Gas Turbine CHP Essentials

Solar® Turbines, Inc

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GovEnergy

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Agenda

- Gas Turbine Advantages
- Right Tool, Right Job
- New Developments
- Looking to the Future
- Summary

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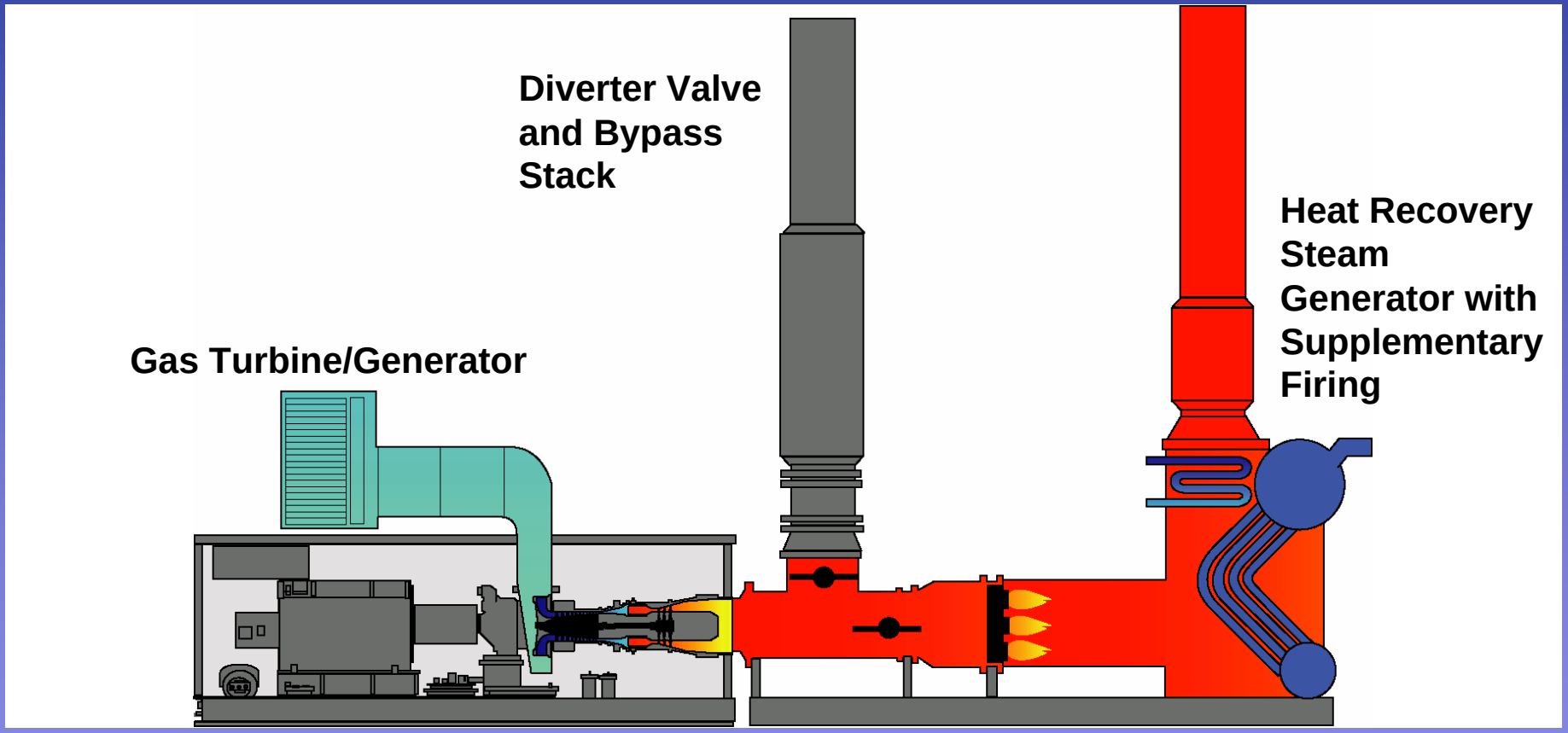
Solar Turbines, Inc

- Owned by Caterpillar
- World leader in industrial turbines (1-15 MW)
- >11,000 gas turbines sold
- Based in San Diego, Ca
- Serve Oil & Gas, Power Generation (CHP) applications

Typical Gas Turbine CHP



Gas Turbine High Points

- Waste heat—high quality/high temp
- High availability—typically 97%
- Simple, quick overhaul
- Operate in island mode
- Exhaust can be duct-fired
- Low emissions

