U.S. DEPARTMENT OF ENERGY

Office of ENERGY EFFICIENCY & RENEWABLE ENERGY

Geothermal Technologies Office

Low Temperature & Coproduced Resources
Reservoir Thermal Energy Storage (RTES) Portfolio

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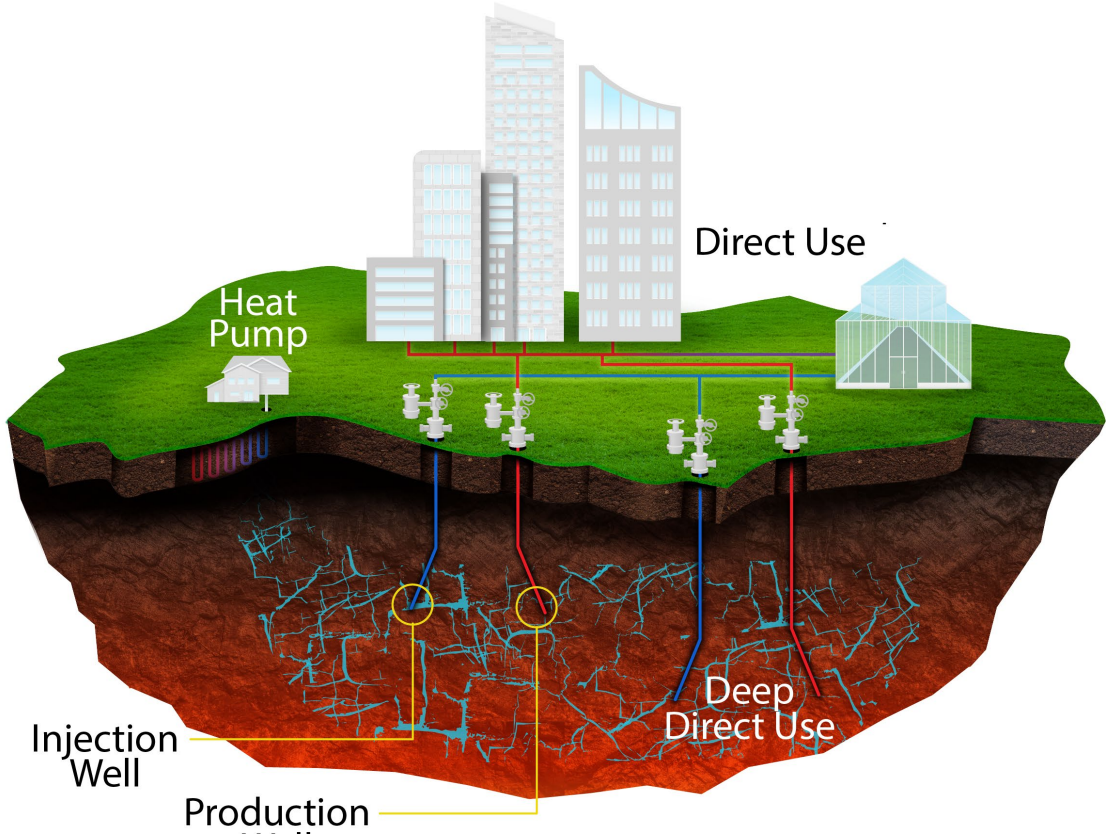
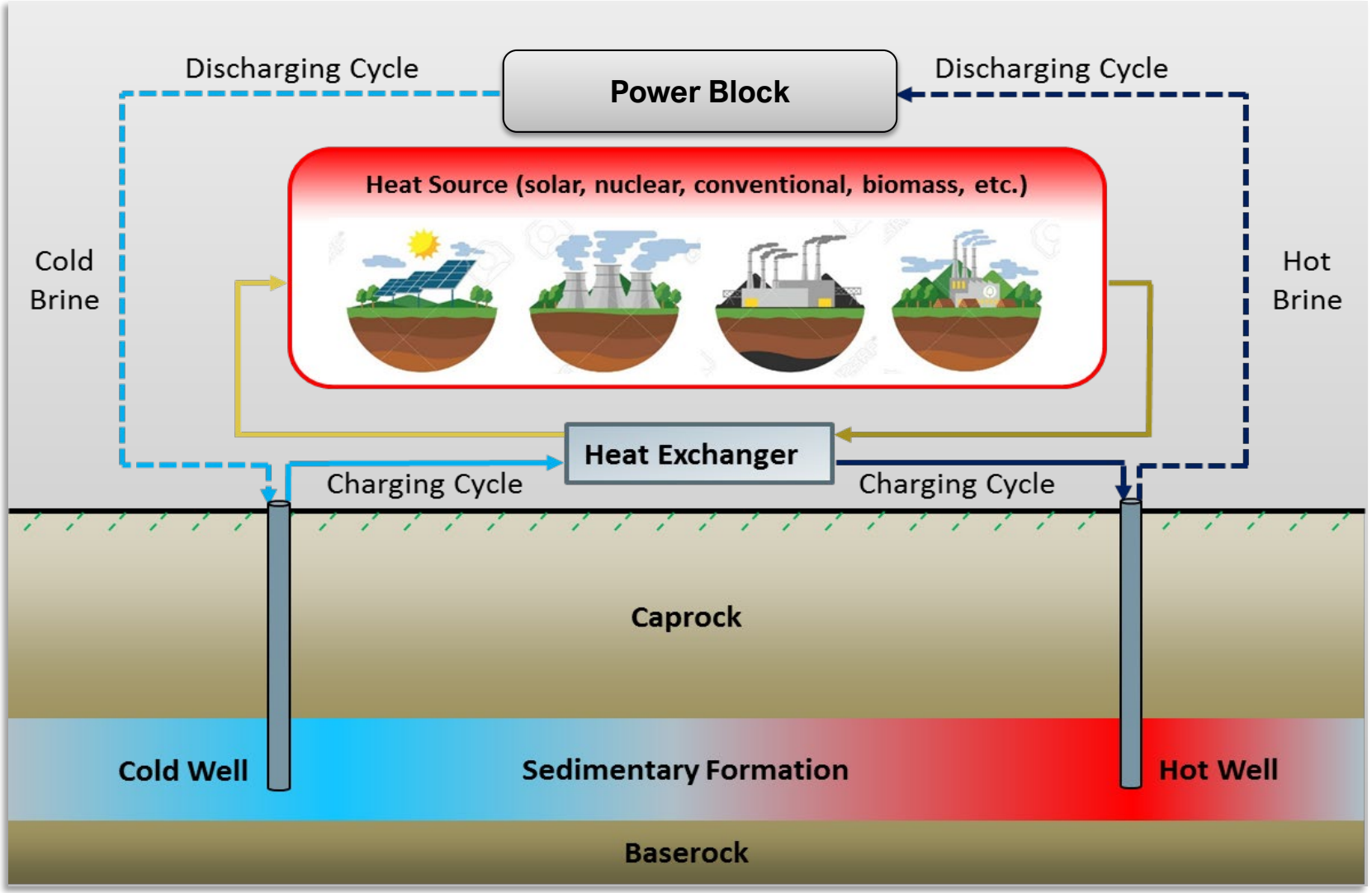
Low-Temperature Geothermal Overview

