

Storer YMCA Camps Firewood System

Heat the Midwest

Carlton, MN

April 2013



WOOD EDUCATION
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Storer YMCA Camps Jackson, MI



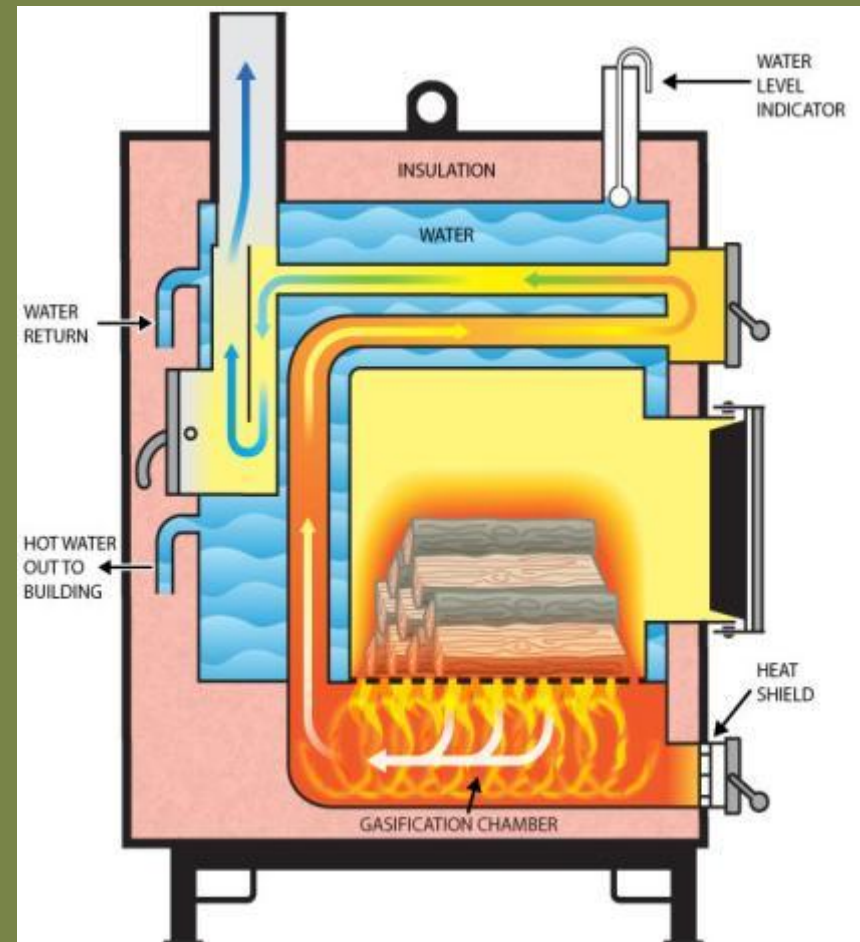
Today's Presentation

■ Storer YMCA Camps Project

- EPA Phase 2 Furnaces - Non-Pressurized
 - Heatmaster G400 – 375,000 btu/hr
 - Heatmaster G200 – 200,000 btu/hr
- Thermal Storage – 1600 gallons
- 2 buildings – Malachi Dining Hall and Net-Zero Classroom – 17,600 ft² + DHW
- Web-based Monitoring System
 - <http://my.flsenergy.com/storer>

Heatmaster G-400

- Atmospheric or open system
- Not pressurized
- Water quality important
- Two stage combustion
- Fuel management important