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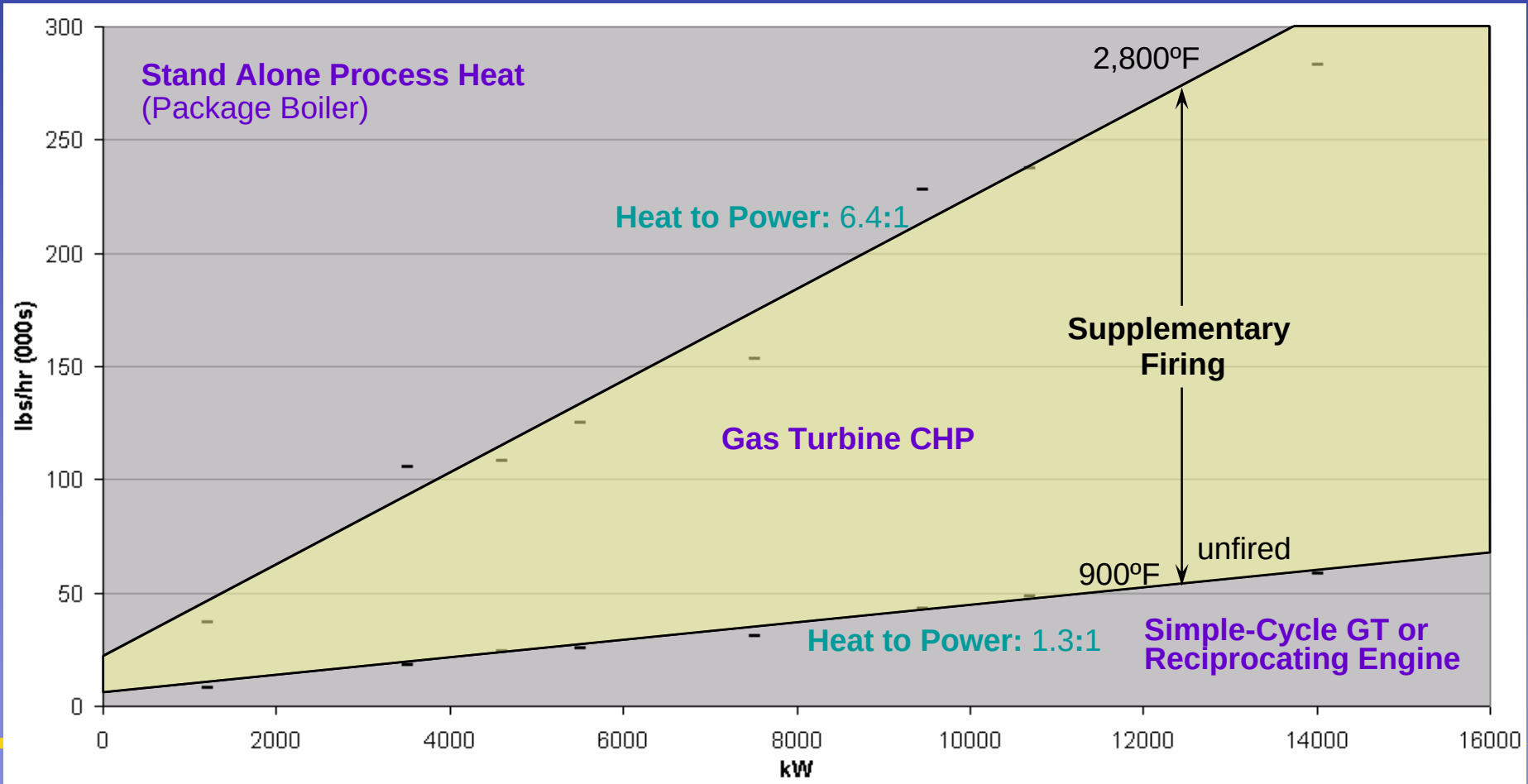
Boiler Vs. Recip Vs. Turbine

- Heat-to-power ratio
- Boilers: all heat, no power
- Recipocating engines: 1.0
- Turbines: 1.3 to 6.4
- Duct-firing produces variable heat-to-power
- Steam turbine shifts heat-to-power

