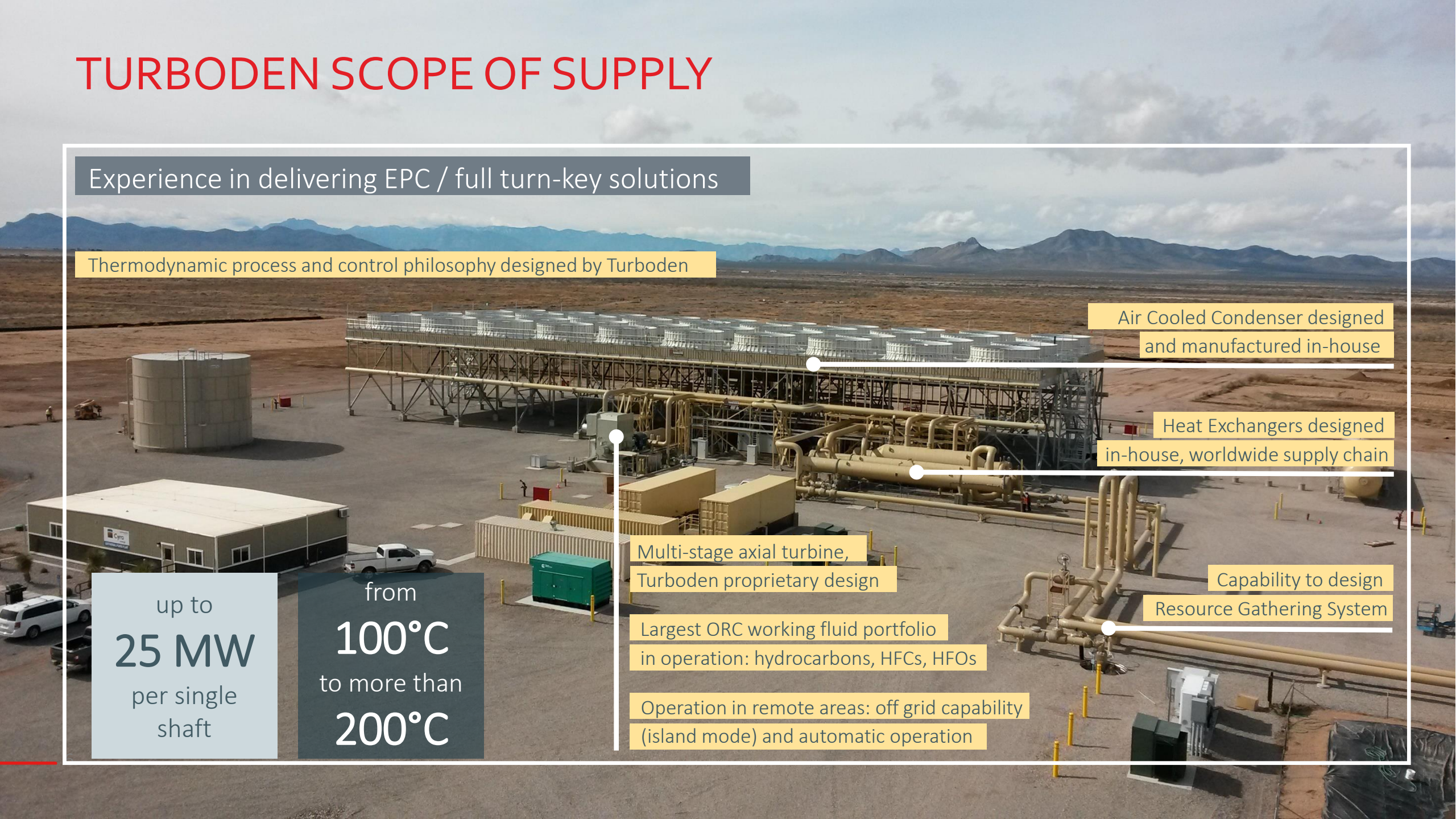
Largest ORC working fluid portfolio in operation: hydrocarbons, HFCs, HFOs