Storer Heatmaster Boilers



Thermal Storage Tank – 1,600 gal

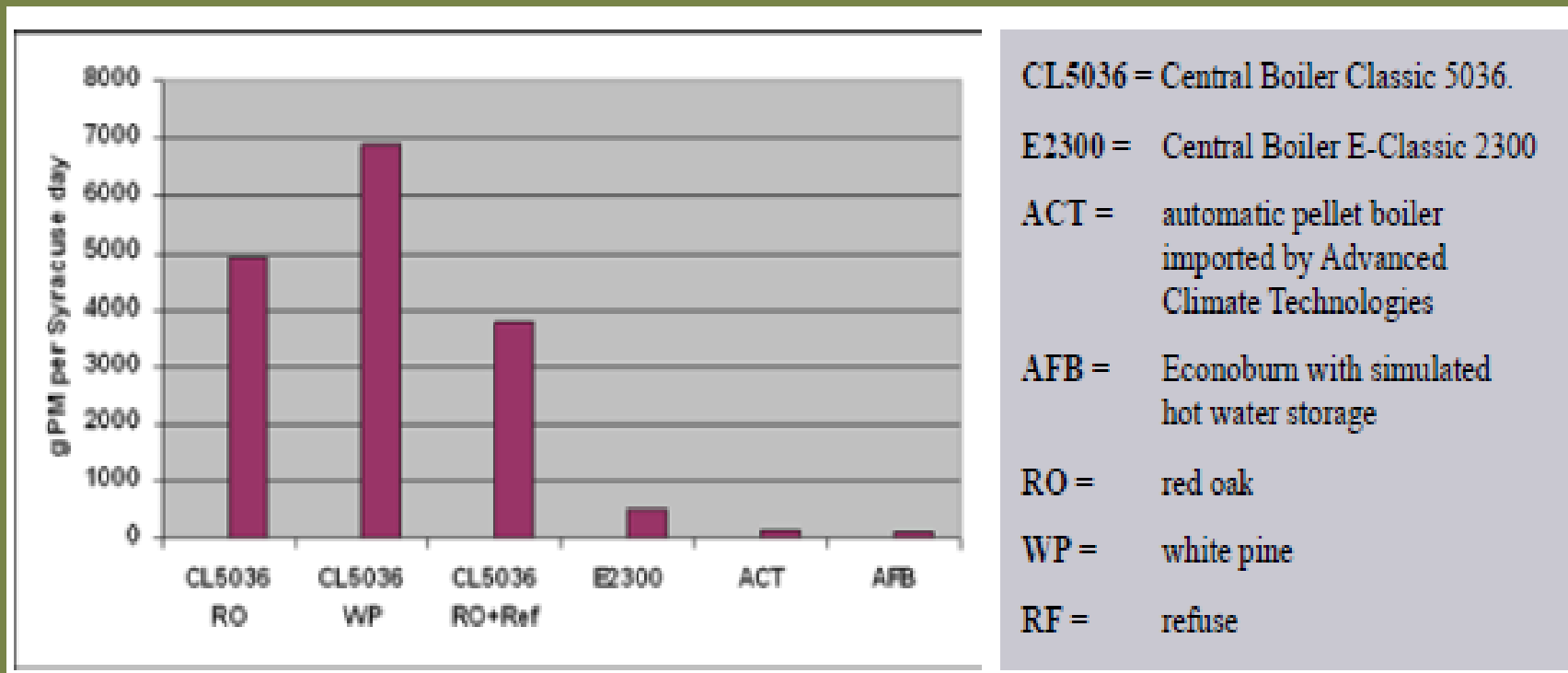


Thermal Storage Benefits

- Allows system to burn most efficiently
- Expands the use of the boiler into the summer months
- Reduces problems related to creosote build up
- Significantly reduces emissions

Impacts of Storage on Emissions

■ NYSERDA Research Project Results

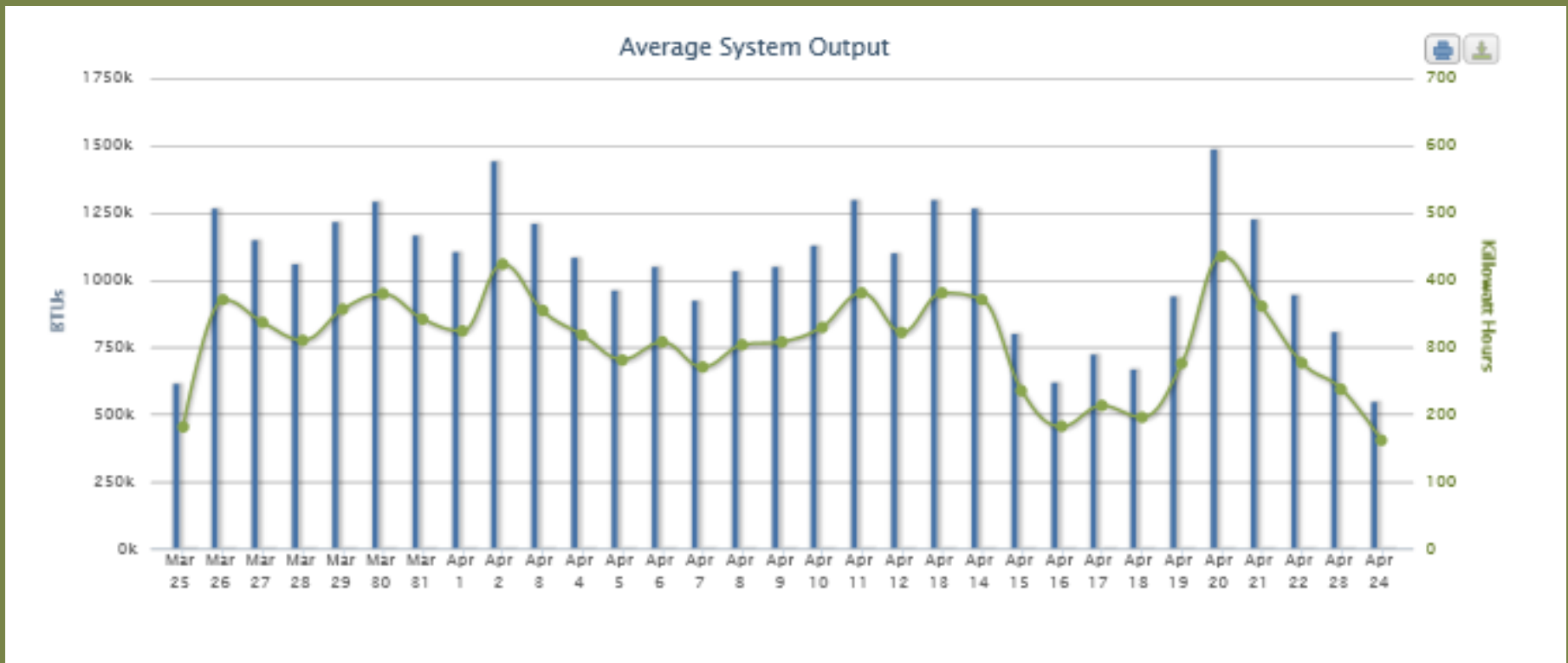


Quote from NYSERDA Report

- The Econoburn with simulated hot water storage would have operated at full load for $\frac{1}{4}$ of the day under this cycle and then shut down, resulting in comparative daily emissions of 20-25% of those of the E-Classic and less than 5% of the conventional OWB.
- **Final Report 10-19 August 2010**

Storer Camps Monitoring System

■ G400 output to storage



Storer Camps Monitoring System

- <http://my.flseenergy.com/storer>

For more information

<http://na.fs.fed.us/werc/biomass/index.shtm>



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