U.S. DEPARTMENT OF ENERGY

Sandia National Laboratories

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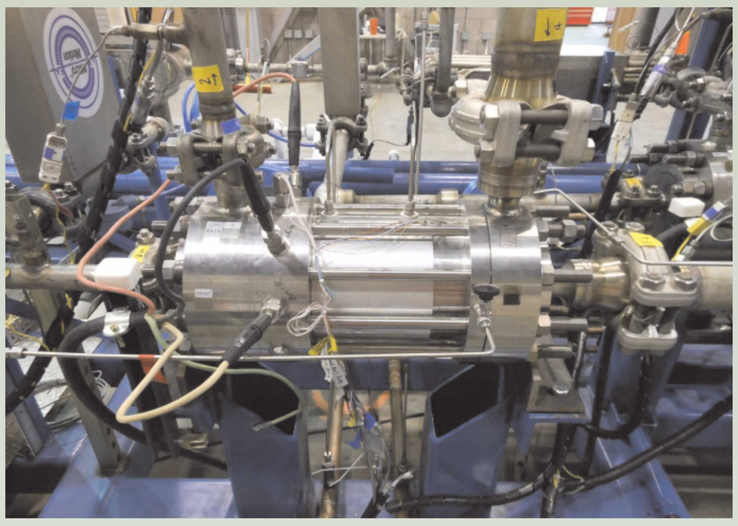
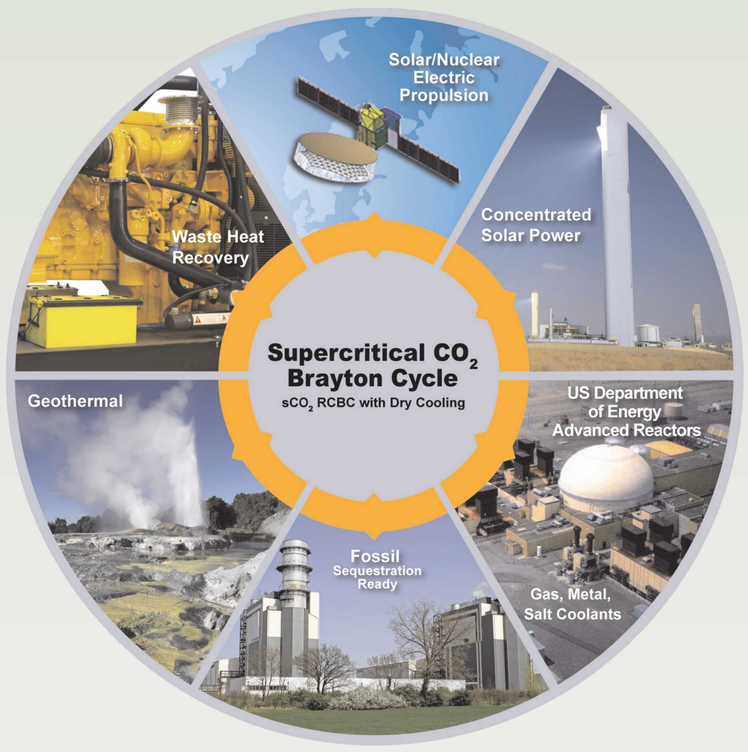
# The Supercritical $CO_2$ Brayton Cycle



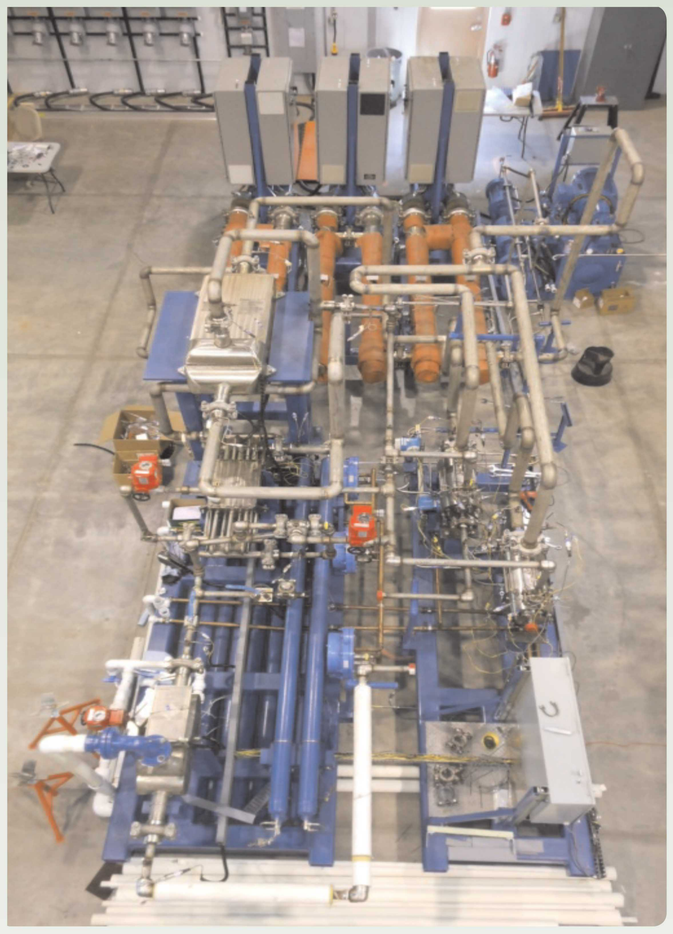
## A Compact, High-Efficiency 21st Century Energy Conversion Technology