Heat-to-Power Ratio



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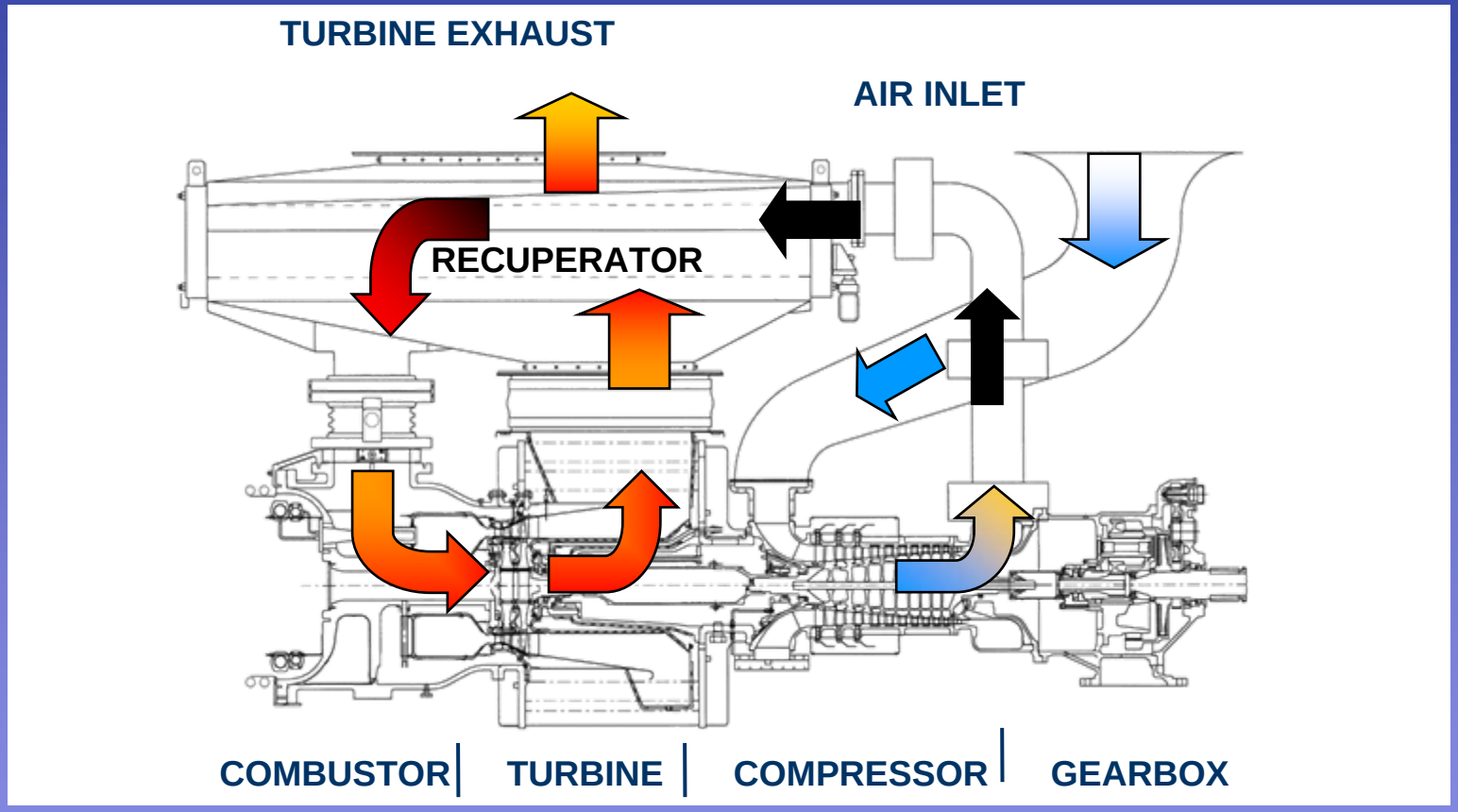
Mercury 50 (Recuperated)

- DOE partnership
- Highest GT efficiency
- Ultra-low emissions
- Designed for durability
- Burns landfill, digester, or natural gas
- 27 sold, 20 operating
- 4.6 MW

Mercury 50 Flow Path



Taurus 65—High Efficiency

- Designed for high CHP efficiency
- Newest Solar turbine
- Low emissions signature
- Advanced materials turbine
- High firing temperature
- 6.3 MW ISO

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Gas Turbine Future

- Higher GT efficiency
- Higher CHP efficiency
- Lower emissions
- Fuel flexibility
- Enhanced remote monitoring

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Summary

- GT CHP well established—100's of installations
- Adapting to changing world
- Flexible CHP driver
- Long history with renewable fuels
- Low CO_2 emissions with methane fuels

For More Information

- Would you like to know more about this session?
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Don’t forget to fill out and drop off your session evaluations!

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