Geothermal Heat Pumps	• Entering Water Temp (40-80°F) • Shallow trenches to wells hundreds of feet deep • Residential, light commercial
Direct Use and Thermal Energy Storage ★	• Entering Water Temp (80-300°F) • Wells hundreds to thousands of feet deep • Large buildings, agriculture, manufacturing
Electric Power	• Entering Water Temp (>150°F) • New Organic Rankine Cycle Modular • Distributed off-grid power

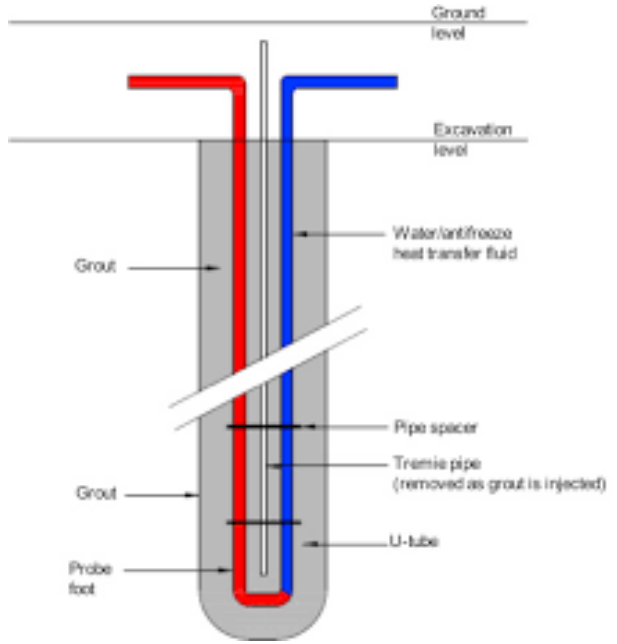


Reservoir Thermal Energy Storage (RTES) Overview



Includes:

- Aquifer Thermal Energy Storage
- Borehole Thermal Energy Storage
- Example borehole:



GTO's RTES Portfolio

GTO's Reservoir Thermal Energy Storage Portfolio:

- Is part of DOE's Energy Storage Grand Challenge
- Supports energy independence from the larger grid during outage events enabled by daily and seasonal energy storage technologies
- Provides grid services voltage support, frequency response, and grid stabilization