### World's First Recompressor Closed Brayton Cycle (RCBC) Power Production Using Supercritical $CO_2$

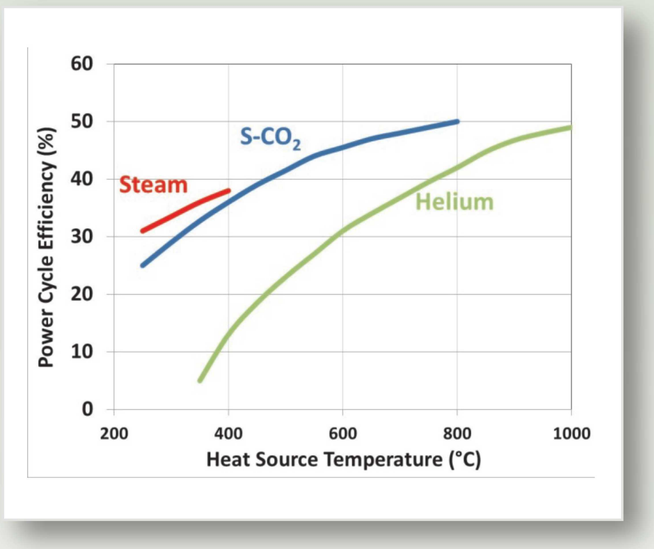
### $S\text{-}CO_2$ power technology can be used with <u>any</u> heat source



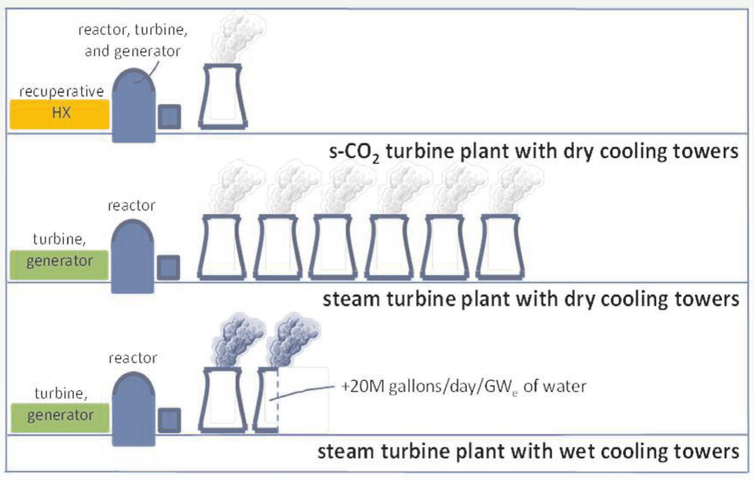

Fossil, nuclear, concentrating solar, geothermal, waste heat recovery, etc.



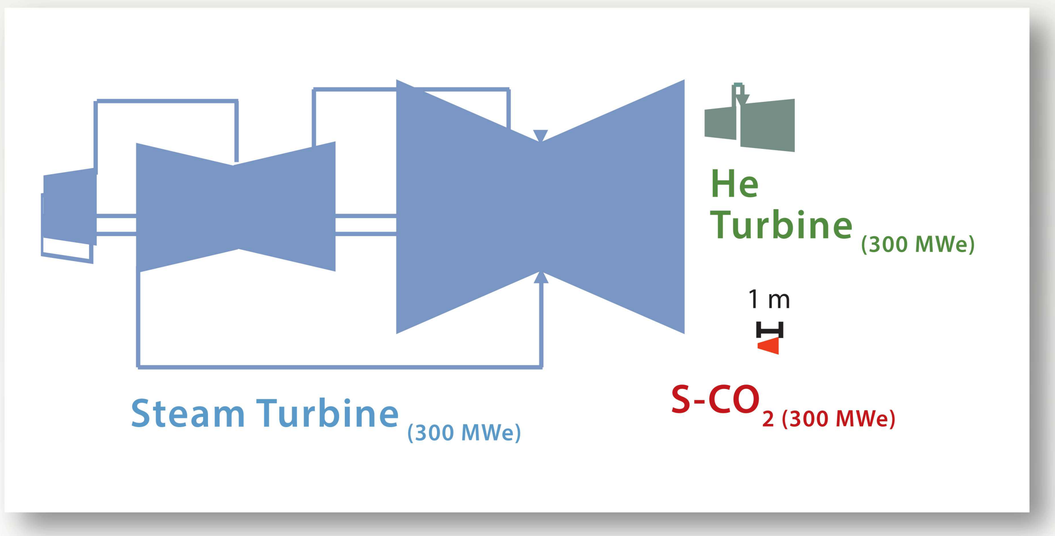
### Cycle Efficiency as a function of temperature for several types of power conversion systems




### "Artist's conception" of dry-cooled $s\text{-}CO_2$ plant as compared to steam




Assuming dry natural draft units, $s\text{-}CO_2$ may be competitive with wet-cooled steam plants. Plus higher thermal efficiency

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