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

Capability to design Resource Gathering System

up to
25 MW
per single shaft

from
100°C
to more than
200°C



RUGGED EQUIPMENT



FOR ISLAND MODE
OPERATION OR REMOTE LOCATIONS

AIR COOLED SOLUTIONS



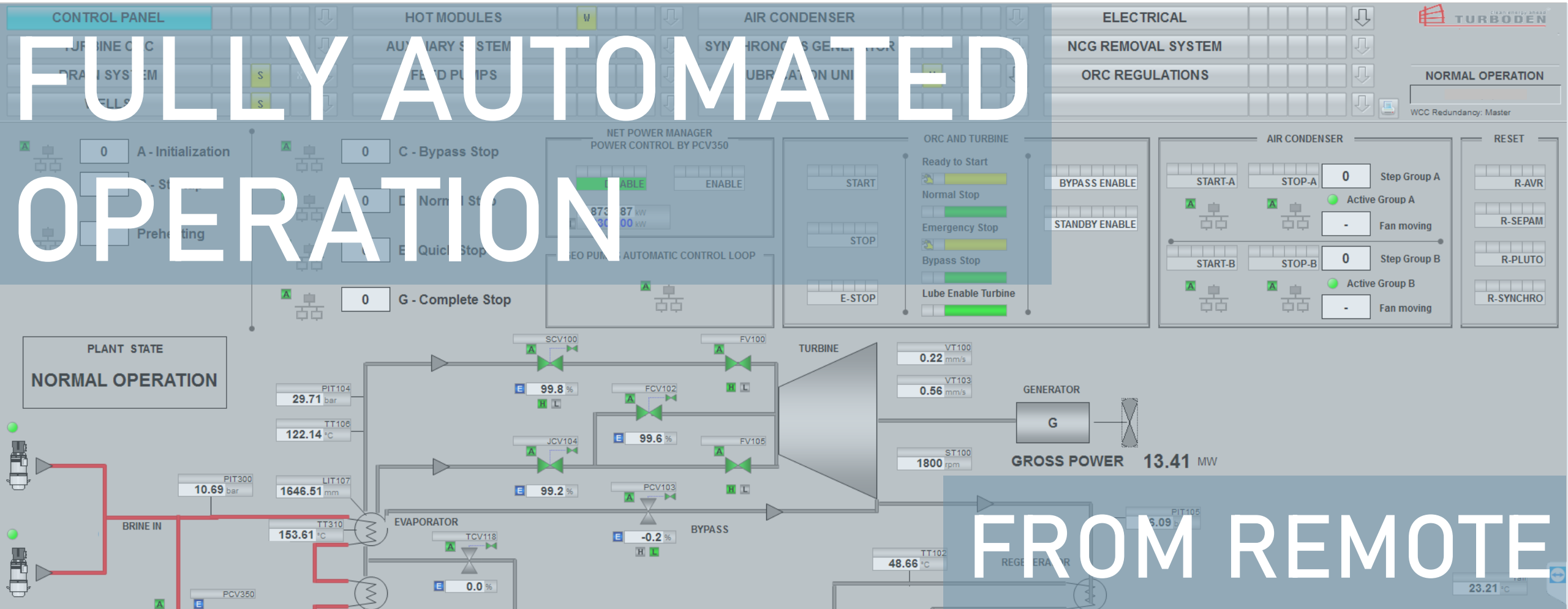
FOR WATER-FREE OPERATION

MODULARITY



FOR EASY MAINTENANCE

FULLY AUTOMATED OPERATION

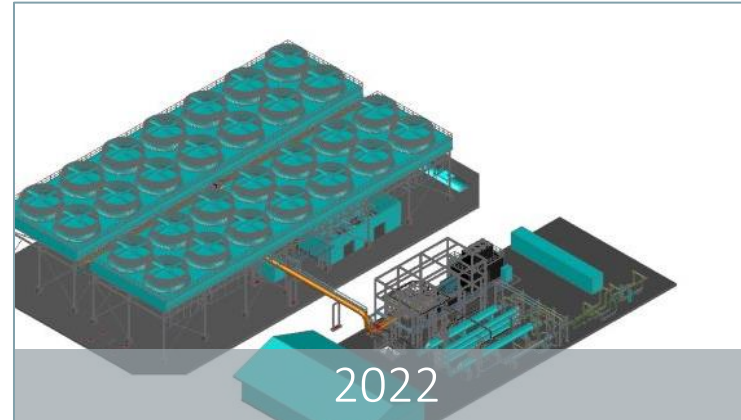


FROM REMOTE

SELECTED GEOTHERMAL REFERENCES



Site: Velika Ciglena, Croatia
Customer: Geo Power Energy development d.o.o.
Configuration: power only
ORC power: 17.5 MWe
Liquid brine + steam: 171 °C

