1. List your energy opportunities in the Tool. Send the Excel file, a picture, or screen shot.

2. If you have wet bulb approach control: revisit Condenser Check sections 3, 4, and 5.
    a. Do you have a handheld temp and RH sensor? If not, check a nearby weather station online.

Email opportunity ideas and updated condenser check to: steve.koski@cascadeenergy.com and guow@ornl.gov

Condenser Check

Date:	**Site:**
Completed By:	**Engine Room:**

1) Basic Condenser Information:

Condenser Name:					**Total Fan hp:**	
Manufacturer:					**Total Pump hp:**	
Model:					**Pump Location:**	Integral Remote
Serial:					**Pump Throttled:**	No Yes
Condenser Type:	Forced Draft	Induced Draft	Standard	Hybrid	Water Saving	
Fan Type:	Centrifugal Fan	Axial Fan				
Fan Controls:	VFD	Cycling	Two Speed			

2) Pressure Calibration:

	Control System	**Test Gauge**
Condensing Pressure:	psig	psig

3) Temp and RH Calibration:

	Control System	**Test Probe**
Dry Bulb Temp:	°F	°F
Relative Humidity:	%	%
Wet Bulb:	°F	°F

4) Wet Bulb Approach Calculation Check:

Condensing Pressure Control:	Fixed	Wet Bulb	**Fixed Setpoint:**	psig

Wet Bulb Temperature:	°F	Displayed in control system, calculated from Dry Bulb and Relative Humidity
Approach Setpoint:	°F	Displayed in control system, typically 5-25°F
Floating Temperature Setpoint:	°F	Wet Bulb Temp + Approach
Floating Pressure Setpoint:	psig	Convert temp to pressure with NH3 table
Minimum Float Pressure:	psig	Displayed in control system
Maximum Float Pressure:	psig	Displayed in control system
Final Condensing Setpoint:	psig	Displayed in control system

5) Condenser Approach Check:

Test condenser approach in warm or hot weather when head pressure is floating above setpoint and all condensers are at maximum capacity.

Condensing Pressure:	psig	From control system or test gauge
Condensing Temperature:	°F	Convert pressure to temp with NH3 table
Wet Bulb Temperature:	°F	From control system or test probe
Condensing Approach to Wet Bulb:	°F	Condensing Temp - Wet Bulb Temp

6) Tube Bundle and Spray Check

Shut down the fan on one condenser. Remove some or all drift eliminators. With the pump on, check the following:

% of Nozzles Clear:	%	**Notes on Tube Bundle (Sprays, Rust, Scale, Biofilm, etc.)**
% Spray Coverage:	%	
Scale Presence, Thickness:		
Rust Present:	Yes No	
Biofilm Present:	Yes No	
Take picture of tube bundle:	Yes No	

7) Non-Condensable Check

Measure liquid drain line temperature at bottom of pipe after flows combine.

Liquid Drain Line Temp:	°F	Measured
Saturated Condensing Pressure:	psig	Convert liquid temp to pressure with NH3 table
Measured Condensing Pressure:	psig	From control system or test gauge
Non-Condensable Pressure:	psi	Difference of above pressures

A pressure difference of 10 psi or more is cause for action. Check auto purger, check purge point solenoids, manual purge, etc.