



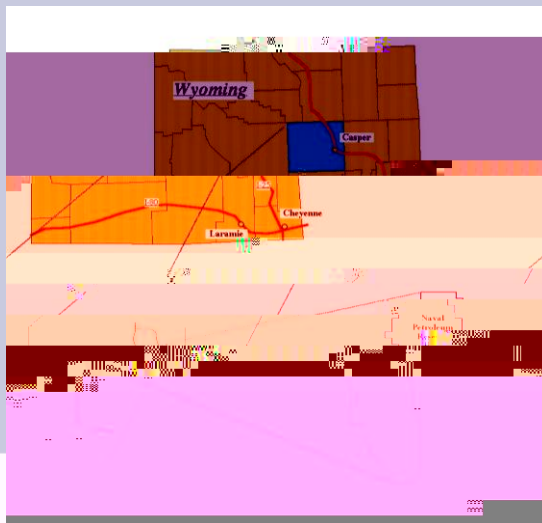
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U.S.DOE's GTP¹, RMOTC² and NREL³

Location of RMOTC



NPR-3 is 35 miles north of Casper, WY

- 9481 acres
- 650+ wells
- 9 Oil producing formations
- 2 formations $> 200^{\circ}\text{F}$
- Geothermal Gradient is $\sim$ twice normal gradient
- Produced brine of high quality (2500 – 3000 TDS)
- Extensive recharge region
- Government owned and operated



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Project Goals



- Show the relative seamless integration of the technology into the oil field infrastructure.
- Demonstration of the long term operations of binary power generation units in an oil field environment
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Initial Binary Unit



- Ormat nominal 250 kW ORC unit
- Isopentane working fluid
- Air cooled condenser
- Unit installed under testing program with Ormat Technologies





Second Binary Test Unit



Pratt & Whitney Pure Cycle 280
Genetron 245fa operating fluid
Water cooled Condenser



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Project Plans



- Continue operation of the air-cooled unit for a minimum of 2 more years
- Finalize installation and commence operation of a water-cooled power generation unit of a nominal 250 kW capacity for three years
- Perform data collection, data analysis and information dissemination for both units. Integrate non proprietary data into the National Geothermal Data System (NGDS)
- Evaluate system improvements that increase system efficiency and provide better system economics. Seek improvements suggestions from other sources.
- During this time, RMOTC will also be operating a test facility for smaller geothermal systems and is developing plans for EGS applications and testing

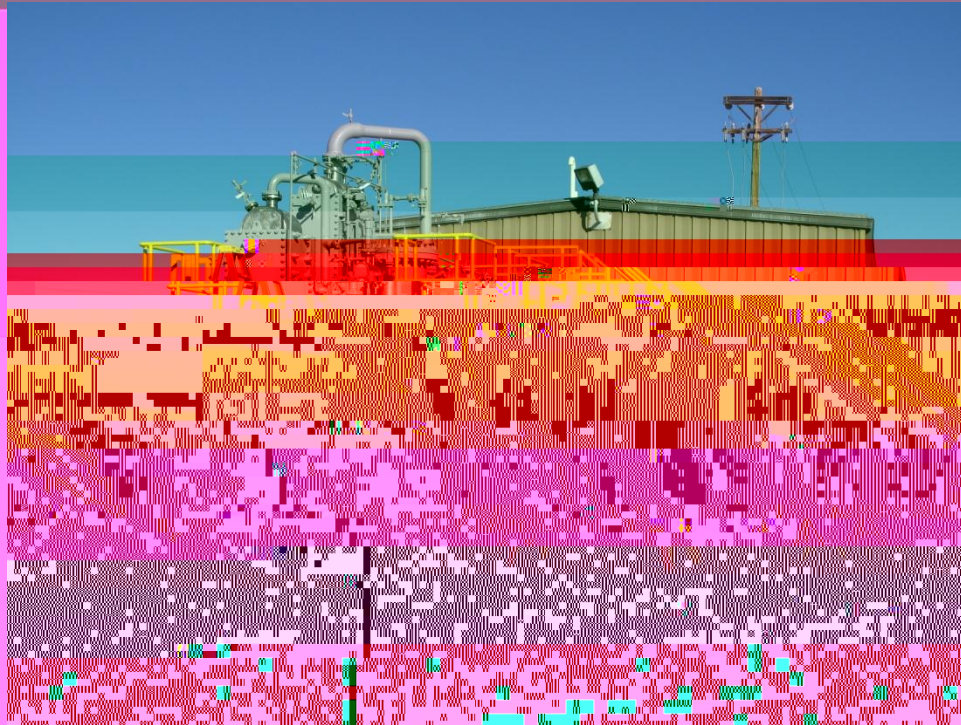


Project Plans



- Continuously monitor/record data on the Ormat and UTC unit
- Collect/analyze data:
 - Power output
 - Parasitic losses
 - Ambient weather effects
 - System temperatures, pressures and flow rates
 - Modeling system parameters to evaluate system improvements: system efficiency, LCOE, base load power offset.
- Integration of non proprietary data into the National Geothermal Data System (NGDS)
- Data display screens of non proprietary data will be made available to the public
- Evaluation of hybrid cooling technologies and other power output improvement technologies

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Thank You

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