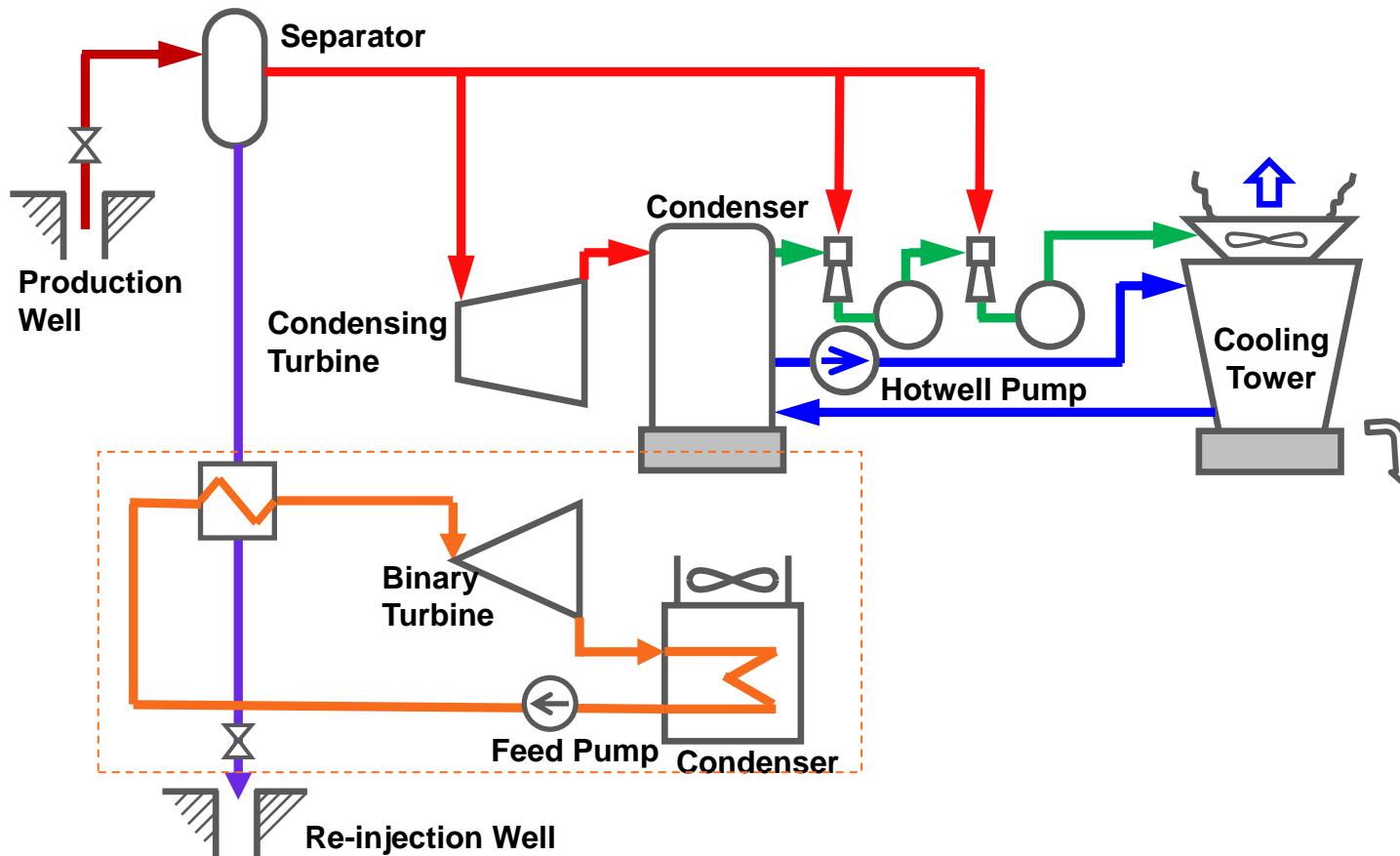


Site: Kirchweidach, Germany
Customer: EON
Configuration: power & heat
ORC power: 3.7 MWe
Liquid brine: 122 °C



Site: Palayan, Bac-Man, the Philippines
Customer: Energy Development Corp.
Configuration: bottoming plant
ORC power: 29 MWe
Liquid brine: 171 °C

BINARY CYCLES CAN BE COMBINED WITH TRADITIONAL SINGLE FLASH STEAM PLANTS



- 15 ÷ 40% ADDITIONAL POWER ACCORDING TO REINJECTION LIMITS (SCALING ISSUES IF SSI > 1)
- NO ADDITIONAL DRILLING REQUIRED
- BINARY PLANT CAN USE EXISTING COOLING SYSTEM
- EASY ACCESS TO FINANCING BECAUSE THERE IS NO DRILLING RISK



FILIPPO VESCOVO

Sales Area Manager – Middle East & Africa

Filippo.vescovo@turboden.it



Thank you!